City of West Covina

2016 General Plan Update and Downtown Plan and Code

Final

Environmental Impact Report

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December 2016

rincon

Environmental Scientists Planners Engineers

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Environmental Impact Report

2016 General Plan Update and Downtown Plan and Code

Prepared by:

City of West Covina
Planning Department
1444 West Garvey Avenue South
West Covina, CA 91790
Contact: Jeff Anderson, Planning Director
626-939-8422

Prepared with the assistance of:

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, CA 93003
805-644-4455

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EXECUTIVE SUMMARY

This document is an Environmental Impact Report (EIR) examining the potential environmental effects of the proposed City of West Covina 2016 General Plan Update and Downtown Plan and Code, jointly defined as the "proposed project" for purposes of this environmental review. This section summarizes the characteristics of the proposed project, project alternatives, and the project's environmental impacts.

PROJECT SYNOPSIS

Project Applicant

City of West Covina
1444 West Garvey Avenue South
West Covina, CA, 91790

Project Location

West Covina is located in the greater Los Angeles metropolitan region in eastern Los Angeles County (see Figure 2-1 in Section 2.0, *Project Description*). The City is located at the eastern end of the San Gabriel Valley, which is framed by the San Gabriel Mountains on the north, the San Rafael Hills on the west, the Puente Hills on the south, and the Chino Hills and San Jose Hills on the east. Located approximately 18 miles east of Downtown Los Angeles, 18 miles west of Ontario International Airport, 20 miles northeast of Long Beach Airport, 25 miles northeast of the ports of Los Angeles and Long Beach, 25 miles east of Los Angeles International Airport, 25 miles southeast of Burbank Airport, 25 miles north of John Wayne Airport, and 35 miles west of San Bernardino, West Covina is centrally located between major metropolitan centers and transportation hubs.

With an estimated 2016 population of approximately 107,873, West Covina is the thirteenth most populous of the county's 88 cities (State of California, Department of Finance, May 2015). It is surrounded by the following incorporated cities and unincorporated areas within Los Angeles County: Irwindale, Covina, and Vincent to the north; Walnut and an unincorporated area to the east of Grand Avenue to the east; Industry and La Puente to the south; and Valinda and Baldwin Park to the west.

Project Description

The project analyzed in this EIR is the proposed City of West Covina 2016 General Plan Update and Downtown Plan and Code. The proposed project includes two separate but closely related elements: an update of the City of West Covina General Plan (entitled and hereafter referred to as PlanWC); and a new Downtown Plan and Code. The following is a summary of the full project description, which can be found in Section 2.0, *Project Description*.

<u>2016 General Plan Update (PlanWC)</u>

PlanWC is the first comprehensive update of the City's General Plan since 1985, and establishes the community's vision for future development of the City over the next 20 years. As part of PlanWC, the General Plan has been reorganized and reformatted, with updated goals and

policies that reflect the community's vision of West Covina. The City's General Plan Land Use Map has also been updated to reflect the community's vision to direct the majority of new growth to the City's Downtown, where development pressures are greatest and change is desired. Housing and job growth is targeted to strategic areas along the corridors and neighborhood centers.

PlanWC includes the following eight Elements:

- Our Natural Community
- Our Prosperous Community
- Our Well Planned Community
- Our Accessible Community
- Our Resilient Community
- Our Healthy and Safe Community
- Our Active Community
- Our Creative Community

PlanWC establishes the regulatory geography and sets the stage for coding. The Downtown Plan and Code's regulatory framework seamlessly carries the logic of good design and sound planning from the scale of a building, lot and block to the scale of neighborhood, community, and city.

Downtown Plan and Code

The Downtown Plan and accompanying form-based code seeks to form consensus around and establish a common image for Downtown West Covina as a livable, healthy and economically vibrant center for the community. The Downtown Plan and Code will guide public funding and seek to attract private investments. The central theme of PlanWC is Downtown First. As the Downtown Plan and Code and PlanWC were prepared and adopted simultaneously, the two documents are entirely consistent with each other.

The Downtown Code provides all requirements for development and land use activity within the boundaries identified in the Code (see Section 2.4, *Project Location*). Except as specifically referenced within the Downtown Code, the West Covina Municipal Code requirements in place prior to the adoption of the Downtown Code would be replaced by the requirements of the Downtown Code within these boundaries.

Characteristics of the Proposed Project

Based on a market assessment, PlanWC projects development in West Covina over the next 20 years, with a large majority of this growth directed to the Downtown. A full description of characteristics of the proposed General Plan Update and the eight Elements making up PlanWC can be found in Section 2.0, *Project Description*.

Informed by a collective vision of the community, the Downtown Plan advocates for a new urban form that is compact and walkable, with parks, plazas, and civic destinations framing key gathering spaces for the community. The Downtown Plan and Code articulates a compelling vision and clear and precise standards to ensure a prosperous, accessible, resilient, healthy, and inclusive future for Downtown West Covina. The Plan Area for the Downtown Plan and Code are shown in Figure 2-3 (see Section 2.0, *Project Description)*.

Project Objectives

The goals of PlanWC and the Downtown Plan and Code are the following:

- *Direct new growth to the Downtown area where development pressures are the greatest and change is desired, while protecting stable residential areas. This strategy is referred to as "Downtown First."*
- *Target housing and job growth in strategic areas along key transportation corridors.*
- *Encourage pedestrian-oriented mixed-use development in Downtown, while providing vibrant public spaces and gathering places.*
- *Preserve existing open spaces, improve the quality of natural resources, and improve access to open space.*
- *Maintain and monitor West Covina's fiscal health by reinforcing West Covina's brand as a great place to Live, Work and Play in the San Gabriel Valley, and nurturing local businesses and attracting non-retail jobs.*
- *Design streets that provide safe access for all users – pedestrians, cyclists, public transit users, and motorists – of all ages and abilities, while also being in harmony with the area's history, environmental resources, and overall aesthetic.*
- *Support development patterns and support systems that yield a resilient low-carbon built environment.*
- *Create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity.*
- *Become a vibrant cultural center by weaving the arts and local heritage into everyday life.*
- *Enhance the value of fitness and celebrate healthy living; improve the existing condition of public open spaces and facilities to encourage use; and acquire, develop, and maintain quality public open spaces and trails.*

Required Discretionary Approvals

With recommendations from the City's Planning Commission, the West Covina City Council will need to take the following discretionary actions in conjunction with the proposed project:

- Certification of the Final EIR
- Approval of the proposed General Plan Update and Downtown Plan and Code

West Covina adopted its current Housing Element in October 2013, covering the period 2014-2021. This Housing Element was submitted to the California Department of Housing and Community Development (HCD) for review and comment, and the City received certification of the Housing Element from HCD in November 2013. Minor revisions have been made to the 2014-2021 Housing Element to make it consistent with the General Plan. The City received a pre-certification letter from HCD for this Housing Element revision in August 2016. The revised Housing Element is included in the General Plan amendments that will require approval by the City as part of adoption of the proposed project.

ALTERNATIVES

As required by CEQA, this EIR examines alternatives to the proposed project. The alternatives studied in this EIR are the following:

- ***Alternative 1: No Project (1985 General Plan):*** *This alternative assumes that the proposed project would not be adopted, and the existing General Plan would remain in effect and continue to facilitate development in accordance with existing land use designations.*
- ***Alternative 2: Reduced Development:*** *The Reduced Development Alternative would accommodate 50% less growth of all types than the proposed project, although development is assumed to occur in the same general locations as under the proposed project, and be subject to the same goals, policies, and development standards as under the proposed project.*
- ***Alternative 3: Dispersed Development:*** *The Dispersed Development Alternative would accommodate the same amount of growth as the proposed project, but would not concentrate as much of this development in the Downtown. This alternative assumes that PlanWC and the Downtown Plan and Code would still be adopted, but would be altered to not include the aspects of these plans promoting the majority of new growth for the Downtown, and instead allow or promote spreading this growth more evenly throughout the City.*

CEQA requires that an environmentally superior alternative be identified among those analyzed, and also requires that if the No Project Alternative is identified as the environmentally superior alternative, the most environmentally superior alternative other than the No Project Alternative also be identified. When taking every environmental impact area into account, *Alternative 2: Reduced Development* is the environmentally superior alternative, followed by *Alternative 3: Dispersed Development*, then *Alternative 1: No Project*. Using this method of analysis, *Alternative 2: Reduced Development* is environmentally superior to the proposed project, and *Alternative 1: No Project* and *Alternative 3: Dispersed Development* are environmentally inferior to the proposed project.

Alternative 2: Reduced Development is environmentally superior to the proposed project because it would reduce impacts related to the amount of development called for under the proposed project. Even under this alternative, however, the proposed project's one potentially significant and unavoidable impact (potential impacts from traffic congestion at intersections not controlled by the City, such as freeway ramps) remains potentially significant and unavoidable. Additionally, this alternative would not meet the project objectives to as great a degree as the proposed project; or be as consistent with the goals, policies and actions contained in the *Our Prosperous Community* chapter of PlanWC as the proposed project.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table ES-1 summarizes the environmental impacts of the proposed project, proposed mitigation measures, and residual impacts (the impact after application of mitigation, if any). Impacts are categorized as follows:

> ***Unavoidably Significant:*** *An impact that cannot be reduced to below the significance threshold level with implementation of reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per §15093 of the State CEQA Guidelines.*

Significant but Mitigable: *An impact that can be reduced to below the significance threshold level with implementation of reasonably available and feasible mitigation measures. Such an impact requires findings to be made under §15091 of the State CEQA Guidelines.*

Less Than Significant: *An impact that may be adverse, but does not exceed the significance threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.*

No Impact or Beneficial: *No impact would occur or the project would have a beneficial effect.*

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
AESTHETICS		
Impact AES-1: Scenic Vistas. Development facilitated by the proposed project would result in increased development intensity that may affect scenic vistas within West Covina. The City Municipal Code contains regulations for the protection of scenic vistas for residential development. Impacts to scenic vistas would be *less than significant with mitigation incorporated*.	**AES-1:** Add the following policy to the *Our Natural Community Element* of PlanWC: During the review of public and private development projects, analyze potential impacts to views of natural areas from public streets, parks, trails, and community facilities.	Less than significant with mitigation incorporated.
Impact AES-2: Scenic Resources. The proposed project would facilitate new urban uses that may affect scenic resources within the City. However, proposed goals and policies within PlanWC and the Downtown Plan and Code are specifically designed to protect scenic resources. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact AES-3: Visual Character and Quality. Development facilitated by the proposed project could change the visual character and quality of portions of West Covina. The proposed goals and policies in PlanWC and the Downtown Plan and Code are specifically designed to improve areas of low visual character and quality. Impacts would be *less than significant.*	None required.	Less than significant without mitigation.
Impact AES-4: Light and Glare. New development facilitated by the proposed project could increase light and glare effects on sensitive receptors, such as residential uses. The City's Municipal Code contains regulations to control lighting and glare within the City for multi-family residential zones and non-	**AES-4:** Add the following policy to the *Our Natural Community* Chapter of PlanWC: To preserve nighttime views within and immediately adjacent to single family residential zones, require property owners within and directly adjacent to these zones to utilize shielding and directional lighting methods to direct lighting away from	Less than significant with mitigation incorporated.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
residential zones, but not for single family residential zones. Thus, potential lighting impacts could occur within or immediately adjacent to these zones if not properly mitigated. This impact would be *less than significant with mitigation incorporated*.	adjoining properties.	
AIR QUALITY		
Impact AQ-1: Air Quality Plan Compliance. Implementation of the proposed project would be consistent with the 2012 AQMP growth forecast and air quality control measures. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact AQ-2: Air Pollutant Emissions. Development facilitated by the proposed project would result in an incremental increase in air pollutant emissions within West Covina and the South Coast Air Basin. However, implementation of goals, policies, and actions included in the proposed project relating to limiting vehicle use and energy consumption would limit emissions to levels consistent with regional forecasts. Impacts would therefore be *less than significant*.	None required.	Less than significant without mitigation.
Impact AQ-3: Construction-Related Emissions. Individual development projects facilitated by the proposed project would generate construction-related emissions. Such emissions may result in temporary adverse impacts to local air quality that would be temporary for each construction project, but could occur for multiple projects carried out over the next 20 years. However, these emissions can be mitigated on a specific development basis and impacts would therefore be *less than significant*.	None required.	Less than significant without mitigation.
Impact AQ-4: Pollutant Concentrations. Though future development facilitated by the proposed project may incrementally increase air pollution, mitigation measures included in Section 4.14, *Transportation and Circulation* of this EIR require that future projects analyze and mitigate, if necessary, their potential to create secondary effects related to traffic congestion	With implementation of Mitigation Measure T-1(c) requiring future projects to analyze and mitigate, if necessary, potential secondary effects of intersection-level traffic congestion, the proposed project would not result in traffic congestion at intersections that would expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant with incorporated mitigation.	Less than significant with incorporated mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
such as CO hotspots. This would ensure that the proposed project would not lead to sensitive receptors being exposed to substantial pollutant concentrations, and impacts would be *less than significant with incorporated mitigation*.		
Impact AQ-5: Objectionable Odors. Implementation of the proposed project would facilitate development of projects that have the potential to cause odor impacts, but would not create objectionable odors that would affect a substantial number of people. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
BIOLOGICAL RESOURCES		
Impact B-1: Special-Status Species and Sensitive Habitats. Potential direct and indirect impacts to listed special-status species and sensitive habitats would not occur as a result of development facilitated by the proposed project because impacts would largely be avoided by PlanWC's emphasis on intensification/reuse of already urbanized areas and through implementation of goals and policies in PlanWC. Impacts to listed and special-status species and sensitive habitats would therefore be *less than significant*.	None required.	Less than significant without mitigation.
Impact B-2: Bird Nesting. Implementation of the proposed project would not result in a reduction in nesting opportunities for resident and migratory avian species of special concern because of conservation and preservation policies within PlanWC and compliance with the Migratory Bird Treaty Act. This impact is therefore *less than significant*.	None required.	Less than significant without mitigation.
Impact B-3: Wetlands. While the proposed project would not facilitate development that would directly impact riparian and wetland habits, there would be potential for adverse indirect impacts from such development on wetlands, including man-made wetlands, and areas under the jurisdiction of the CDFW and USACOE. However, compliance with existing regulations, and implementation of	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
PlanWC policies, would reduce potential impacts to a *less than significant* level.		
Impact B-4: Wildlife Corridors. Development carried out under the proposed project would largely avoid impacts to wildlife movement corridors by emphasizing intensification/reuse of existing urbanized areas. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact B-5: Biological Resource Protection. Development under the proposed project would be in substantial conformance with federal, state, and local applicable policies protecting biological resources. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact B-6: Conservation Plan Compliance. Because West Covina is not located in a habitat preservation or conservation plan area and is not within one of the Significant Ecological Areas (SEAs) in Los Angeles County, the proposed project would not conflict with the provisions of an adopted Habitat Preservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. *No impact*.	No impact.	No impact.
CULTURAL RESOURCES		
Impact CR-1: Historic Resources. Development under the proposed project would not result in a substantial adverse change in the significance of a historical resource because historic resources are protected under Sections 17-134 to 17-140 of the West Covina Municipal Code. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact CR-2: Archaeological Resources. Ground-disturbing activities associated with development carried out under the proposed project could result in damage to or destruction of archaeological and/or Native American cultural resources. Impacts would be *less than significant with mitigation incorporated.*	**CR-2** Add the following policies to the *Our Creative Community* Chapter of PlanWC: Assess, avoid, and mitigate potential impacts to archeological, paleontological, and tribal cultural resources through the CEQA review process for development projects carried out within the City. Comply with existing regulations relating to Native American resources, including California Environmental Quality Act Section 15064.5(d) and (e) and Public	Less than significant with mitigation incorporated.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
	Resources Code §5097.98 concerning burial grounds, and Assembly Bill 52 and Senate Bill 18 for consultation with Native American tribes for development projects carried out within the City.	
Impact CR-3: Paleontological Resources. Ground-disturbing activities associated with development under the proposed project could result in damage to or destruction of unique paleontological resources within rock units or geologic features. Impacts would be *less than significant with mitigation incorporated.*	Compliance with Mitigation Measure CR – 2 would reduce impacts to paleontological resources to a less than significant level.	Less than significant with mitigation incorporated.
Impact CR-4: Human Remains. Ground-disturbing activities associated with development under the proposed project could result in damage to or destruction of human burial grounds. Impacts would be *less than significant with mitigation incorporated.*	Compliance with Mitigation Measure CR – 2 would reduce impacts to human remains and burial grounds to a less than significant level.	Less than significant with mitigation incorporated.
GEOLOGY AND SOILS		
Impact GEO-1: Seismicity. Development facilitated by the proposed project may result in exposure of people or structures to potentially substantial adverse effects resulting from seismic ground shaking, seismic-related ground failure including liquefaction, or landslides. However, compliance with applicable regulations and the policies contained in PlanWC would reduce impacts related to seismic groundshaking to a *less than significant* level.	None required.	Less than significant without mitigation.
Impact GEO-2: Soil Erosion. Development facilitated by the proposed project would not result in substantial soil erosion and loss of topsoil because it would be required to comply with applicable regulations and standards, as well as policies and actions identified in PlanWC. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact GEO-3: Unstable Grounds. Adherence to existing regulations and the policies included in PlanWC would ensure that development facilitated by the proposed project would not result in safety impacts related to lateral spreading, subsidence, or collapse.	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impacts would be *less than significant*.		
Impact GEO-4: Expansive Soils. Development facilitated by the proposed project may result in the construction of facilities on expansive soils, but would not create substantial risk to people and structures because all development would be required to comply with the standards of the CBC. Impacts would therefore be *less than significant*.	None required.	Less than significant without mitigation.
GREENHOUSE GAS EMISSIONS		
Impact GHG-1: GHG Emissions. Development facilitated by the proposed project would generate GHG emissions. However, policies contained in PlanWC and the Downtown Plan to promote transit-oriented infill development and provide incentives for high-performance buildings and infrastructure would reduce overall per capita GHG emissions within West Covina. Impacts would therefore be *less than significant*.	None required.	Less than significant without mitigation.
Impact GHG-2: GHG Plan Compliance. The proposed project would be consistent with the major initiatives contained in SCAG's 2016-2040 RTP/SCS to reduce GHG emissions per capita by eight percent by 2020, 18 percent by 2035, and 21 percent by 2040, all compared to 2005 levels. Impacts would be *less than significant.*	None required.	Less than significant without mitigation.
HAZARDS AND HAZARDOUS MATERIALS		
Impact HAZ-1: Transport, Use, Storage of Hazardous Materials. Implementation of the proposed project could result in an incremental increase in the overall routine transport, use, storage, and disposal of hazardous materials within the City. However, compliance with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of the public's potential exposure to these substances, resulting in a *less than significant* impact.	None required.	Less than significant without mitigation.
Impact HAZ-2: Release of Hazardous Materials. Construction and operation activities associated with implementation of the	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
proposed project could result in the release of hazardous materials into the environment through reasonably foreseeable upset and accident conditions or disturbance of existing contamination. However, compliance with existing regulations would minimize the risk of exposure to these substances, resulting in a *less than significant* impact.		
Impact HAZ-3: Hazardous Emissions. Implementation of the proposed project could result in hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school, but compliance with existing regulatory requirements would minimize risks to schools and students, resulting in a *less than significant* impact.	None required.	Less than significant without mitigation.
Impact HAZ-4: Site Location. Adoption and implementation of the proposed project would not result in an increase in people residing or working near public or private airports. Therefore, the proposed project would not result in substantial airport-related safety hazards. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact HAZ-5: Emergency Response and Evacuation Plans. PlanWC policies address implementation of adopted emergency response and evacuation plans. Therefore, the proposed project would not result in interference with these types of adopted plans. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact HAZ-6 Wildland Fires. Implementation of the proposed project could result in development in urbanized areas adjacent to or intermixed with wildlands. However, implementation of existing hazard reduction standards, as well as policies included in PlanWC, would reduce the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
HYDROLOGY AND WATER QUALITY		
Impact HYD-1: Water Pollution. Development facilitated by the proposed project could potentially result in an increase in pollutant discharges to waters of the State, but compliance with PlanWC policies and actions, as well as existing regulatory requirements, would help avoid such impacts. The proposed project would therefore not violate water quality standards or waste discharge requirements, and this impact would be *less than significant*.	None required.	Less than significant without mitigation.
Impact HYD-2: Groundwater. With implementation of policies included in PlanWC and the Downtown Plan and Code, impacts related to the depletion of groundwater supplies or interference with groundwater recharge would be *less than significant.*	None required.	Less than significant without mitigation.
Impact HYD-3: Drainage Pattern. Development facilitated by the proposed project could alter existing drainage patterns within the City and potentially result in erosion and siltation. However, implementation of policies and actions included in PlanWC and the Downtown Plan and Code and adherence to the requirements of the WCMC would minimize impacts related to drainage pattern alteration. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact HYD-4: Surface Runoff. Development facilitated by the proposed project would result in new impervious surfaces at various locations throughout the City. However, the overall flood potential is considered low and the implementation of proposed policies and actions included in the plans would minimize new impervious surfaces and reduce impacts related to flooding, stormwater drainage exceedances or increases in polluted runoff. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact HYD-5: Water Quality. With implementation of PlanWC policies and actions and adherence to West Covina Municipal Code requirements, development	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
facilitated by the proposed project would not otherwise result in the degradation of groundwater quality, and this impact would therefore be *less than significant*.		
Impact HYD-6: Flood Zone. Development facilitated by the proposed project would not place housing, structures, or people within a 100-year flood zone. West Covina is located within the predicted dam inundation zone of the Puddingstone Dam, the San Dimas Dam, and the Santa Fe Dam; however, with implementation of PlanWC policies and FEMA requirements, impacts related to dam inundation would be *less than significant*.	None required.	Less than significant without mitigation.
Impact HYD-7: Seiche, Tsunami, Mudflow. Development facilitated by the proposed project could result in inundation be seiche, tsunami, or mudflow. However, with implementation of PlanWC policies, impacts would be *less than significant*.	None required.	Less than significant without mitigation.
LAND USE AND PLANNING		
Impact LU-1: Established Communities. Implementation of the proposed project would provide for orderly development in West Covina and would not physically divide an established community. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact LU-2: Land Use Compliance. While implementation of the proposed project would be generally consistent with applicable regional land use plans, policies, or regulations such as the 2016-2040 SCAG Regional Transportation Plan/Sustainable Communities Strategy, one policy change is recommended to address any potential inconsistencies. Impacts would be *significant but mitigable*.	**LU-2** Add the following policy and associated action to the Our Accessible Community chapter of PlanWC: Policy: Work to develop a safer transportation system • Action(a): Encourage development and application of strategies and actions pertaining to response and prevention of security incidents on the local and regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies. • Action(b): Use SCAG GIS data to develop emergency planning and response strategies for the transportation system.	Less than significant with mitigation incorporated.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact LU-3: Conservation Plan. Implementation of the proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
NOISE		
Impact N-1: Construction-Related Impacts. Construction of individual projects facilitated by the proposed project could produce noise levels ranging from about 76 to 89 dBA at 50 feet from the source, potentially affecting adjacent noise-sensitive land uses. Such noise could cause temporary disturbance to nearby noise-sensitive receptors, but policies in PlanWC and the Downtown Plan and existing regulations in the City's Noise Ordinance address potential noise impacts related to construction, including construction traffic. Therefore, this impact would be *less than significant*.	None required.	Less than significant without mitigation.
Impact N-2: Traffic-Related Impacts. Development facilitated by the proposed project could incrementally increase traffic and associated noise levels along City roadways and railroads outside the City, thus exposing existing and future noise-sensitive land uses to increased noise levels. However, implementation of policies and actions in PlanWC and the Downtown Plan would reduce impacts to a *less than significant* level.	None required.	Less than significant without mitigation.
Impact N-3: Project-Related Impacts. New development facilitated by the proposed project could result in exposure of future residences and other noise-sensitive land uses to noise levels exceeding the "normally acceptable" range. However, implementation of policies in PlanWC and the Downtown Plan would reduce impacts to a *less than significant* level.	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
POPULATION AND HOUSING		
Impact PH-1: Population Growth. Implementation of the proposed project would facilitate the construction of new housing in West Covina, which would increase the City's population over time. However, exceedance of the SCAG population forecasts is not anticipated and impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact PH-2: Population Displacement. Implementation of the proposed project would not result in the displacement of substantial numbers of housing or people. To the contrary, the proposed project would facilitate the development of new housing in accordance with State and local housing requirements, while preserving existing residential neighborhoods. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
PUBLIC SERVICES		
Impact P-1: Fire and Medical Services. Development facilitated by the proposed project would increase the City's population. This would increase demand for fire and emergency medical services and potentially create the need for new fire service facilities. However, compliance with policies in PlanWC and the Downtown Plan and Code, as well as other City programs, would reduce impacts related to fire protection services to a *less than significant* level.	None required.	Less than significant without mitigation.
Impact P-2: Police Services. Development facilitated by the proposed project would increase the City's population. This would increase demand for police services and potentially create the need for new police service facilities. However, compliance with policies in PlanWC and the Downtown Plan and Code, as well as other City programs, would reduce impacts related to police protection services to a *less than significant* level.	None required.	Less than significant without mitigation.
Impact P-3: School Facilities. Development facilitated by the proposed project would increase the City's population. This would increase enrollment in schools and	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
potentially create the need for new school facilities. However, compliance with policies in PlanWC and the Downtown Plan and Code, and other City programs, would reduce impacts related to schools to a *less than significant* level.		
RECREATION		
Impact REC-1: Existing Parks and Recreational Facilities. Development facilitated by the proposed project may increase the use of existing parks and open space, but policies in PlanWC and the Downtown Plan for providing additional recreational facilities, as well as City park dedication fees and development impact fees, would help offset these impacts, and substantial physical deterioration of recreational facilities would not occur. This impact would be *less than significant*.	None required.	Less than significant without mitigation.
Impact REC-2: New Parks and Recreational Facilities. Development facilitated by the proposed project may require the construction or expansion of additional parks and open space, but implementation of the policies contained in PlanWC and the Downtown Plan, as well as existing City programs and review processes, would avoid or adequately mitigate adverse physical effect on the environment. This impact would be *less than significant*.	None required.	Less than significant without mitigation.
TRANSPORTATION AND CIRCULATION		
Impact T-1: Circulation System Performance, Congestion. New development facilitated by the proposed project may increase traffic at certain locations in West Covina. This traffic may have the potential to conflict with policies and thresholds for the performance of the circulation system and applicable congestion management programs. While mitigation measures would reduce this impact to a less than significant level at City-controlled intersections, potential impacts at Caltrans'-controlled intersections would remain *significant and unavoidable*.	**T-1(a)** As part of any project to re-design streets consistent with the Downtown Plan and Code, a transportation performance study shall be performed to assess the multi-modal improvements to be achieved and their potential impact on traffic, transit, bicycle, and pedestrian movements, based on the performance metrics as developed under Action 8.1a of the *Our Accessible Community* section of the Downtown Plan and Code. **T-1(b)** The following policy and action shall be added to PlanWC and the Downtown Plan: **Policy:** Synchronize traffic signals and develop operational enhancements at the I-10 Freeway interchanges to reduce	Less than significant with mitigation for all intersections identified as having a potentially significant impact, except for the intersection of West Covina Parkway and the westbound Interstate 10 ramps. Significant and unavoidable at the intersection of West Covina Parkway and the westbound Interstate 10 ramps, where the City

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
	traffic congestion. **Action:** The City of West Covina shall seek congestion management and other available grant funding opportunities to synchronize traffic signals and develop operational enhancements at the I-10 Freeway interchanges. **T-1(c)** Proposed projects generating more than 100 vehicle trips per day, as determined by the City Traffic Engineer or their designee, shall require submittal of a Traffic Impact Study (TIS) to determine if that project may have a significant impact that would exceed the City's traffic-related thresholds of significance existing at the time of the project application. The TIS shall also identify any potential secondary safety or localized air quality impacts (such as carbon monoxide (CO) hotspots) potentially resulting from that project. The TIS shall identify mitigation measures that would reduce any identified impacts to a less than significant level according to the City's adopted thresholds of significance at that time, in a manner consistent with PlanWC and the Downtown Plan and Code. Such measures may include: • Project design modifications • Transportation demand management (TDM) measures, such as transit and active transportation improvements or funding • Implementing other physical improvements, such as modern roundabouts, designed to maintain throughput while improving safety and reducing impacts on pedestrians and other users In order to maintain consistency with PlanWC and the Downtown Plan and Code, mitigation measures shall not include expansion of the total size of the roadway or the portion of the roadway dedicated solely to motor vehicles, unless the TIS demonstrates that alternative modes of transportation will not be negatively impacted and/or potentially benefit from such an expansion.	cannot guarantee that improvements, if necessary, would be carried out because this facility is controlled by Caltrans, not the City.
Impact T-2: Air Traffic. Because there are no airports in the immediate vicinity of West Covina, the proposed project potential to change air traffic patterns would be *less than significant*.	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact T-3: Traffic-Related Hazards. Due to the programmatic nature of the proposed project, it would not substantially increase hazards due to a design feature or incompatible uses; however, existing conditions related to at-grade rail crossings, combined with increased traffic from potential growth in the City and region, could result in increased traffic related hazards at these crossings. Impacts would be *significant but mitigable*.	**T-3** The following shall be added to PlanWC as a policy or action: The City shall partner with adjacent cities and other jurisdictions and the private sector to seek and secure funding for railroad safety improvements, including securing rail right-of-way, and developing "Quiet Zones", grade separations, and/or other safety projects for at-grade rail crossings at the intersection of Azusa Canyon Road and Los Angeles Street and on Fairway Drive at Valley Boulevard.	Less than significant with mitigation incorporated.
Impact T-4: Emergency Access. Due to the programmatic nature of the proposed project, and goals and policies in PlanWC and the Downtown Plan and Code to create an integrated, multi-modal transportation system, the proposed project would not result in inadequate emergency access. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact T-5: Alternative Transportation. The focus of the proposed project in terms of transportation is to create an integrated, multi-modal transportation system prioritizing improving transit, walking, and bicycling modes. The proposed project would not conflict with adopted policies relating to alternative transportation modes, including transit, walking, and bicycling. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
UTILITIES		
Impact U-1: Wastewater. Development facilitated by the proposed project would incrementally increase citywide wastewater generation, but the projected increase would not exceed the capacity of existing wastewater treatment facilities or service providers. Impacts would be *less than significant*.	None required.	Less than significant without mitigation.
Impact U-2: Stormwater Drainage. Development facilitated by the proposed project would incrementally increase stormwater runoff within the City, but stormwater runoff would not exceed the capacity of the existing stormwater drainage facilities.	None required.	Less than significant without mitigation.

Table ES–1
Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impacts would be *less than significant*.		
Impact U-3: Water Supply. Development facilitated by the proposed project would increase demand for water supply. However, Suburban Water Systems 2010 Urban Water Management Plan projects that adequate water supply will be available to serve population growth in the City through 2035. Impacts would be *less than significant.*	None required.	Less than significant without mitigation.
Impact U-4: Solid Waste and Landfills. Implementation of the proposed project would increase the amount of solid waste sent to area landfills. However, landfills serving West Covina have adequate capacity to accept the additional waste. Further, PlanWC and the Downtown Plan and Code contain policies to increase recycling in the City. Impacts would be *less than significant.*	None required.	Less than significant without mitigation.

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1.0 INTRODUCTION

This Environmental Impact Report (EIR) examines the potential environmental effects of the proposed City of West Covina 2016 General Plan Update and Downtown Plan and Code, jointly defined as the "proposed project" for purposes of this environmental review. The environmental review process for the proposed project, and legal basis for preparing an EIR, are described below.

This section:

1) Provides an overview of the background behind the proposed project
2) Summarizes the process involved in developing the proposed project
3) Describes the purpose of and legal authority of the EIR
4) Summarizes the scope and content of the EIR
5) Lists lead, responsible, and trustee agencies for the EIR
6) Describes the intended uses of the EIR
7) Provides a synopsis of the environmental review process required under CEQA.

The contents of other EIR sections are as follows:

- *Section 2.0, Project Description*, provides a detailed discussion of the proposed project.
- *Section 3.0, Environmental Setting*, describes the general environmental setting for West Covina.
- *Section 4.0, Environmental Impact Analysis*, describes the potential environmental effects associated with development facilitated by the proposed project.
- *Section 5.0, Other CEQA Requirements*, discusses issues such as growth inducement and significant irreversible environmental effects.
- *Section 6.0, Alternatives*, discusses alternatives to the proposed project, including the CEQA-required "no project" alternative.
- *Section 7.0, References and Preparers*, lists informational sources for the EIR and persons involved in the preparation of the document.

1.1 OVERVIEW OF THE 2016 GENERAL PLAN UPDATE AND DOWNTOWN PLAN AND CODE

The City of West Covina has undertaken a comprehensive update of its General Plan, called PlanWC, and has also undertaken development of a Downtown Plan and Code in order to help implement the General Plan. PlanWC has been organized into eight elements:

- Our Natural Community
- Our Prosperous Community
- Our Well Planned Community
- Our Accessible Community
- Our Resilient Community
- Our Healthy and Safe Community
- Our Active Community
- Our Creative Community

These eight elements cover all of the topics that are required to be covered in a General Plan under state law (Land Use, Open Space, Conservation, Housing, Circulation, Safety, and Noise).

PlanWC guides future development within the existing City limits, as well as within areas adjacent to the City within the City's Sphere of Influence (SOI) that may be considered for future annexation. The "study area" evaluated in this EIR consists of areas within West Covina's current City Limits and SOI.

State law (Government Code Section 65300) requires that each city and county adopt a comprehensive general plan. PlanWC fulfills this requirement by updating the current West Covina General Plan, which was last comprehensively updated in1985. The General Plan defines the framework by which the City's physical and economic resources are to be managed and used over the next 20 years. City decision-makers will use PlanWC as a blueprint for:

- Choices about the use of land
- Protection of environmental resources
- Conservation and development of housing
- Provision of supporting infrastructure and public and human services
- Protection of people and property from natural and man-made hazards
- Possible future expansion of City boundaries

PlanWC clarifies and articulates the City's intentions with respect to the rights and expectations of the community, including residents, property owners, and businesses. Through PlanWC, the City informs these groups of its goals, policies, and standards, thereby communicating expectations of the public and private sectors for meeting community objectives. The central theme of PlanWC is Downtown First. The Downtown Plan and accompanying form-based code further articulates this vision for the community by providing prescriptive standards for development in Downtown West Covina. The Downtown Plan and Code seeks to form consensus around and establish a common image for Downtown West Covina as a livable, healthy and economically vibrant center for the community. The Downtown Plan and Code will guide public funding and seek to attract private investments. As the Downtown Plan and Code and PlanWC were prepared and adopted simultaneously, the two documents are entirely consistent with each other.

Any decision by a city regarding future land use and development must be consistent with its General Plan. An action, program, or project would be considered consistent with PlanWC if, considering all of its aspects, it will further the goals and policies of PlanWC and implementing regulations such as the Downtown Plan and Code, or not obstruct their attainment.

Each of PlanWC's Elements contains goals, policies, and actions to implement the City's overarching objectives. Goals are statements that provide direction and state the desired end condition. Policies establish basic courses of action to achieve these goals, and directly guide the response of elected and appointed officials to development proposals and related community actions. Actions are specific steps the City must undertake to implement policies.

1.2 LEGAL AUTHORITY

This EIR has been prepared in accordance with CEQA and the *State CEQA Guidelines*. In accordance with Section 15121 (a) of the *State CEQA Guidelines* (California Code of Regulations, Title 14, Division 6, Chapter 3), the purpose of an EIR is to:

Inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.

This EIR fulfills the requirements for a Program EIR. Although the legally required contents of a Program EIR are the same as those of a Project EIR, Program EIRs are typically more conceptual and may contain a more general discussion of impacts, alternatives, and mitigation measures than a Project EIR. As provided in Section 15168 of the *State CEQA Guidelines*, a Program EIR may be prepared on a series of actions that may be characterized as one large project. Use of a Program EIR provides the City (as Lead Agency) with the opportunity to consider broad policy alternatives and program-wide mitigation measures and provides the City with greater flexibility to address environmental issues and/or cumulative impacts on a comprehensive basis. Agencies generally prepare Program EIRs for programs or a series of related actions that are linked geographically, are logical parts of a chain of contemplated events, rules, regulations, or plans that govern the conduct of a continuing program, or are individual activities carried out under the same authority and having generally similar environmental effects that can be mitigated in similar ways. By its nature, a Program EIR considers the "macro" effects associated with implementing a program (such as a General Plan or Specific Plan) and does not, and is not intended to, examine the specific environmental effects associated with specific projects that may be subject to the provisions of General or Specific Plans.

Once a Program EIR has been prepared, subsequent activities within the program must be evaluated to determine what, if any, additional CEQA documentation needs to be prepared. In the case of the proposed project, future individual projects are generally expected to be required to undergo further environmental review, although the proper level of environmental review for subsequent projects must be determined on a case-by-case basis. If the Program EIR addresses the program's effects as specifically and comprehensively as possible, many subsequent activities could be found to be within the Program EIR scope and additional environmental documents may not be required (CEQA Guidelines Section 15168(c)). When a Lead agency relies on a Program EIR for a subsequent activity, it must incorporate applicable mitigation measures and alternatives developed in the Program EIR into the subsequent activities (CEQA Guidelines Section 15168(c)(3)). If a subsequent activity would have effects not within the scope of the Program EIR, the Lead Agency must prepare a new Initial Study leading to either a Negative Declaration, Mitigated Negative Declaration, or a project level EIR. In this case, the Program EIR still serves a valuable purpose as the first-tier environmental analysis. The *State CEQA Guidelines* (Section 15168(h)) encourage the use of Program EIRs, citing five advantages:

1. Provision of a more exhaustive consideration of impacts and alternatives than would be practical in an individual EIR.
2. Focus on cumulative impacts that might be slighted in a case-by-case analysis.
3. Avoidance of continual reconsideration of recurring policy issues.
4. Consideration of broad policy alternatives and programmatic mitigation measures at an early stage when the agency has greater flexibility to deal with them.
5. Reduction of paperwork by encouraging the reuse of data (through tiering).

As a "macro" level environmental document, the Program EIR uses macro level thresholds as compared to the project-level thresholds that might be used for an EIR on a specific development project. It should not be assumed that impacts determined not to be significant at a macro level would not be significant at a project level. In other words, determination that implementation of the proposed project as a "program" would not have a significant environmental effect does not necessarily mean that an individual project would not have significant effects based on project-level CEQA thresholds, even if the project is consistent with the proposed project.

This EIR has been prepared to analyze potentially significant environmental impacts associated with future development resulting from implementation of the proposed project, and also addresses appropriate and feasible mitigation measures or project alternatives that would minimize or eliminate these impacts. Additionally, this EIR will provide the primary source of environmental information for the City of West Covina, which is the Lead Agency, to use when considering the proposed project.

This EIR is intended to provide decision-makers and the public with information that enables them to intelligently consider the environmental consequences of the proposed project. This EIR identifies significant or potentially significant environmental effects, as well as ways in which those impacts can be reduced to less-than-significant levels, whether through the imposition of mitigation measures or through the implementation of specific alternatives to the proposed project. In a practical sense, this document functions as a tool for fact-finding, allowing concerned citizens and agency staff an opportunity to collectively review and evaluate baseline conditions and project impacts through a process of full disclosure.

1.3 SCOPE AND CONTENT OF THE EIR

In accordance with the *State CEQA Guidelines*, a Notice of Preparation (NOP) of a Draft EIR was circulated to potentially interested parties on February 16, 2016. The NOP, included in Appendix A, indicated that all issues on the City's environmental checklist would be discussed in the EIR. These include:

- Aesthetics
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities/Service Systems
- Mandatory Findings of Significance

This EIR evaluates potential impacts in each of these areas.

The focus of this EIR is to:

- Provide information about the proposed project for consideration by the City Council in its selection of the proposed project, an alternative to the proposed project, or a combination of various elements from the proposed project and its alternatives, for approval.
- Review and evaluate the potentially significant environmental impacts that could occur as a result of the growth and development envisioned in PlanWC and the Downtown Plan, or through implementation of the Downtown Code.
- Identify feasible mitigation measures that may be incorporated into the proposed project in order to reduce or eliminate potentially significant effects.
- Disclose any potential growth-inducing and/or cumulative impacts associated with the proposed project.
- Examine a reasonable range of alternative growth scenarios (including growth according to the existing General Plan, reduced growth, and alternative locations within the City for growth) that could feasibly attain the basic objectives of the proposed project, while eliminating and/or reducing some or all of its potentially significant adverse environmental effects.

The City received 11 written responses to the NOP. The responses, included in Appendix A, are addressed, as appropriate, in the analysis contained in the various subsections of Section 4.0, *Environmental Impact Analysis*. The City also held an EIR scoping meeting on February 29, 2016 at West Covina City Hall, with a number of members of the public in attendance. A summary of the comments received at this meeting is included at the end of Appendix A.

1.4 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The City of West Covina is the lead agency under CEQA for this EIR because it has primary discretionary authority to determine whether or how to approve the proposed project.

"Responsible Agencies," are other agencies that are responsible for carrying out/implementing a specific component of a proposed project or for approving a project (such as an annexation) that implements the goals and policies of a General Plan. Section 15381 of the *State CEQA Guidelines* defines a "responsible agency" as:

> *A public agency which proposes to carry out or approve a project, for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For purposes of CEQA, responsible agencies include all public agencies other than the lead agency that have discretionary approval authority over the project…*

There are no responsible agencies for the proposed project.

Although not responsible agencies under CEQA, several other agencies have review authority over aspects of the proposed project or approval authority over projects that could potentially be implemented in accordance with various objectives and policies included in the proposed project. These agencies and their roles are listed below.

- The State Geologist is responsible for the review of the City's program for minimizing exposure to geologic hazards and for regulating surface mining activities.

- The California Department of Transportation (Caltrans) has responsibility for approving future improvements to the state highway system, including Interstate 10 and State Route 39 (Azusa Avenue). Caltrans also has responsibility for approving funds under the Bicycle Transportation Account for any of the bicycle improvements identified in the proposed project.
- The California Department of Fish and Wildlife (CDFW) has responsibility for issuing take permits and streambed alteration agreements for any projects with the potential to affect plant or animal species listed by the State of California as rare, threatened, or endangered or that would disturb waters of the State.
- The High Speed Rail Authority would be responsible for approving and implementing projects related to the statewide high speed rail system within the City should that alignment be selected.
- The Los Angeles County Sanitation Districts treats wastewater from the City's system and would therefore be responsible for approving and implementing needed improvements to wastewater infrastructure should they be required as a result of the proposed project.
- Any other public agencies which may own land within City boundaries.

Trustee agencies have jurisdiction over certain resources held in trust for the people of California but do not have a legal authority over approving or carrying out the project. *State CEQA Guidelines* Section 15386 designates four agencies as trustee agencies: the California Department of Fish and Wildlife with regards to fish and wildlife, native plants designated as rare or endangered, game refuges, and ecological reserves; the State Lands Commission, with regard to state-owned "sovereign" lands, such as the beds of navigable waters and State school lands; the California Department of Parks and Recreation, with regard to units of the State park system; and, the University of California, with regard to sites within the Natural Land and Water Reserves System. The CDFW, due to the potential for rare or endangered species, is the only trustee agencies for the General Plan EIR.

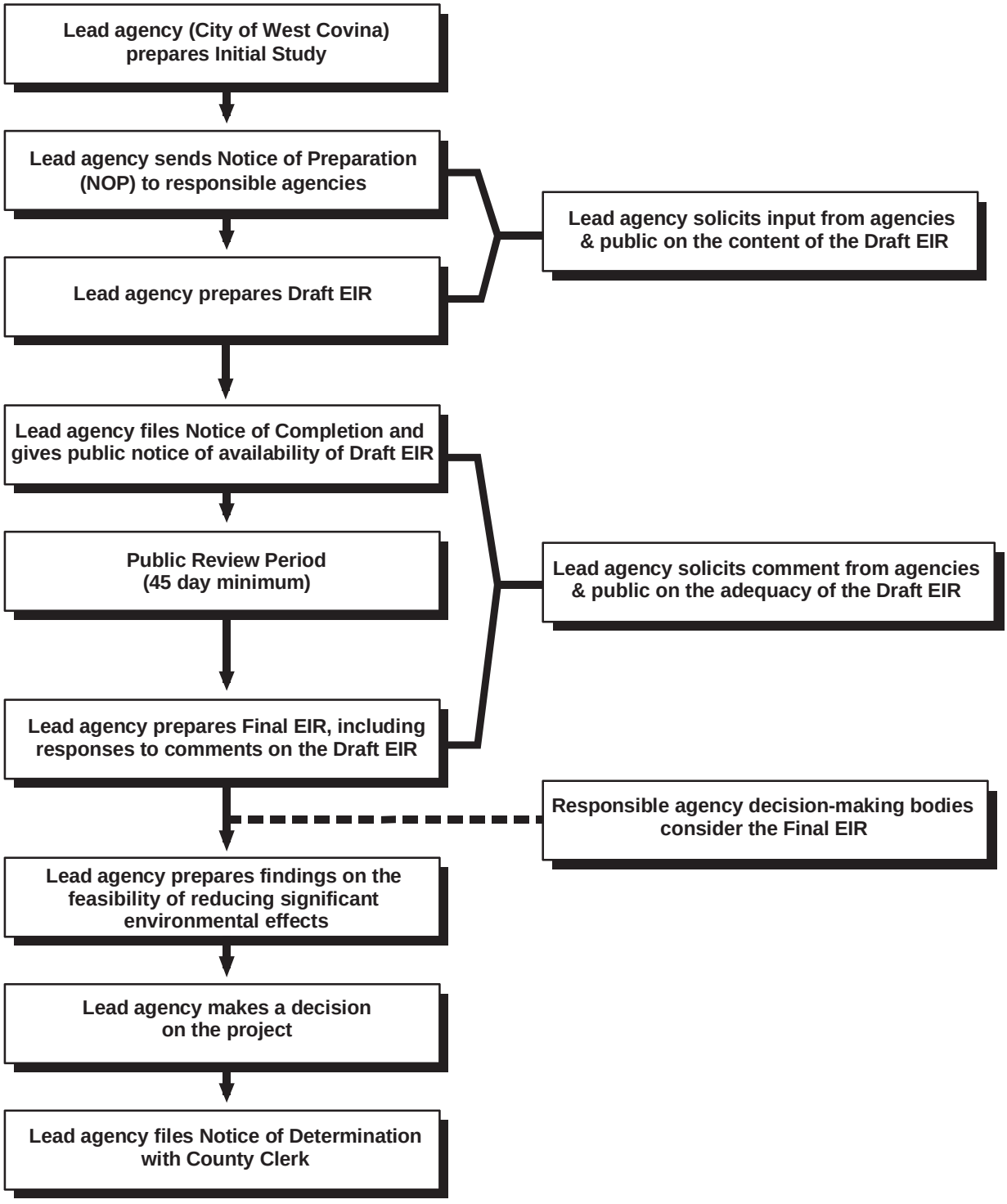
1.5 INTENDED USES OF THE EIR

This EIR is as an informational document for use in the City's review and consideration of the proposed project. It is to be used to facilitate creation of a General Plan and Downtown Plan and Code that incorporate environmental considerations and planning principles into cohesive policy documents. The proposed project will guide subsequent actions taken by the City in its review of new development projects and the establishment of new and/or revised City-wide or area-specific programs.

This EIR discloses the possible environmental consequences associated with the proposed project. The information and analysis in this EIR will be used by the West Covina City Council, trustee agencies, and the general public (as explained above, there are no responsible agencies for the proposed project).

The environmental review process, as required under CEQA, is summarized below and illustrated generally on Figure 1-1.

THE EIR PROCESS



CEQA Environmental Review Process Figure 1-1

1.6 EIR PROCESS

1. **Notice of Preparation (NOP).** After deciding that an EIR is required, the lead agency must file an NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (CEQA Guidelines Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. For projects of regional significance, the lead agency holds a scoping meeting during the 30-day NOP review period.
2. **Draft EIR.** The Draft EIR must contain: a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and h) discussion of irreversible changes.
3. **Notice of Completion.** Upon completion of a Draft EIR, the lead agency must file a Notice of Completion with the State Clearinghouse and prepare a Public Notice of Availability of a Draft EIR. The lead agency must place the Notice in the County Clerk's office for 30 days (Public Resources Code Section 21092) and send a copy of the Notice to anyone requesting it (CEQA Guidelines Section 15087). In addition, public notice of the availability of the Draft EIR must be given through at least one of the following procedures: a) publication in a newspaper of general circulation; b) posting on and off of the project site; or c) direct mailing to owners and occupants of contiguous properties and others who have requested such notification. The lead agency must solicit comments from the public and respond in writing to all written comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a Draft EIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days (Public Resources Code Section 21091).
4. **Final EIR.** Following the close of the Draft EIR review period, a Final EIR is prepared. The Final EIR must include: a) the Draft EIR; b) copies of comments received during public review; c) a list of persons and entities commenting; and d) responses to comments.
5. **Final EIR Certification**. Prior to making a decision on a proposed project, the lead agency must certify that: a) the Final EIR has been completed in compliance with CEQA; b) the Final EIR was presented to the decision-making body of the lead agency; and c) the decision-making body reviewed and considered the information in the Final EIR prior to approving the project (CEQA Guidelines Section 15090).
6. **Lead Agency Project Decision.** Upon certification of an EIR, the lead agency makes a decision on the project analyzed in the EIR. A lead agency may: a) disapprove a project because of its significant environmental effects; b) require changes to a project to reduce or avoid significant environmental effects; or c) approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (CEQA Guidelines Sections 15042 and 15043).
7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, the lead or responsible agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted.

2.0 PROJECT DESCRIPTION

The project analyzed in this EIR is the proposed City of West Covina 2016 General Plan Update and Downtown Plan and Code. The proposed project includes two separate but closely related elements: an update of the City of West Covina General Plan (entitled and hereafter referred to as PlanWC); and a new Downtown Plan and Code. This section of the EIR describes the key characteristics of PlanWC and the Downtown Plan and Code, including the project proponent/lead agency, the geographic extent of the plans, project objectives, required approvals and types and extent of development forecasted under PlanWC and the Downtown Plan and Code.

2.1 2016 GENERAL PLAN UPDATE (PLANWC)

PlanWC is the first comprehensive update of the City's General Plan since 1985, and establishes the community's vision for future development of the City over the next 20 years. As part of PlanWC, the General Plan has been reorganized and reformatted, with updated goals and policies that reflect the community's vision of West Covina. The City's General Plan Land Use Map has also been updated to reflect the community's vision to direct the majority of new growth to the City's Downtown, where development pressures are greatest and change is desired. Housing and job growth is targeted to strategic areas along the corridors and neighborhood centers.

PlanWC includes the following eight Elements:

- Our Natural Community
- Our Prosperous Community
- Our Well Planned Community
- Our Accessible Community
- Our Resilient Community
- Our Healthy and Safe Community
- Our Active Community
- Our Creative Community

West Covina includes many different kinds of places, with very different characters. Accommodating new growth requires either designing changes to match the character of the area or carefully and intentionally changing the character of key locations. Plan WC contains a description of the different land use planning designations for West Covina, and the equivalent Transect zone. The Transect is a system of natural-to-urban Transect zones or 'human habitats'. The Transect zone in PlanWC is noted with its equivalent land use designation. Transect zoning provides a simple but powerful framework to allow a community to describe with precision a broad but continuous range of environments for human habitation and activity. The Transect zones reflect how intensely land is used, and how placement and scale of buildings, the type of streets, presence and width of sidewalks should reinforce the character of the area. Under PlanWC's Transect-based system, the allocation of separate land use designations evolves to a geography of places that address "form and character" of the place and informs the nature of intended change in different areas. The basic organizing place types for areas designated for growth are neighborhoods, districts and corridors. The majority of new growth will be directed to the Downtown district and the corridors. The level of change ranges from reinvestment in existing buildings and minor improvements to utility infrastructure and the public realm, to the occasional infill development that completes the prevalent development pattern.

PlanWC establishes the regulatory geography and sets the stage for coding. The Downtown Plan and Code's regulatory framework seamlessly carries the logic of good design and sound planning from the scale of a building, lot and block to the scale of neighborhood, community, and city.

2.2 DOWNTOWN PLAN AND CODE

The Downtown Plan and accompanying form-based code seeks to form consensus around and establish a common image for Downtown West Covina as a livable, healthy and economically vibrant center for the community. The Downtown Plan and Code will guide public funding and seek to attract private investments over the next 20 years. The central theme of PlanWC is "Downtown First." As the Downtown Plan and Code and PlanWC were prepared and adopted simultaneously, the two documents are entirely consistent with each other.

The Development Code implements the Downtown Vision and Goals and Policies. The prescriptive standards in the Development Code ensure that new development projects exhibit the highest standards of urban design, architecture, and landscaping at the scale of neighborhood, block, lot, and building according to the Transect. The Downtown vision's form is compact, walkable, and mixed use. The urban form is intended to be inviting, comfortable, safe, and ecologically resilient. The Development Code allows a mix of uses within a walkable environment so driving is an option, not a necessity to meet every day needs.

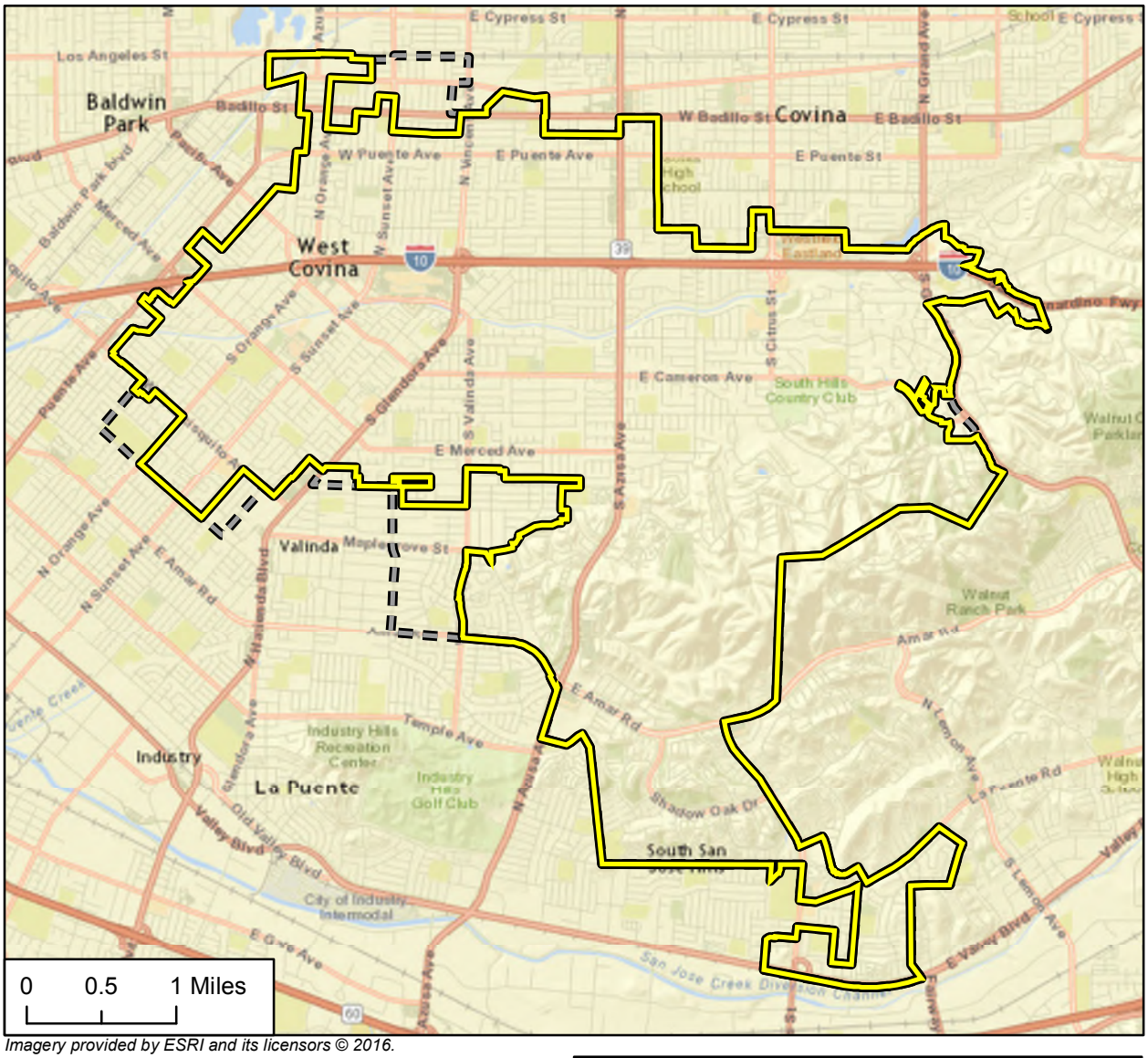
The Downtown Code provides all requirements for development and land use activity within the boundaries identified in the Code (see Section 2.4, *Project Location*). Except as specifically referenced within the Downtown Code, the West Covina Municipal Code requirements in place prior to the adoption of the Downtown Code would be replaced by the requirements of the Downtown Code within these boundaries.

2.3 PROJECT PROPONENT/LEAD AGENCY

The City of West Covina is both the project proponent and the lead agency for the proposed General Plan Update and Downtown Plan and Code. The City's Planning Department, which is located at 1444 West Garvey Avenue South, West Covina, California, 91790, prepared this EIR with the assistance of Rincon Consultants.

2.4 PROJECT LOCATION

West Covina is located in the greater Los Angeles metropolitan region in eastern Los Angeles County (see Figure 2-1). The City is located at the eastern end of the San Gabriel Valley, which is framed by the San Gabriel Mountains on the north, the San Rafael Hills on the west, the Puente Hills on the south, and the Chino Hills and San Jose Hills on the east. Located approximately 18 miles east of Downtown Los Angeles, 18 miles west of Ontario International Airport, 20 miles northeast of Long Beach Airport, 25 miles northeast of the ports of Los Angeles and Long Beach, 25 miles east of Los Angeles International Airport, 25 miles southeast of Burbank Airport, 25 miles north of John Wayne Airport, and 35 miles west of San Bernardino, West Covina is centrally located between major metropolitan centers and transportation hubs.



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Additional data provided by Los Angeles County LAFCO, 2016.

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Plan Area (City Limits)

Sphere of Influence

Project Location

Regional Location

Figure 2-1

West Covina is highly accessible from Interstate 10 (I-10), which traverses the City east to west and carries over a half million vehicles daily. Azusa Avenue (State Route 39), serves as an important north-south link through the City. The City is also served by various public transportation options. Local bus service is provided by the City of West Covina, through a contract with a third party operating as Go West. Regional bus service is provided by Foothill Transit and Los Angeles County Metro. Metrolink's San Bernardino commuter rail line runs just north of the City with stops in Baldwin Park and Covina, and Metrolink's Riverside line runs just south of the City with a stop in the City of Industry (Metrolink, March 2016). Two Amtrak lines- the Sunset Limited, which connects Los Angeles to New Orleans, and the Texas Eagle, which connects Los Angeles to Chicago- have their closest stop about 10 miles to the east in Pomona (Amtrak, March 2016). Other Amtrak lines, as well as Metrolink commuter rail lines and Metro light rail and subway lines, are available from Union Station in Downtown Los Angeles.

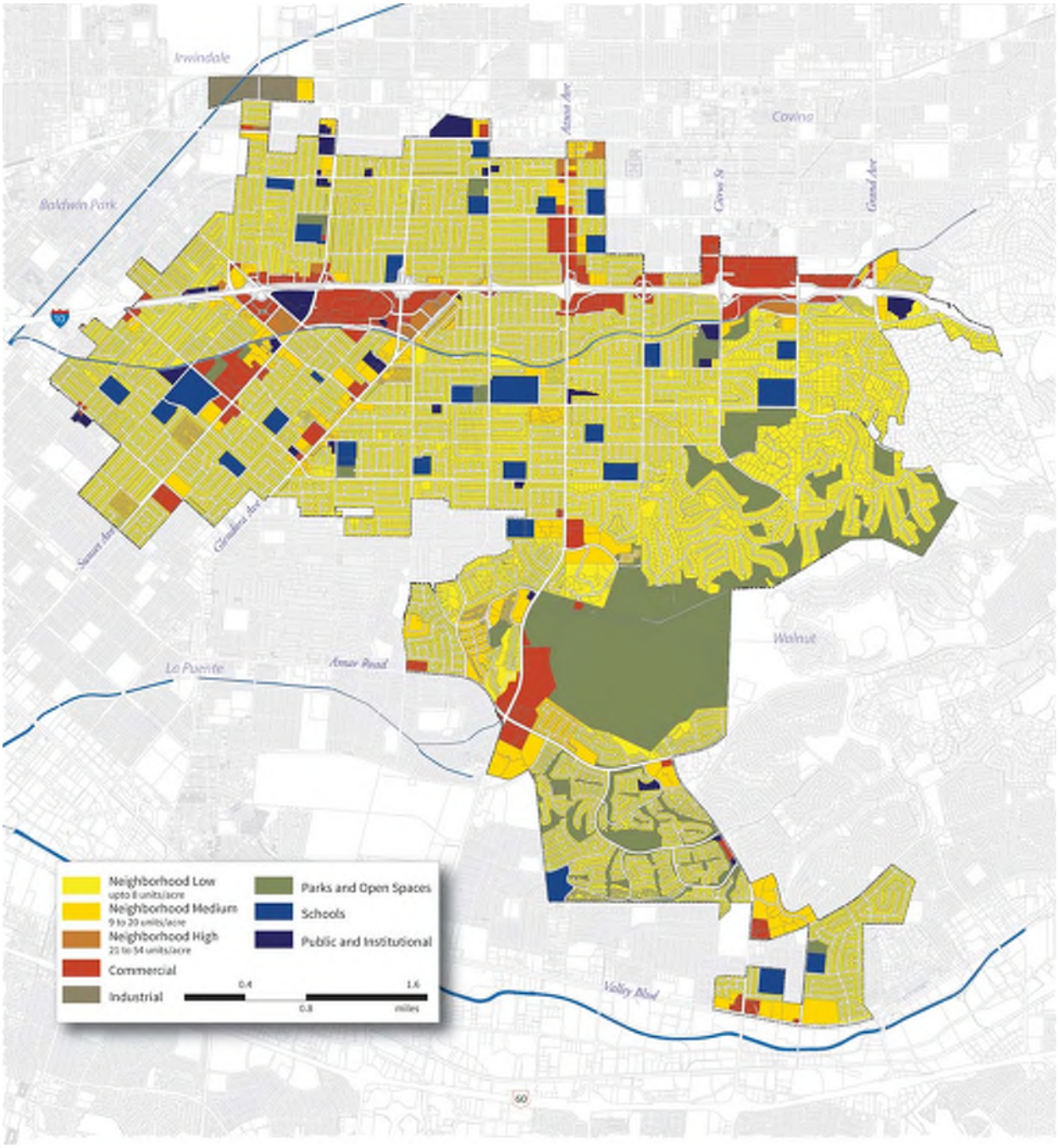
With an estimated 2016 population of approximately 107,873, West Covina is the thirteenth most populous of the county's 88 cities (State of California, Department of Finance, May 2015). It is surrounded by the following incorporated cities and unincorporated areas within Los Angeles County: Irwindale, Covina, and Vincent to the north; Walnut and an unincorporated area to the east of Grand Avenue to the east; Industry and La Puente to the south; and Valinda and Baldwin Park to the west.

Plan WC applies to all lands within West Covina city limits, an area of approximately 16 square miles, or 10,240 acres. This area is defined as the "Plan Area" for the proposed project in this EIR. While the City's Sphere of Influence (SOI) extends in a few areas past the City's boundaries into nearby unincorporated areas designated by the Local Agency Formation Commission (LAFCo), no changes or other actions are being proposed near these areas or that would affect these areas. Figure 2-2 illustrates the City and General Plan boundaries, using the proposed land use map from PlanWC.

The Downtown Plan and Code encompasses an area traditionally considered to be the City's Downtown (previously called the Central Business District in the 1985 General Plan), roughly bounded by the I-10 on the north, Glendora Avenue on the east, West Covina Parkway and Sunset Avenue on the south, and Cameron Avenue on the west (see Figure 2-3). Downtown West Covina serves as the economic and civic hub of the community, and is the area where development pressures are greatest and change is desired.

2.5 LAND USE AND REGULATORY SETTING

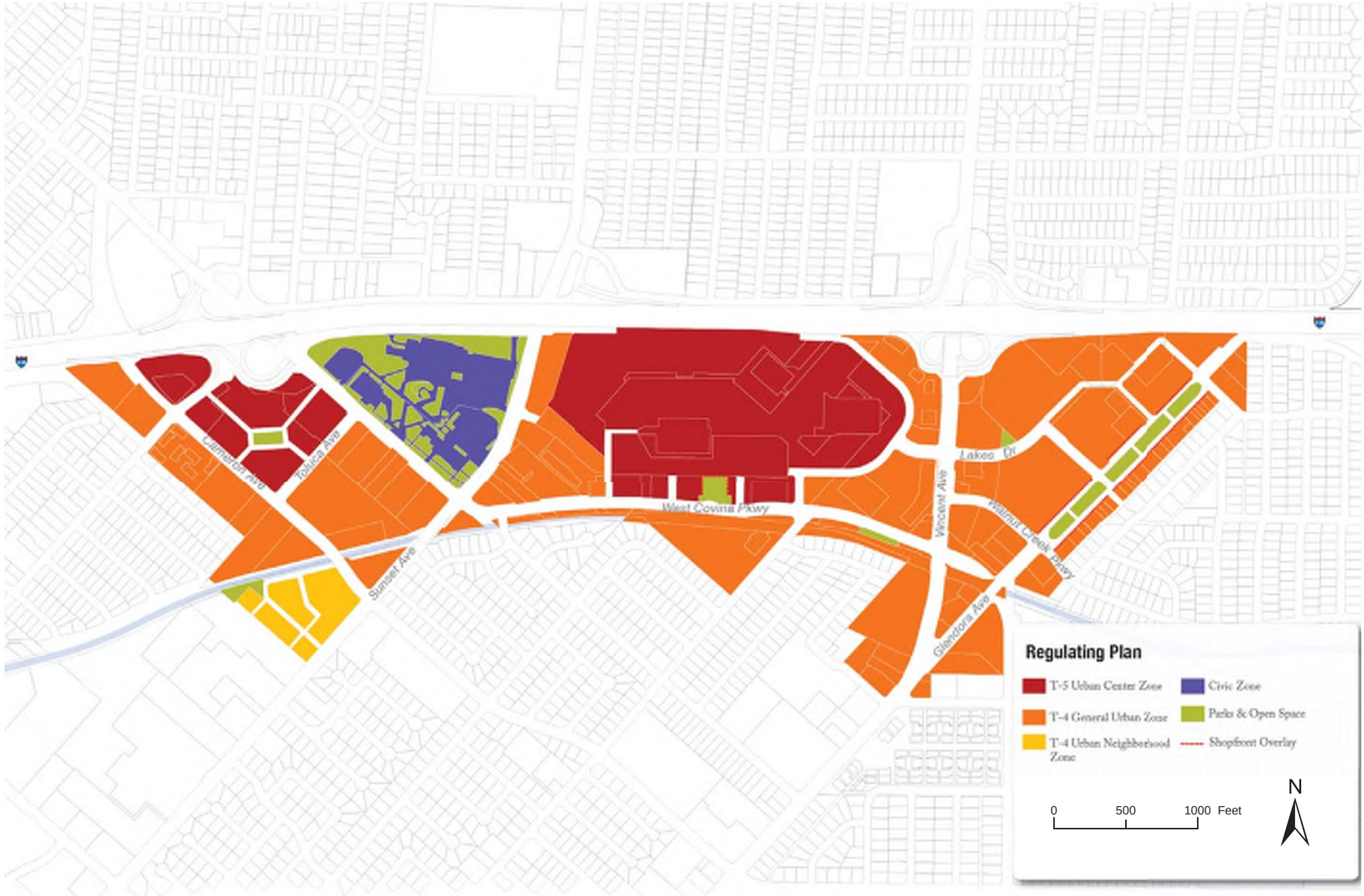
PlanWC is the first comprehensive update of the City's General Plan since 1985. The current West Covina General Plan is made up of nine Elements: Land Use; Economic Development; Housing; Human Resources; Environmental Quality; Safety; Circulation; Noise; and Design. The current land use plan specifies eighteen separate land use designations, as shown on Figure 2-4, although these separate land use designations can be grouped into the following five categories: residential; commercial, office, and industrial; planned development; mixed use; and public and semi-public uses including parks, open space, public facilities, schools, and hospitals. These land use designations define the basic categories of land use allowed in the City, but are implemented through the City's Zoning Ordinance and Zoning Map, which are



Source: City of West Covina
August 2016

Plan WC Land Use Map

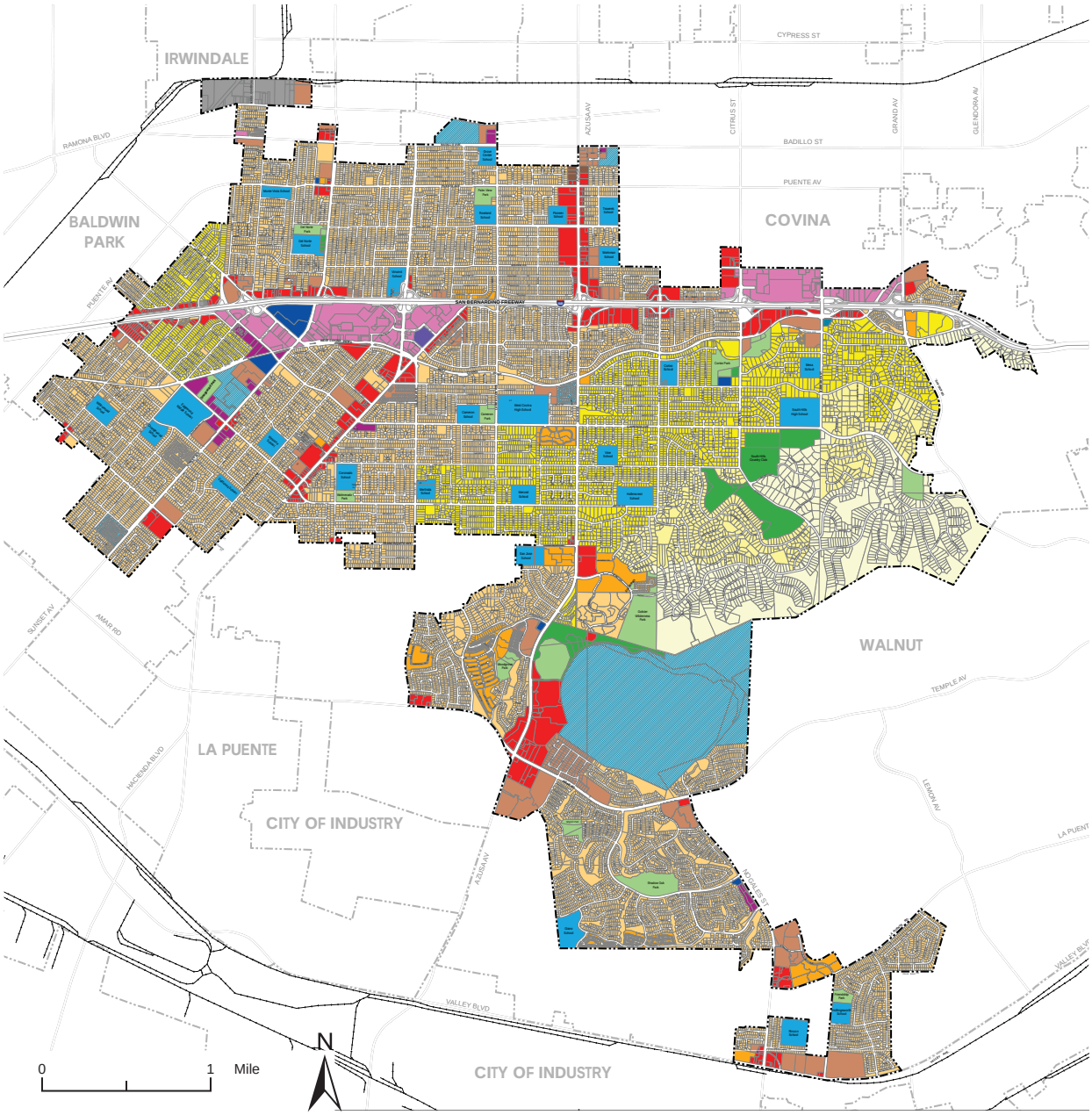
Figure 2-2



Downtown Plan and Code Regulating Plan

Figure 2-3

Source: City of West Covina, August 2016



Legend

RVL - Residential Very Low	(.1-1.0 du/a)	RH - Residential High	(20.1+ du/a)	P - Park	
RL - Residential Low	(1.1-2.0 du/a)	RC - Regional Commercial		OS - Open Space	
RS - Residential Suburban	(2.1-4.0 du/a)	SNC - Service & Neighborhood Commercial		PF - Public Facility	
RLM - Residential Low Medium	(4.1-8.0 du/a)	O - Office		S - School	
RM - Residential Medium	(8.1-15.0 du/a)	PD - Planned Development		H - Hospital	
RMH - Residential Medium High	(15.1-20.0 du/a)	IM - Industrial & Manufacturing		MU- Mixed Use (75+ du/a)	
				City Boundary	

Dwelling Units per Acre (du/a)

Current West Covina General Plan
Land Use Map

Figure 2-4

Source: City of West Covina
January 2016

part of the City's Municipal Code and contain more specific regulations and standards governing development on individual properties. Under State law, a property's zoning is required to be consistent with its General Plan land use designation (Government Code §65860). Section 65860(c) of the Government Code requires that when a General Plan is amended in a way that makes the Zoning Ordinance inconsistent with the General Plan, "the zoning ordinance shall be amended within a reasonable time so that it is consistent with the general plan as amended" but it does not define a specific time period that would constitute a reasonable time. The Downtown Plan and Code and PlanWC were prepared and adopted simultaneously, and the two documents are entirely consistent with each other. If PlanWC is adopted, the City will subsequently need to review the rest of its Zoning Ordinance, including its Zoning Map, to make sure it is consistent with the new General Plan.

2.6 CHARACTERISTICS OF THE PROPOSED GENERAL PLAN UPDATE

Based on a market assessment, PlanWC projects the following amount of development in West Covina over the next 20 years, with a large majority of this growth directed to the Downtown:

- 2,100 residential units
- 400,000 square feet (sf) of office
- 200,000 sf of retail commercial
- 600 hotel rooms

The eight Elements making up PlanWC are further described below.

2.6.1 Our Natural Community Element

The goal of this Element is to live in balance with our natural environment by preserving existing open spaces; improving the quality of natural resources; and increasing access to open space. West Covina is situated in the middle of San Gabriel Watershed, nestled between the San Gabriel Mountains and the San Jose Hills. West Covina benefits from and relies on natural resources, which include the San Jose Hills that provide an important visual backdrop that frames the City. The hills provide residents and visitors with scenic vistas and are part of a larger integrated ecosystem that provides a habitat for plant and animal life.

The challenge in West Covina is to strike a balance, restoring some natural amenity to the city, and bringing about productive harmony between people and their environment. An important purpose, therefore, of the Natural Community Element is to give natural environment amenities and values appropriate consideration in urban development along with economic and social considerations.

As West Covina continues to grow, conserving resources like clean water and air, parks and open space, and an efficient circulation network become more important. The policies and actions contained in the Our Natural Community Element will guide protection of natural habitat through restoration of natural qualities of land, air and water by elimination of polluting greenhouse gases.

2.6.2 Our Prosperous Community Element

The goal of this Element is to maintain and monitor West Covina's fiscal health, reinforce the West Covina's brand as a great place to Live, Work and Play in the San Gabriel Valley, and nurture local businesses and attract non-retail jobs through a multi-faceted program of economic initiatives that will strengthen the City's fiscal health, enhance economic competitiveness, and grow local businesses.

This Element is organized into two sections. The first section provides a summary of West Covina's market context, based on a market context analysis carried out between December 2014 and February 2015. The findings of this analysis were presented during the General Plan Charrette held in February 2015. The second part of the Element includes a set of policies and actions that address key aspirations and challenges identified by the community, and are designed to achieve the goals of the Element.

2.6.3 Our Well Planned Community Element

The goal of this Element is to direct new growth to the Downtown West Covina, where development pressures are the greatest and change is desired, while protecting stable residential areas; target housing and job growth in strategic areas along transportation corridors; and encourage pedestrian-oriented mixed-use development, while providing vibrant public spaces and gathering places.

This Element attempts to achieve this goal through a "Downtown First" strategy. The focus of this Element (and the General Plan in general) is to deploy the City's current resources strategically on planning for areas where the development pressures are greatest, infrastructure is in place, and change is desired, while protecting stable residential areas from runaway growth. The key opportunity for transformative change is within the downtown district. The Downtown Plan and Code have been developed in order to achieve these goals and implement these strategies. The guiding principles of the Downtown Plan are the following: expand housing opportunities; connect activity centers; promote mobility options; establish a network of open space; animate the public realm; and get the parking right.

This Element describes how the Downtown Plan will implement these principles through Transect-based zoning. It contains a description of the different land use planning designations for West Covina, and the equivalent Transect zone. The Transect zones provide a framework to describe a broad but continuous range of environments for human habitation and activity. The Transect zones reflect how intensely land is used, and how placement and scale of buildings, the type of streets, presence and width of sidewalks should reinforce the character of the area. The Downtown Plan and Code is described in more detail in Section 2.7 of this Chapter.

This Element defines districts, corridors, and neighborhood centers (including Downtown) in which future development projects may occur. It projects a total development capacity under PlanWC of 2,100 residential units; 400,000 square feet (sf) of office; 200,000 sf of retail commercial; and 600 hotel rooms. Finally, it lists policies and actions designed to achieve the goals of the Element.

2.6.4 Our Accessible Community Element

The goal of this Element is to provide safe access for all users—pedestrians, cyclists, public transit users, and motorists—of all ages and abilities; and design streets that consider both the existing and future context of transportation and land use and seek to be in harmony with the adjacent area's history, environmental resources, and overall aesthetic. It seeks to achieve this goal through a "complete streets" approach which, while avoiding traffic congestion, ensures that all users of the City's streets (including pedestrians, bicyclists, and transit riders) are taken into account in the City's transportation planning processes, as well as other important elements of street design including streetscape beautification and support for adjacent commercial development.

Because PlanWC directs new growth into the Downtown Area and the corridors, the focus of the analysis and recommendations in this Element are in these areas. This Element also contains the following:

- Parking recommendations to ensure parking availability while reducing costs of parking construction and maintenance and increasing space available for other uses through more efficient management of parking supply.
- A City Thoroughfare Plan with proposed street classifications that would explicitly take into account both the multi-modal function of the street and adjacent land use context.
- A recommended set of transportation system metrics that would monitor and measure how well the City implements and maintains mobility-related policies, projects and programs, based on a set of indicators or targets.
- Policies and actions to support the mobility and other goals of PlanWC.

2.6.5 Our Resilient Community Element

The goal of this Element is to support development pattern and support systems that yield a resilient low-carbon built environment. Resilient West Covina will meet the needs of current and future generations without compromising the ecosystems upon which it depends by balancing social, economic and environmental resources, and incorporating resilience in the development pattern and supporting systems. The very same policies that further sustainable development also enhance our natural eco-system, prosperity, quality of life, mobility, and public health and further other initiatives central to this Plan. By implementing sustainable design policies and actions, West Covina can reduce consumption of natural resources and energy, and reduce waste and greenhouse gasses, while promoting active living and access to healthy food.

This Element describes the existing built environment of West Covina in terms of development patterns (circulation, land use, public realm, and building and landscape form); and support systems (transportation, energy, water, sewer, storm water, natural environment, food production, and solid waste). It then recommends policies and actions to improve West Covina's resilience in each of these areas.

2.6.6 Our Healthy & Safe Community Element

The goal of this Element is to create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity, based on the knowledge that well-designed public and semi-public realm foster social interaction, and good programming can draw people out of their homes and into their community.

This Element examines currently available statistics relating to health in West Covina and the region, and then recommends policies and actions to encourage active living, mental health and social capital, and access to and consumption of healthy and nutritious foods. It also provides information on, and recommends policies and actions related to, public safety issues such as police and fire protective services, and natural hazard mitigation. It also analyzes existing and potential future community exposure to noise, and recommends policies and actions to protect the community from excessive noise.

2.6.7 Our Creative Community Element

The goal of this Element is for West Covina to become a vibrant cultural center by weaving the arts and local heritage into everyday life. There is growing recognition of the importance of creativity, culture and quality of place in growing local economies. Enhancing quality of place and creating attractive amenities can draw talented people, which in turn attracts business investment in an emerging creative economy characterized by higher paying, year-round jobs. Cultural resources and experiences also attract visitors and help grow tourism, an increasingly important component of economic development strategies in all communities.

Towards this end, this Element describes West Covina's tangible and intangible cultural resources; driving forces such as the creative economy, aging in place, and West Covina's diverse demography; and cultural needs determined through surveys, individual interviews, and focus groups. It then recommends policies and actions to build capacity, leverage West Covina's assets for economic growth, build a robust cultural sector, and celebrate and promote West Covina's cultural assets.

2.6.8 Our Active Community Element

The goal of this Element is to enhance the value of fitness and wellness and celebrate healthy living; improve the existing condition of public open spaces and facilities to encourage use; and acquire, develop, and maintain quality of public open spaces and trails.

Towards this end, this Element describes current trends related to active living and recreation; discusses the benefits and typologies of open space; provides an inventory of existing open space resources and service areas; and discusses existing standards and funding for provision of open space. It also discusses key issues related to parks and open space identified through public input during the General Plan Update process. It then recommends policies and actions to help ensure a variety of open space types; to encourage people to walk or bike to parks by creating small and frequent open spaces dispersed throughout neighborhoods; to ensure public access to open space; to create connected open space networks; ensure safety and maintenance of parks and open space; and ensure adequate recreational facilities and programming.

2.7 CHARACTERISTICS OF THE PROPOSED DOWNTOWN PLAN AND CODE

From 1950 to 1962, West Covina grew 1,500%, from a population of 4,499 to 54,688. Since 1962, its population has roughly doubled, to a 2016 population of approximately 107,873. Interstate 10, which was widened and turned into a freeway through West Covina in the 1950s, has been a key ingredient in the City's development. The frontage parcels along I-10 were developed with civic, entertainment, retail, and office uses. The Downtown Plan brings these assets together within a walkable environment.

Informed by a collective vision of the community, the Downtown Plan advocates for a new urban form that is compact and walkable, with parks, plazas, and civic destinations framing key gathering spaces for the community. The Downtown Plan and Code articulates a compelling vision and clear and precise standards to ensure a prosperous, accessible, resilient, healthy, and inclusive future for Downtown West Covina. The Plan Area for the Downtown Plan and Code are shown in Figure 2-3 above.

Specifically, the Downtown Plan and Code:

- Responds to extensive community input and incorporates specific ideas, recommendations and strategies which reflect that input.
- Protects and enhances key physical and cultural assets in Downtown.
- Addresses issues and opportunities related to land use, urban design, parks and open space, economic development, transportation, health, safety and community investments.

The Downtown Plan and Code includes:

- A community-supported vision and guiding principles for a vibrant and walkable Downtown.
- Goals, policies, and actions to guide decision-makers in achieving this vision. These goals, policies, and actions are organized into the same topic areas as the Elements of PlanWC, but are specific to the Downtown Plan Area.
- Catalytic projects to spur economic investment and residential and commercial development in Downtown.
- A new form-based code to provide clear direction and predictable process and outcomes.
- Streetscape improvements to activate the public realm, providing an inviting and engaging urban core.

As the Downtown Plan and Code and PlanWC were prepared and adopted simultaneously, the two documents are entirely consistent with each other.

2.8 PROJECT OBJECTIVES

The goals of PlanWC and the Downtown Plan and Code are the following:

- Direct new growth to the Downtown area where development pressures are the greatest and change is desired, while protecting stable residential areas. This strategy is referred to as "Downtown First."
- Target housing and job growth in strategic areas along key transportation corridors.
- Encourage pedestrian-oriented mixed-use development in Downtown, while providing vibrant public spaces and gathering places.
- Preserve existing open spaces, improve the quality of natural resources, and improve access to open space.
- Maintain and monitor West Covina's fiscal health by reinforcing West Covina's brand as a great place to Live, Work and Play in the San Gabriel Valley, and nurturing local businesses and attracting non-retail jobs.
- Design streets that provide safe access for all users—pedestrians, cyclists, public transit users, and motorists—of all ages and abilities, while also being in harmony with the area's history, environmental resources, and overall aesthetic.
- Support development patterns and support systems that yield a resilient low-carbon built environment.
- Create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity.
- Become a vibrant cultural center by weaving the arts and local heritage into everyday life.
- Enhance the value of fitness and celebrate healthy living; improve the existing condition of public open spaces and facilities to encourage use; and acquire, develop, and maintain quality public open spaces and trails.

2.9 REQUIRED DISCRETIONARY APPROVALS

With recommendations from the City's Planning Commission, the West Covina City Council will need to take the following discretionary actions in conjunction with the proposed project:

- Certification of the Final EIR
- Approval of the proposed General Plan Update and Downtown Plan and Code

West Covina adopted its current Housing Element in October 2013, covering the period 2014-2021. This Housing Element was submitted to the California Department of Housing and Community Development (HCD) for review and comment, and the City received certification of the Housing Element from HCD in November 2013. Minor revisions have been made to the 2014-2021 Housing Element to make it consistent with the General Plan. The City received a pre-certification letter from HCD for this Housing Element revision in August 2016. The revised Housing Element is included in the General Plan amendments that will require approval by the City as part of adoption of the proposed project.

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3.0 ENVIRONMENTAL SETTING

According to Section 15125 of the State CEQA Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of a project to provide the "baseline condition" against which project-related impacts are compared. In order to fulfill this requirement, and to inform the reader of the context in which PlanWC and the Downtown Plan and Code would be carried out, this section describes current environmental conditions in and around West Covina. More detailed setting information is included within the impact analysis for each issue area.

3.1 REGIONAL OVERVIEW

West Covina is located in the eastern San Gabriel Valley portion of Los Angeles County and the Los Angeles metropolitan region. The region is topographically diverse, with mountains, valleys, agricultural land, and distinct urban areas, all within relatively close proximity of the Pacific Ocean. The Mediterranean climate of the region and coastal influence produce moderate temperatures year round, with rainfall concentrated in the winter months. The region is subject to various natural hazards, including earthquakes, landslides, and wildfires. Together with other cities in the inland coastal plain of Los Angeles, Orange, Riverside, and San Bernardino counties, West Covina is part of an ethnically and economically mixed region with a range of recreational, cultural, educational, and employment opportunities.

3.2 PHYSICAL SETTING

3.2.1 General Geographic Setting

West Covina is centrally located between major metropolitan centers and transportation hubs, approximately 18 miles east of Downtown Los Angeles, 18 miles west of Ontario International Airport, 20 miles northeast of Long Beach Airport, 25 miles northeast of the ports of Los Angeles and Long Beach, 25 miles east of Los Angeles International Airport, 25 miles southeast of Burbank Airport, 25 miles north of John Wayne Airport, and 35 miles west of San Bernardino. The Interstate 10 (I-10) freeway traverses the northern portion of West Covina from east to west, and the State Route 60 (SR-60) freeway is located less than a mile south of the City's southern limit. Two rail lines are located just outside City limits: one to the north, carrying both Metrolink San Bernardino line trains and freight trains; and one to the south, carrying freight trains only, with Metrolink Riverside line trains on a separate line approximately ¼ mile further to the south. These rail lines connect the Los Angeles area to the west with Riverside and San Bernardino the east. The area immediately surrounding the City is primarily urban in nature, with some natural areas remaining in the San Jose Hills, which the City extends into on its east and south. Figure 2-1 in Section 2.0, *Project Description*, shows the City's regional location.

West Covina has historically been and continues to be a largely residential community. As shown in Table 4-1 and the accompanying charts in Section 3, *Our Well Planned Community* of PlanWC, about 63% of existing development in the City consists of low density residential uses, and another 4% is medium density residential. 11% of the City if occupied by commerce, industry, and the Downtown; 10% is public and institutional uses; 6% is parks and open space; and 6% is the former BKK landfill.

3.2.2 Topography and Drainage

West Covina is located in a relatively flat topographic area of the San Gabriel Valley, except for areas in the San Jose Hills in the eastern and southern parts of the City. Elevations range from approximately 350 feet above mean sea level (msl) in the western parts of the City, to roughly 550 fee msl in eastern parts of the City within the San Gabriel Valley floor, to roughly 900-1,000 feet msl along the crest of the San Jose Hills, to roughly 450 feet msl at the southernmost City limits between Nogales Street and Fairway Drive.

The City contains both undeveloped open space with natural drainage features and urban development with highly altered drainage systems, such as concrete lined washes and underground stormwater systems. Runoff that occurs as overland flow in the City is intercepted by the stormwater drainage system and is routed via Big Dalton Wash, Charter Oak Creek, Puente Creek, Vine Creek, or Walnut Creek towards the San Gabriel and Rio Hondo rivers and eventually to the Pacific Ocean.

3.2.3 Climate

West Covina is located within the South Coast Air Basin (Basin). The surrounding mountains trap the air and its pollutants in the valleys below. The basin includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. The regional climate within the basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity.

More specifically, West Covina is located in eastern Los Angeles County. According to the South Coast Air Quality Management District (SCAQMD), the City of West Covina is located in Climate Zone 9, which covers the inland valleys. Both coastal and interior weather influences the inland valley climate zone. The inland winds bring hot and dry air and marine air brings cool and moist air. Rain falls in the winter averaging around 2" per month between November and April. More than 50% of the time skies are clear or partly cloudy (Pacific Energy Center, October 2006). The average annual temperature in West Covina is 18.2 °C (approximately 64.8 °C). Average annual rainfall is 414 mm (approximately 16 inches).

3.3 DEMOGRAPHICS

From 1950 to 1962, West Covina grew 1,500%, from a population of 4,499 to 54,688. Since 1962, its population has roughly doubled. The city of West Covina's estimated 2016 population is approximately 107,873 persons, which is a 0.7% percent increase from its 2015 population of 107,081 (California Department of Finance, April 2016). According to the California Department of Finance, the City had 32,930 dwelling units (31,408 of which were occupied) as of January 1, 2016, including 24,390 single-family dwelling units (74%), 8,195 units within multi-family buildings (25%), and 345 mobile homes (1%).

The economic base of West Covina is dominated by regional and local retail, service oriented businesses, and health care establishments. While other types of commercial and industrial land uses exist in the City, roughly two-thirds of the jobs in West Covina are retail and service-related. Despite this, a large percentage of West Covina residents do not work for local

companies and instead hold jobs in various managerial and technical professions in the surrounding region. Consequently, the average income in the City ($68,308) is higher than the countywide average ($56,226), and greater than would be expected for the local economic base (West Covina Housing Element, August 2016).

3.4 CUMULATIVE PROJECTS SETTING

CEQA defines cumulative impacts as two or more individual actions that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be insignificant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows an EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. In addition to cumulative development within the City of West Covina, the analysis of traffic and related impacts (such as noise) considers the effects of regional traffic growth.

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4.0 ENVIRONMENTAL IMPACT ANALYSIS

This section discusses the possible environmental effects of the proposed project for the specific issue areas that were identified through the NOP process as having the potential to experience significant impacts. "Significant effect" is defined by *CEQA Guidelines* §15382 as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant."

The assessment of each issue area begins with a discussion of the setting relevant to that issue area, followed by a discussion of the proposed project's impacts relative to that issue area (the impact analysis). Within the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds", which are those criteria adopted by the City, other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text, with the discussion of the effect and its significance following. Each bolded impact listing also contains a statement of the significance determination for the environmental impact as follows:

> ***Class I – Unavoidably Significant:*** *An impact that cannot be reduced to below the significance threshold level with implementation of reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per §15093 of the State CEQA Guidelines.*
>
> ***Class II - Significant but Mitigable:*** *An impact that can be reduced to below the significance threshold level with implementation of reasonably available and feasible mitigation measures. Such an impact requires findings to be made under §15091 of the State CEQA Guidelines.*
>
> ***Class III - Not Significant:*** *An impact that may be adverse, but does not exceed the significance threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.*
>
> ***Class IV - No Impact or Beneficial:*** *No impact would occur or the project would have a beneficial effect.*

Following each environmental effect discussion is a listing of recommended mitigation measures (if required) and the residual effects or level of significance remaining after the implementation of the measures. In those cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual effect. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other future development in the area. The Executive Summary of this EIR clearly summarizes all impacts and mitigation measures that apply to the proposed project.

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4.1 AESTHETICS

This section analyzes the potential impacts on aesthetics and visual resources resulting from implementation of PlanWC and the Downtown Plan and Code (the proposed project).

4.1.1 Setting

a. Definitions. "Aesthetic value" is primarily determined by an area's perceived natural beauty as well as the perceived value of the elements that contribute to or enhance the area's visual quality. Although aesthetic value is subjective, it is utilized as a criterion for evaluating potential impacts on visual resources.

Most communities identify scenic resources as important assets that form community identity. Although the perception of what is considered "scenic" may vary according to the environmental setting, scenic resources typically include natural open spaces, unique topographic formations, and natural landscapes. Scenic resources can also include urban open spaces, cultivated landscapes, and other aspects of the built environment such as parks, trails, cultural resources, and architecturally significant buildings.

Viewsheds also contribute to aesthetic value, as they establish the context in which scenic resources may be observed. They are typically defined by physical features that frame one or more scenic resources. For example, an area's topography can contribute to aesthetic value through the creation of view corridors and/or scenic vistas consisting of ridgelines and mountains, which can form a community's visual backdrop. Viewsheds can also include a range of resources (including natural and/or man-made elements) and thus natural and man-made environments can be considered important scenic resources worthy of preservation.

b. Existing Conditions. The City of West Covina (City) is located in the greater Los Angeles metropolitan region in eastern Los Angeles County. The City is located at the eastern end of the San Gabriel Valley, which is framed by the San Gabriel Mountains on the north, the San Rafael Hills on the west, the Puente Hills on the south, and the Chino Hills and San Jose Hills on the east, providing scenic views within the City. The City is urbanized with a variety of different visual characters including undisturbed areas, suburban neighborhoods, shopping centers, urban neighborhoods and the Downtown area. In the 1950's, West Covina was considered the fastest growing city in the nation and as a result has become urbanized, especially in the Downtown area around the West Covina Civic Center. In an attempt to find more land for development, housing moved into the San Jose Hills until the City became built out.

The homogeneous nature of the suburbs can limit the ability of the City and the neighborhoods within it to establish identities. Borders between West Covina and neighboring cities have become blurred as undistinguishable design elements are used. As a result the City, like many other cities in southern California, lacks distinct physical elements that clearly define the boundaries of the City (City of West Covina, 2006).

Plan WC contains a description of the different land use planning designations for West Covina, and the equivalent Transect zone. The Transect is a system of natural-to-urban Transect zones or 'human habitats'. The Transect zone in PlanWC is noted with its equivalent land use designation. Transect zoning provide a simple but powerful framework to allow a community to describe with precision a broad but continuous range of environments for human habitation and activity. The

Transect zones reflect how intensely land is used, and how placement and scale of buildings, the type of streets, and the presence and width of sidewalks should reinforce the character of the area. Under PlanWC's Transect-based system, the allocation of separate land use designations evolves to a geography of places that address "form and character" of the place and informs the nature of intended change in different areas. The basic organizing place types for areas designated for growth are neighborhoods, districts and corridors.

Districts. The City recognizes four districts in the General Plan: Downtown, Eastland Center, West Covina Auto Plaza, and BKK:

- **Downtown.** The Downtown district is the largest concentration of commercial use within the City. It is roughly bounded by Interstate 10 on the north, Glendora Avenue on the east, West Covina Parkway and Sunset Avenue on the south, and Cameron Avenue on the west. The Downtown is strategically located in the eastern portion of the San Gabriel Valley between Los Angeles and the Inland Empire. It is recognized as West Covina's Central Business District, and is the largest concentration of commercial uses in the City. Current standards within the Downtown area require a minimum of 30 units per acre and allow up to a maximum of 75 units per acre. The area has developed largely as a commercial center in lieu of a more distributed land-use pattern. The Downtown includes the civic center, the largest regional mall in San Gabriel Valley, professional office buildings, and mixed-use corridor comprising of entertainment, retail, dining, and urban apartment uses.
- **Eastland Center**. Located in the eastern portion of the City, this district is a multi-tenant retail power center which includes a collection of large format retail stores. This retail center lacks a variety of building types (and therefore uses), and the buildings are surrounded by parking lots and outparcels with drive-through establishments. This district does not provide a walkable block structure.
- **West Covina Auto Plaza**. This district is a cluster of new and used car dealerships located at the intersection of Interstate 10 and Azusa Avenue. Many residential neighborhoods are located adjacent to the Auto Plaza.
- **BKK.** The BKK district is a former landfill site located in the southeast section of the City. The western edge of the site has been developed with a shopping center and the Big League Dreams Sports facility.

Corridors. West Covina has four major urban corridors: Azusa Avenue, Glendora Avenue, Sunset Avenue, and Valley Boulevard.

- **Azusa Avenue.** Azusa Avenue is the City's primary north-south corridor, extending from the San Gabriel Mountains north of the City to the Powder Canyon natural area south of the City. North Azusa Avenue is a more continuous urban corridor than South Azusa Avenue, which is suburban with commercial uses concentrated at a few key intersections. The North Azusa Avenue corridor consists of mostly car-oriented retail uses, shopping centers, big boxes, drive-through restaurants, and apartments, and lacks a consistent walkable structure and streetscape design. The street is wide, sidewalks are narrow, street trees are missing, on-street parking is sparse, median landscaping is inconsistent, many buildings with their large parking areas fail to physically define the street. The street is not interesting, comfortable, or safe for pedestrians. Many retail and shopping centers are located behind huge parking areas which damage the street fabric of North Azusa Avenue.

- **Glendora Avenue.** The Glendora Avenue corridor is a mix of uses including a large ethnic retail center, large format neighborhood serving retail uses, small shopping strips, and a range of auto oriented uses. Segments of this corridor also have single and multi-family residential uses. The corridor lacks a consistent streetscape design and frontage parcels along the corridor back up to residential neighborhoods.
- **Sunset Avenue.** The Sunset Avenue corridor is anchored by Queen of the Valley hospital campus and supporting medical uses and professional offices.
- **Valley Boulevard.** Valley Boulevard in West Covina is a high speed corridor that serves as the southern entrance into the City.

Neighborhoods. There are numerous residential neighborhoods throughout West Covina, which are often integrated with commercial development and busy transportation routes. According to Table 4-1 of PlanWC, residential land uses occupy approximately 67% of the City's existing developed land area. As discussed in Section 4.11 *Population and Housing* of this EIR, West Covina had approximately 32,930 housing units in 2016, 24,390 (74%) of which were single family residences, 1,235 (4%) of which were multi-family residences (2-4 units), and 6,960 (21%) of which were multi-family residences (5 plus units).

Open Space. Open space provides visual relief from urbanized areas within the City, including views for motorists, pedestrians, and bicyclists. Since the majority of West Covina is currently developed, open space is provided in the form of parks interspersed throughout the City encompassing 292 acres. The San Jose Hills Landscape and Maintenance District manages 207 aces in the hills for a total of 499 acres of parks and open space within the City. West Covina's 1985 General Plan categorizes the parks into mini-parks, neighborhood parks, community parks, and special-interest parks. Small trees/large pruned shrubs, such as Crape Myrtle are typically found at least once every 50-100 feet within City parks. The San Jose Hills provide the visual backdrop for the City and provide residents and visitors with scenic vistas, and additional open space. The BKK district provides additional visual relief from urbanized areas. It is located within the San Jose Hills in the southeast section of the City, and is made up mostly of inaccessible open space, except for a portion along its western edge on Azusa Avenue, which has been developed with a shopping center and the Big League Dreams Sports facility.

c. Scenic Corridors and Roads. Scenic corridors can often provide an opportunity for the public to take advantage of the natural environment's aesthetic value. California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. Scenic corridors typically pertain to highways and visible lands outside the highway right-of-way, generally described as the view from the road. There are no officially designated scenic highways within West Covina. However, State Route 57 between SR 91 and SR 60, located approximately 2 miles east of the southeastern tip of the City, is identified as Eligible for State Scenic Highway designation.

d. Light and Glare. West Covina is primarily built-out; therefore, a substantial amount of ambient light from urban uses already exists. Similar to other developed urban areas, sources of light and glare include neon signs, glass building façades, streetlights, parking lot lighting and automotive headlights.

e. Regulatory Setting. The City's existing General Plan and Municipal Code provide the framework for evaluating potential aesthetic impacts and preserving its visual resources. From a policy perspective, the 1985 General Plan contains goals and policies (some of which are listed below) to protect and enhance visual resources.

Federal. No existing federal regulations pertain to the visual resources within the proposed plan area of the proposed project.

State. The California Department of Transportation (Caltrans) defines a scenic highway as any freeway, highway, road, or other public right-of-way, that traverses an area of exceptional scenic quality. Suitability for designation as a State scenic highway is based on vividness, intactness, and unity, as described in Caltrans Guidelines for Official Designation of Scenic Highways (1995):

- *Vividness is the extent to which the landscape is memorable. This is associated with the distinctiveness, diversity, and contrast of visual elements. A vivid landscape makes an immediate and lasting impression on the viewer.*
- *Intactness is the integrity of visual order in the landscape and the extent to which the natural landscape is free from visual intrusions (e.g., buildings, structures, equipment, grading).*
- *Unity is the extent to which development is sensitive to and visually harmonious with the natural landscape.*

There are no officially designated scenic highways within West Covina. However, State Route 57 between SR 91 and SR 60, located approximately 2 miles east of the southeastern tip of the City, is identified as Eligible for State Scenic Highway designation (Caltrans, April 2016).

1985 General Plan. The City currently addresses the aesthetic resources and visual character and quality of the community through the Design Element of the 1985 General Plan. The goal of the Design Element is the following:

> *Preserve and enhance the image of West Covina as the City of Beautiful Homes; maintain harmony and balance, and enhance the aesthetic, visual, and functional quality of the natural and built environment; and uphold the livability and quality of life of the City and maintain an aesthetically pleasing environment for those who live, work, and visit the City.*

The 1985 General Plan Design Element also contains the following policies with associated actions that relate to aesthetics.

City Form Policies:

1. *Strengthen the visual identity of the City through design and the use of physical design elements to distinguish West Covina from surrounding areas.*
   a. *Create identifiable edges, entry points, and landmarks.*
   b. *Define gateways or entry points along arterials, where appropriate, by developing a coordinated program of signage, landscaping and the design of entry elements.*
   c. *Implement the policies and development standards of the Westside Area Plan to create a "Westerly Gateway to West Covina."*

Landscape and Open Space Policies:

1. *Preserve the scenic backdrop of the San Gabriel Mountains and the hillside areas.*
    a. *Utilize the development standards of the Hillside Overlay Zone to regulate development of the hillside areas.*
2. *Identify and preserve views, vistas, and scenic corridors.*
    a. *Identify existing views and scenic corridors of city-wide value.*
    b. *Encourage site design that is sensitive to the preservation of views and vistas.*
    c. *Prevent the obstruction of vistas and scenic corridors through design and zoning.*
3. *Maximize the quality and use of open space areas in and between developments.*
    a. *Maintain the aesthetic quality of City parks and parkways.*
    b. *Develop a network of open space through the design and integration of City parks, landscaped parkways, and open space land.*

Gateways and Trafficways Policies:

1. *Maintain a system of streets and parkways in an attractive, functional, and efficient manner that will unify individual components of the City.*
    a. *Establish landscaping themes for specific areas throughout the City.*

Activity Nodes and Landmarks Policies:

1. *Preserve the integrity and visual quality of residential neighborhoods*
    a. *Develop landscaping and architectural theme elements for specific areas to enhance neighborhood identity.*
    b. *Implement the Mansionization Ordinance that contains development standards to protect the established character of residential neighborhoods.*
2. *Encourage design that reinforces City image and identity and reflects community and historic values.*
    a. *Prepare design guidelines for all types of development within the City.*
3. *Promote the development of economically viable and attractive commercial districts.*
    a. *Encourage the use of architectural theme elements to convey an overall theme or character for specific commercial areas.*
    b. *Encourage the design of "people spaces" within and throughout commercial areas.*
4. *Promote infill development that is compatible with surrounding development.*
    a. *Encourage infill development that is designed to interact with surrounding development.*
    b. *Building heights, massing, placement, architectural style, and color should complement surrounding structures.*
5. *Provide attractive, inviting, and safe pedestrian environments.*
    a. *Incorporate human-scaled elements throughout the streetscape.*
    b. *Develop programs of coordinated street furniture to encourage interaction and enhance the appearance of "people spaces" and streetscapes.*
    c. *Encourage the development of pedestrian linkages within and between commercial areas.*

Aesthetics and Quality of Life Policies:

1. *Provide a system of visual and spatial linkages throughout the City and within specified developments.*
    a. *Develop independent sign programs for shopping centers and planned developments throughout the City.*

   b. *Develop a program to coordinate the landscaping of parkways and the design of street furniture for specified areas.*
   c. *Promote the development of bike paths, horse trails, and pedestrian walks as linkages between parks to develop a network of useable open space throughout the City.*
   d. *Encourage the design and display of public art in parks, parkways, and Civic Center District and within private development.*
   e. *Utilize banners in the public right-of-way to promote a stronger sense of community by informing the public of civic and cultural events.*
2. *Create distinct, identifiable residential neighborhoods to foster neighborhood price and a sense of place.*
   a. *Establish area-specific design goals for residential neighborhoods.*
3. *Maintain the condition and appearance of commercial and residential development.*
   a. *Actively enforce the standards of the Property and Landscape Maintenance Ordinance.*
   b. *Encourage the use of Home Improvement Loans offered by the City.*
   c. *Continue the upgrade and development of major commercial activity nodes through the activities of the Redevelopment Agency.*

Municipal Code. Regulations relating to the aesthetic character of West Covina are contained in Chapter 7, Buildings and Building Regulations of the West Covina Municipal Code (WCMC) which regulates all building within the City. Specifically, Article X, Division 3, Development Standards. This section of code identifies development standards such as lighting, landscaping, and exterior design for all nonresidential zones to ensure that development within the City is visually similar and maintains a specific style. Chapter 26 of the WCMC contains zoning and land use regulations, both of which affect the visual character and quality of the built environment and land use patterns within the community. These regulations are tools to implement the goals and policies of the General Plan, and have played a large role in determining the current aesthetic character of the City.

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds.

Methodology. The assessment of aesthetic impacts involves qualitative analysis that is inherently subjective in nature. Different viewers react to views and aesthetic conditions differently. This evaluation measures the existing visual environment of the Plan Area described above against the proposed project (implementation of the proposed General Plan Update (PlanWC) and Downtown Plan and Code), analyzing the nature of the anticipated change. It is important to underscore that the proposed project is a General Plan and a Master Plan and Code, and does not contain specific development proposals. This analysis therefore focuses on land use changes envisioned under the proposed project, and their aesthetic impacts on the community in terms of arrangement of built to open space, density and intensity of development according to the thresholds of significance discussed above.

Significance Thresholds. An impact is considered significant if physical changes that could be facilitated by the proposed project would:

- *Have a substantial adverse effect on a scenic vista.*
- *Substantially damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.*

- *Substantially degrade the existing visual character or quality of the site and its surroundings.*
- *Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.*

b. Project Impacts and Mitigation Measures.

Threshold:	*Have a substantial adverse effect on a scenic vista.*

Impact AES-1 Development facilitated by the proposed project would result in increased development intensity that may affect scenic vistas within West Covina. The City Municipal Code contains regulations for the protection of scenic vistas for residential development. Impacts to scenic vistas would be *less than significant with mitigation incorporated*.

West Covina is located in a relatively flat valley, framed by the San Gabriel Mountains on the north, the San Rafael Hills on the west, the Puente Hills on the south, and the Chino Hills and San Jose Hills on the east. These mountains provide background mountain scenic views within the City, depending on the viewer's vantage point and orientation. The City is nearly built out, and for most of the City, the proposed project would preserve the existing pattern of uses and direct the majority of new growth to the Downtown area. The level of change within PlanWC ranges from reinvestment in existing buildings and minor improvements to utility infrastructure and the public realm, to infill development that completes the prevalent development pattern.

PlanWC directs the majority of new growth to the Downtown area, neighborhoods, and corridors discussed in Section 4.1.1b, *Existing Conditions*. Gradually, new development in accordance with PlanWC would result in re-use of properties, conversion of uses in response to market demand, improvements to existing properties, and some infill, resulting in more intensive land use in certain areas. Overall, the plan emphasizes transformative but targeted change in the Downtown district and certain corridors, districts, and neighborhood centers.

The City's Municipal Code establishes regulations to protect scenic vistas from residential development. Development of single-family dwelling unit expansions, large homes, and residential/single-family homes is regulated to ensure that scenic vistas or views open to the public or surrounding properties are not disturbed per Sections 22-296.1300, 26-685.2300, and 26.401.5 of the City's Municipal Code. Development proposals for these structures are reviewed on a case-by-case basis and require approval by the City's planning director or Planning Commission.

Given the City's surrounding hillside and mountain views, new non-residential development allowed under the proposed project has the potential to affect views of scenic vistas from various locations in the City. The areas with the focus for the most development (Downtown and certain districts, corridors, and neighborhood centers) have the most potential for new or more intensive development with increased building heights that may block views of scenic vistas. The existing Municipal Code has only established review of scenic vistas for residential development, therefore non-residential development has the potential to impact scenic vistas. Future residential and non-residential development projects would undergo further environmental and design review on a project-by-project basis as they are proposed in order to identify and address impacts to scenic

vistas at the project level. However, there is no policy within PlanWC that specifies the consideration of public views within the City. Therefore, impacts would be potentially significant.

Mitigation Measures. The following mitigation measures would reduce significant impacts to scenic vistas to less than significant levels.

AES-1 Add the following policy to the *Our Natural Community* chapter of PlanWC:

During the review of public and private development projects, analyze potential impacts to views of natural areas from public streets, parks, trails, and community facilities.

Significance After Mitigation. With the measure requiring analysis of potential impacts to scenic vistas when considering future public *and* private developments, impacts to scenic vistas would be less than significant.

Threshold:	*Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.*

Impact AES-2 The proposed project would facilitate new urban uses that may affect scenic resources within the City. However, proposed goals and policies within PlanWC and the Downtown Plan and Code are specifically designed to protect scenic resources. Impacts would be *less than significant*.

As discussed in Section 4.1.1, *Setting,* there are currently no officially designated Scenic Highways within West Covina. However, the State Route 57 freeway between State Route 90 and State Route 60, located approximately 2 miles east of the southeastern tip of the City, is considered eligible for this designation. A State scenic highway changes from "eligible" to "officially designated" when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. The local jurisdiction must also adopt ordinances to preserve the scenic quality of the corridor or document that such regulation already exists in local codes.

The eligible portion of State Route 57 is located approximately two miles east of the southeastern tip of the City. In addition, existing views from State Route 57 south of its interchange with State Route 60 toward West Covina are for the most part blocked by existing topography or sound walls along the freeway. PlanWC focuses future development in Downtown West Covina, along certain corridors, and within certain districts. These areas are either not visible from State Route 57, or would not experience major visual change under the proposed project that would affect views from a distance of two miles or more. Consequently, development facilitated by the proposed project would not affect scenic resources within a state scenic highway.

Although West Covina has no officially designated State Scenic Highways, several areas within the City are identified as scenic in the 1985 General Plan and the City Municipal Code. The 1985 General Plan discusses the City's desire to designate several sections of roadways as City scenic highways. Within West Covina a scenic highway may be categorized as being either Urban or Hillside. Urban Scenic Highways generally serve as thoroughfares leading to the heart of the West

Covina Civic Center area, border the Central Business District area, or, in the case of Azusa Avenue, are the primary north-south roadways through the City. Minimum standards for these roadways include a ten-foot wide landscaped median strip, distinctive street lighting, specially-designed bus stop areas, and an incorporated theme for sidewalk treatment, landscaping and crosswalks. Hillside Scenic Highways serve to provide a scenic corridor through the San Jose Hills for the citizens of West Covina.

Damage to streets designated in the 1985 General Plan and Municipal Code as scenic resources would be avoided through implementation of several policies and actions from PlanWC and the Downtown Plan and Code.

Our Natural Community Chapter Policies and Actions

P1.6: *Preserve, conserve, and add to public open space.*

A1.6a: *Maintain the existing conservation areas and prohibit any development in spaces designated as parks and open space on the land use plan.*

P1.9: *Plant to maximize the social, economic, and environmental benefit of trees.*

A1.9a *Develop a street tree master plan for the Downtown area as part of the Downtown Plan and Code. Develop urban design strategies with unique palettes of trees that add character to the street space. Consistency and variation in tree form, color, and seasonal display can be used to create dynamic and harmonious streetscapes.*

A1.9b: *Increase the number of street trees by adding new trees in the Downtown area and the three corridors (Azusa, Sunset, and Glendora Avenue)*

A1.9d: *Develop a street tree management plan – outline a maintenance strategy, creating planting plans and identify capital funding needs.*

Downtown Plan and Code – Our Natural Community Polices and Actions

P1.1: *Plant to maximize the social, economic, and environmental benefit of trees.*

A1.1a: *Increase the number of street trees by adding 100 new trees in the Downtown area annually.*

PlanWC Policy P1.6 is to preserve and maintain any areas within the City that are designated as open space by the land use plan. Any section in the freeway overlay zone that is zoned as open space would therefore be conserved as part of this policy. PlanWC Policy P1.9 and Downtown Plan and Code Policy P1.1 are to increase the number of trees within the City along streetscapes to improve the scenic view of designated streets and highways. This includes planting trees along the Downtown portion of Azusa Avenue, a north-south roadway that has been designated in its entirety as an Urban Scenic Highway.

Mitigation Measures. None required, as implementation of policies and actions within PlanWC and the Downtown Mater Plan and Code, **as** well as existing municipal code regulations, would address potential impacts to designated scenic highways.

Significance After Mitigation. Impacts would be less than **significant** without mitigation.

Threshold:	*Substantially degrade the existing visual character or quality of the site and its surroundings.*

Impact AES-3 Development facilitated by the proposed project could change the visual character and quality of portions of West Covina. The proposed goals and policies in PlanWC and the Downtown Plan and Code are specifically designed to improve areas of low visual character and quality. Impacts would be *less than significant.*

The land use changes envisioned under PlanWC may affect the aesthetic character of various areas within West Covina and the City as a whole. While all development would be required to adhere to the design, density, and height guidelines applicable to particular land use and zoning designations, the proposed project would also establish goals and policies that would help define and guide the desired visual character and quality of Downtown and defined corridors, districts, and neighborhoods within the City. The vision established by the proposed project is to focus development in the Downtown area and corridors in need of reinvestment, where viable infrastructure is already in place, through moderate infill, redevelopment, or infrastructure improvements.

A main goal of PlanWC is to focus on revitalizing Downtown West Covina. Decades of development in the area around the West Covina Civic Center has brought investment, jobs, and tax base but failed to create a distinctive place. A cohesive "sense of place" and aesthetic appeal is increasingly important to a broad range of demographics, and implementing public realm improvements is essential to capturing new development. The proposed Downtown Plan and PlanWC envision Downtown as a place for people, a destination for business, and a hub for urban activity. The new vision for Downtown seeks to attract and retain talent and jobs while creating a vibrant area.

The Downtown Plan and Code visualizes Downtown as an interconnected series of three mixed-use districts: the Civic Center District, Plaza West Covina Mall District, and the Lakes Entertainment District. A goal of the Downtown Plan and Code is to integrate the three districts through a continuous open space network of streets, sidewalks, greens and plazas. A number of underperforming land parcels are identified for infill development to bring a range of new uses Downtown, while physically completing street faces. These improvements would provide for a more aesthetically pleasing Downtown, improving the visual quality of Downtown while maintaining visual character. Various street enhancements are another goal for the Downtown Plan, including improvements such as street widening, landscaping, constructing sidewalks, and introducing intermittent median islands to further increase the visual quality of Downtown. Additionally, four major intersections located at the West Covina Parkway and Vincent Avenue Interstate 10 Freeway exits would be enhanced to further increase visual quality. These street improvements would develop an aesthetically pleasing open space network of streets, and new streets would break large scale super blocks into pedestrian oriented blocks, improving visual quality.

PlanWC emphasizes the importance of a pedestrian environment, parks, and open space throughout the City. There are currently no pedestrian friendly linkages between the Downtown corridors. The Downtown Plan envisions pedestrian linkages with parks and open

space to encourage a pedestrian environment and beautify the Downtown area. PlanWC encourages multi-family projects that are urban in design and facilitate a pedestrian oriented environment by utilizing ground-floor retail, and active vibrant streetscapes. The redevelopment of vacant and underperforming parcels in the Downtown district and along major corridors like Azusa Avenue, Sunset Avenue, and Glendora Avenue would provide opportunity to add new open spaces. These improvements would create a more appealing aesthetic character for West Covina by breaking up views of development with parks and urban pedestrian trails.

Walnut Creek Wash is one of the most underutilized natural amenities in West Covina and PlanWC recommends aesthetic improvements to Walnut Creek Wash, which can become a recreational leisure hub for residents and visitors. The Downtown Plan and Code envisions its revitalization into a linear open space along the water course. The open space promenade would have a paved bike lane defined by a continuous row of trees that acts as a picturesque seam between the Downtown and the neighborhoods. The promenade would have benches and places for passive activity. Improvements to Walnut Creek Wash would contribute to revitalization of the Downtown and positively contribute to its aesthetic character and quality.

PlanWC contains recommendations for corridors and neighborhoods in the Our Well Planned Community Chapter. For example, Glendora Avenue is one of the corridors identified under the proposed project for redevelopment. Frontage parcels along this corridor back up to a residential neighborhood, and smaller scale infill redevelopment along the corridor would be contextual to the adjacent single-family residential scale. Some of the aging and underperforming retail uses may need to be renovated or repositioned to remain competitive. Development of a Corridor Plan and Code, recommended by PlanWC, would provide a unifying vision and precise and clear standards for development of the public and private realm, maintaining visual character and quality. Nogales Street is one of the neighborhoods identified for potential redevelopment under the proposed project. This neighborhood (part of which is located in the City of La Puente) includes two suburban shopping centers (one of which is in West Covina and one of which is in an unincorporated area), Nogales High School, and residential areas around the shopping centers. PlanWC states that strategic urban infill development of this neighborhood with pedestrian friendly infrastructure would reinforce the identity of the place as a neighborhood center. Specific policies and actions from PlanWC and the Downtown Plan and Code relating to the visual character and quality of the City are provided below.

Our Prosperous Community Chapter Policies and Actions

P2.3: *Focus new growth in the Downtown Area to create a vibrancy and invest in key public improvements.*

A2.3a: *Invest in infrastructure and improve the public realm.*

P2.6: *Create a diversity of housing options.*

A2.6a: *Support higher-intensity and high-quality multifamily development in the Downtown.*

Our Well Planned Community Chapter Policies and Actions

P3.1: *Preserve existing housing stock.*

A3.1: *Incorporate standards in the development code to preserve the existing form and character of stable residential areas and prevent encroachment of incompatible land uses and intensity.*

P3.2: *Support vibrant, economically strong neighborhoods through education and enforcement of property maintenance regulations.*

A3.2: *Establish incentives to upgrade the appearance of poorly maintained or otherwise unattractive sites, and enforce existing land maintenance regulations.*

P3.3: *New growth will complete, enhance, and reinforce the form and character of the unique West Covina neighborhoods, districts, and corridors.*

A3.3: *Adjust regulations for the neighborhoods, districts, and corridors to reflect the nature of intended change.*

P3.4: *Direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent with the character of surrounding districts and neighborhoods, to support new uses that can be more successful. Provide opportunities for healthy living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and socializing.*

A3.4: *Adopt form-based codes for the Downtown area and Corridors that:*

- *Utilize clear development requirements tailored to the community's vision;*
- *Increase land use choices and encourage community vitality;*
- *Fosters a rich public realm, with engaging private frontages, complete streets, and access to a range of open space;*
- *Insist on the highest standards of quality in architecture, landscaping, and urban design; and*
- *Offer predictable streamlined development review process and produce predictable outcomes.*

Our Resilient Community Chapter Policies and Actions

P5.2: *Allocate land uses based primarily on the control of physical form, intensity, and arrangement of buildings, landscapes, and public spaces that enable land and building functions to adapt to economic, environmental, energy, and social changes over time.*

A5.4: *Adopt form-based codes for Downtown and corridors and require applicants to comply with the standards.*

P5.4 *Buildings, lots, and blocks primarily scaled around the pedestrian and transit, creating a human-scaled spatial enclosure. Buildings should be informed by surrounding physical context, the adjacent landscapes, structures, local conditions, building traditions, and the microclimate.*

A5.4: *Adjust development regulations and review processes to require assessment and appropriate response to local context.*

Our Active Community Chapter Policies and Actions

P8.1*: Encourage the distribution of a variety of park types and sizes throughout the City.*

A8.1: *Develop variety of new park types of different sizes and require them in new development.*

P8.2*: Encourage the development of non-traditional park types, including green belts, linear parks, urban trails, and pocket parks.*

A8.2: *Require dedication of land identified as linear park in conjunction with new development.*

P8.4*: Small and frequent open spaces should be dispersed throughout the neighborhood.*

A8.4: *Develop new neighborhood parks, pocket parks, and community gardens as feasible and appropriate to meet citizen needs and require them in new development.*

Downtown Plan and Code Goals and Policies

P5.1: *Enhance the public realm through careful placement and design of streetscape improvements to activate the public realm, providing an inviting and engaging urban core.*

A5.1a: *Prepare detailed streetscape improvement plans and implement the streetscape recommendations for Glendora Avenue, West Covina Parkway, Vincent Avenue, Sunset Avenue, Lakes Drive, Walnut Creek Parkway, and Toluca Avenue. Establish a detailed implementation program that sets timeframes given available funding and community priorities. Improvements can be phased, but priority should be given to West Covina Parkway and Glendora Avenue.*

P5.2: *Establish a dramatic visual cue into Downtown at Sunset Ave and Vincent Avenue.*

A5.2: *Besides entrance and directional signs, dramatic visual cues such as gateway feature, buildings, or other civic infrastructure can accentuate the sense of arrival and identity.*

P5.3: *Create distinctive places by strengthen local identity.*

A5.3: *Strengthen local distinctiveness and identity by:*

1. *Planting local species;*
2. *Using local paving materials; and*
3. *Incorporating names of community donors in paving design*

P6.1: *Integrate uses in building forms that increase choice and encourage community vitality.*

A6.1a: *Adopt new form-based development code for Downtown area that emphasizes pedestrian orientation, integration of land uses, treatment of streetscapes as community living spaces.*

All new developments and modifications to existing structures would be required to conform to PlanWC and, if located in the plan area of the Downtown Plan and Code, the Downtown Plan and Code standards. New developments and modifications to existing structures would also be subject to existing building and development standards specified in the City's Municipal Code. Thus, as new development occurs, the visual character of the City would change as intensity increases; however, compliance with established standards and the policies and actions incorporated into the proposed project as discussed above would provide development opportunities that would complement and enhance the City's existing visual character and quality.

Mitigation Measures. None required because implementation of the policies and actions in PlanWC and the Downtown Plan and Code, as well as existing municipal code regulations, would address potential impacts to visual character and quality of the City.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.*

Impact AES-4 **New development facilitated by the proposed project could increase light and glare effects on sensitive receptors, such as residential uses. The City's Municipal Code contains regulations to control lighting and glare within the City for multi-family residential zones and non-residential zones, but not for single family residential zones. The City has also adopted "Parking Lot and Lighting Standards" which non-residential and multi-residential developments must comply with. Potential lighting impacts could occur within or immediately adjacent to single family residential zones if not properly mitigated. This impact would be *less than significant with mitigation incorporated.***

Development that could be facilitated by PlanWC would increase ambient nighttime lighting throughout the City. Increased lighting could come from streetlights, parking lot lights, and signage on business establishments. New development under the proposed project would mainly occur within the Downtown area. Other growth and improvements are focused in specific corridors, neighborhoods, and districts discussed above in Section 4.1.1b, *Existing Conditions*. Reinvestment in existing buildings and infill development in these areas could create new sources of light from exterior building illumination, outdoor lighting associated with facilities such as recreational/athletic facilities and parking lots or structures, as well as glare from reflective building and vehicle surfaces or the headlights of vehicular traffic. As a result, these new sources of light or glare could affect day or nighttime views of adjacent sensitive land uses.

The City's Municipal Code regulates lighting to ensure that sensitive land uses are not affected by lighting associated with development. Section 26-519 of the City's Municipal Code requires that "all lighting of the building, landscape, parking area, or similar facilities shall be hooded and directed to reflect away from adjoining properties" for multiple-family residential zones. This is generally accomplished through the use of shielding and directional lighting methods. Per Section 26-570 of the City's Municipal Code all non-residential zones shall have lighting that

is "hooded and directed as to reflect away from adjoining properties" and "all luminaries shall be designed and placed to complement the development. Luminaries attached to a building shall be concealed, wall-mounted, or recessed fixtures." Section 26-570 also includes regulations for neon signs requiring a limited lighting of 30 milliamps and approval by the City's planning commission. The City has also adopted "Parking Lot and Lighting Standards" which non-residential and multi-residential developments must comply with.

These regulations ensure that the effects of light and glare on adjacent uses are evaluated and protects sensitive receptors from inappropriate levels of night lighting. However, the Municipal Code does not contain any regulations for shielding lighting within single family zones and lights impacts may therefore potentially occur in these areas.

Individual projects facilitated by the proposed project would be subject to CEQA review. Aesthetic impacts that may occur from these projects would be reviewed on an individual basis and would be regulated by the City's Municipal Code. Adherence to existing City lighting requirements and restrictions would reduce impacts to a less than significant level in multi-family residential zones and non-residential zones However, there is no ordinance regulating lighting in single family residential zones, resulting in potential lighting impacts within or immediately adjacent to these zones. This impact would be potentially significant.

Mitigation Measures. The following mitigation measure would reduce significant impacts related to light and glare to a less than significant level.

AES-4 Add the following policy to the *Our Natural Community* Chapter of PlanWC:

> To preserve nighttime views within and immediately adjacent to single family residential zones, require property owners within and directly adjacent to these zones to utilize shielding and directional lighting methods to direct lighting away from adjoining properties.

Significance After Mitigation. Measure AES-4 would reduce impacts related to light and glare to a less than significant level by requiring appropriate lighting restrictions in single family residential areas.

c. **Cumulative Impacts.** Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis.

4.2 AIR QUALITY

This section analyzes impacts to local and regional air quality. Impacts to air quality associated with population growth and associated growth in vehicle traffic and energy consumption are discussed. Greenhouse gases and global climate change are discussed in Section 4.6, *Greenhouse Gas Emissions/Climate Change*.

Setting

a. Local Climate and Meteorology. West Covina is located within the South Coast Air Basin (Basin), so named because its geographical formation is that of a basin, with the surrounding mountains trapping the air and its pollutants in the valleys below. The basin includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. The regional climate within the basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity.

More specifically, West Covina is located in eastern Los Angeles County. According to the South Coast Air Quality Management District (SCAQMD), the City of West Covina is located in Climate Zone 9, which covers the inland valleys. Both coastal and interior weather influences the inland valley climate zone. The inland winds bring hot, dry air, and marine air brings cool and moist air. Rain falls in the winter averaging around 2" per month between November and April. More than 50% of the time skies are clear or partly cloudy (PG&E). The average annual temperature is 65 °F in West Covina. In a year, the average rainfall is 16.3 inches.

b. Local Regulatory Framework. The federal and state governments have been empowered by the federal and state Clean Air Acts to regulate the emission of airborne pollutants and have established ambient air quality standards for the protection of public health. The United States Environmental Protection Agency (USEPA) is the federal agency designated to administer air quality regulation, while the Air Resources Board (ARB) is the state equivalent in the California Environmental Protection Agency. Local control in air quality management is provided by the ARB through multi-county and county-level Air Pollution Control Districts (APCDs). The ARB establishes statewide air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. The ARB has established 15 air basins statewide. As noted above, West Covina is located in the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD), a multi-county APCD.

Federal and state standards have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), and lead (Pb) (refer to Table 4.2-1). The local air quality management agency is required to monitor air pollutant levels to assure that air quality standards are met and, in the event they are not, to develop strategies to meet these standards. Depending on whether the standards are met or exceeded, the local air basin is classified as in "attainment" or "nonattainment." The Basin is a non-attainment area for the federal and state standards for

ozone, and $PM_{2.5,}$ and non-attainment for state standards for PM_{10} (NAAQS and CAAQS, Feb. 2016). Table 4.2-1 illustrates the current Federal and State Ambient Air Quality Standards.

Table 4.2-1
Current Federal and State Ambient Air Quality Standards

Pollutant	Federal Standard	California Standard
Ozone	0.070 ppm (8-hr avg)	0.07 ppm (8-hr avg) 0.09 ppm (1-hr avg)
Carbon Monoxide	9 ppm (8-hr avg) 35 ppm (1-hr avg)	9 ppm (8-hr avg) 20 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg) 100 ppb (1-hr avg)	0.03 ppm (annual avg) 0.18 ppm (1-hr avg)
Sulfur Dioxide	75 ppb (1-hr avg)	0.25 ppm (1-hr avg) 0.04 ppm (24-hr avg)
Lead	0.15 $\mu g/m^3$ (3-month avg)	1.5 $\mu g/m^3$ (30-day avg)
Particulate Matter (PM_{10})	150 $\mu g/m^3$ (24-hr avg)	50 $\mu g/m^3$ (24-hr avg) 20 $\mu g/m^3$ (annual avg)
Particulate Matter ($PM_{2.5}$)	12 $\mu g/m^3$ (annual avg) 35 $\mu g/m^3$ (24-hr avg)	12 $\mu g/m^3$ (annual avg)

ppm= parts per million, ppb=parts per billion
$\mu g/m^3$ = micrograms per cubic meter
Source: Air Resources Board: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. (May 2016).

Non-attainment status within the Basin is a result of several factors, primarily the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants (surface and subsidence inversions), the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the Basin. The potential health effects of pollutants for which the Basin is in nonattainment are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG). Nitrogen oxides are formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in serious concentrations between the months of May and October. Ozone is pungent, colorless toxic gases with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors.

Suspended Particulates. PM_{10} is small particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Both PM_{10} and $PM_{2.5}$ are comprised mostly of dust particles, nitrates and sulfates. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. PM_{10} is

a by-product of fuel combustion and wind erosion of soil and unpaved roads, and is directly emitted into the atmosphere through these processes. PM_{10} is also created in the atmosphere through chemical reactions. Fine particulate matter poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

An important fraction of the particulate matter emission inventory is that formed by diesel engine fuel combustion. Particulates in diesel emissions are very small and readily respirable. The particles have hundreds of chemicals adsorbed onto their surfaces, including many known or suspected mutagens or carcinogens. Compared to other air toxics the ARB had identified and controlled, diesel PM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk. In addition to these general risks, diesel PM can also be responsible for elevated localized or near-source exposures ("hot spots"). Depending on the activity and nearness to receptors, these potential risks can range from small to 1,500 per million or more (ARB, October 2000). Risk characterization scenarios have been conducted by the ARB staff to determine the potential excess cancer risks involved due to the location of individuals near to various sources of diesel engine emissions, ranging from school buses to high volume freeways.

Ambient Air Quality in West Covina. The SCAQMD monitors air pollutant levels to assure that the air quality standards are met, and if they are not met, to also develop strategies to meet the standards. Depending on whether or not the standards are met or exceeded, the air basin is classified as being in "attainment" or as "nonattainment." As noted above, the Basin is a non-attainment area for both the federal and state standards for ozone and $PM_{2.5}$, and non-attainment for state standards for PM_{10}.

While air quality in the South Coast Air Basin is better than it has been in decades, it is still among the worst in the nation, and routinely exceeds federal and State air quality health standards for ozone and particulates. The SCAQMD does not operate an air quality monitoring station in West Covina but there are five monitoring stations in the San Gabriel Valley monitoring area in which West Covina is located. As shown in Table 4.2-2, the East San Gabriel Valley 2 station had the highest readings, exceeding the current Federal 8-hour Ozone standard 38 days and the current State standard 60 days in 2014.

Table 4.2-2
2014 SCAQMD Ozone Exceedance in San Gabriel Valley

San Gabriel Valley Monitoring Area Stations	Days Exceeded Federal 8-hour Ozone	Days Exceeded State 8-hour Ozone
West San Gabriel Valley	7	13
East San Gabriel Valley 1	11	20
East San Gabriel Valley 2	38	60
Pomona/Walnut Valley	33	56
South San Gabriel Valley	5	7

Air Quality Management. Under state law, the SCAQMD is required to prepare an overall plan for air quality improvement for the South Coast Air Basin, known as the Air Quality Management Plan (AQMP). AQMPs are required to be updated every three years. Each iteration of the plan is an update of the previous plan and has a 20-year horizon. The AQMP was updated in 2007 from its previous update in 2003. The 2012 AQMP was adopted by the SCAQMD on December 7, 2012 with a 2015 Supplement to the 24-hour $PM_{2.5}$ SIP adopted on February 6, 2015.

The 2012 AQMP was prepared to ensure continued progress towards clean air and comply with state and federal requirements. This AQMP builds upon the approaches taken in the 2003 AQMP for the South Coast Air Basin for the attainment of the federal ozone air quality standard. This Plan highlights the reductions needed and the need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the Clean Air Act. New standards allow for a longer compliance schedule for federal fine particulates and 8-hour ozone but with more stringent PM_{10} and 1-hour ozone standards. The 2012 AQMP is aimed at attainment of the federal $PM_{2.5}$ standards through a more focused control of sulfur oxides (SOx), directly-emitted $PM_{2.5}$, and nitrogen oxides (NOx) supplemented with volatile organic compounds (VOC) by 2015 ("supplemented with" means that emissions below the budget for one pollutant can be used to "supplement" another pollutant exceeding the budget based on the ratios established). The 8-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NOx and VOC reductions to meet the standard by 2024 assuming a bump-up is obtained. Further, the 2012 AQMP aims to reduce mobile source emissions by discussing measures that would address the remaining air quality standard exceedances in the region.

SCAQMD is in the process of developing a 2016 AQMP, scheduled to be adopted by the SCAQMD Board in the Fall of 2016. SCAQMD plans to develop integrated strategies and measures into the 2016 AQMP to meet the following NAAQS:

- *8-hour Ozone (75 ppb) by 2032*
- *Annual $PM_{2.5}$ (12 µg/m3) by 2021-2025*
- *24-hour $PM_{2.5}$ (35 µg/m3) by 2019*
- *8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)*
- *1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)*

These standards have not yet been adopted but are provided for reference (SCAQMD, April 2016)

Sensitive Receptors. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore schools and hospitals.

4.2.2 Impact Analysis

a. Methodology and Significance Thresholds. The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in the SCAQMD *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* (2005) as well as Appendix G of the State CEQA Guidelines.

The SCAQMD has adopted numeric significance thresholds for individual development projects. However, applying these thresholds to the proposed project since they are for individual projects, while the proposed project, because it is a General Plan update and Downtown Plan and Code, considers the cumulative effect of all individual projects within the City. Therefore, the criteria used to determine the significance of impacts are taken from the checklist contained in Appendix G of the State CEQA Guidelines. According to the CEQA Guidelines, General Plan implementation would result in a significant impact to air quality if it would:

- *Conflict with or obstruct implementation of the applicable air quality plan*
- *Violate any air quality standard or contribute substantially to an existing or project air quality violation*
- *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed qualitative thresholds for ozone precursors)*
- *Expose sensitive receptors to substantial pollutant concentrations*
- *Create objectionable odors affecting a substantial number of people*

Per the SCAQMD *CEQA Air Quality Handbook* (1993), the following indicators address the proposed project's consistency with the 2012 AQMP:

- *Whether the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the 2012 AQMP.*
- *Whether the project would exceed the 2012 AQMP's assumptions for 2035 or yearly increments based on the year of the project buildout.*

b. Project Impacts and Mitigation Measures.

Threshold	*Conflict with or obstruct implementation of the applicable air quality plan.*

Impact AQ-1 Implementation of the proposed project would be consistent with the 2012 AQMP growth forecast and air quality control measures. Impacts would be *less than significant*.

The discussions that follow address consistency of the proposed project with the growth and emissions forecasts upon which the AQMP is based, and with applicable AQMP control measures.

Consistency with AQMP Growth Forecast. Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population growth. A project may be inconsistent with the AQMP if it would generate population, housing or employment growth exceeding the forecasts used in the development of the AQMP. According to Southern California Association of Governments (SCAG) growth forecasts in their Regional Transportation Plan (RTP), West Covina will have a resident population of 116,700 in 2040. Development facilitated by the proposed project would add an estimated 7,140 new permanent residents, bringing the City's total population to 115,541, which is within SCAG's 2040 population forecasts of 116,700 from the 2016 RTP/SCS (SCAG, 2016) (see Section 4.11, *Population and Housing,* for further detail). Therefore, the proposed project is consistent with SCAG projections.

Consistency with AQMP Control Measures. Consistency with the 2012 AQMP is also a function of consistency with applicable AQMP control measures. The AQMP includes specific control measures to reduce air pollutant emissions in order meet federal and state air quality standards. One of the most important methods the AQMP relies on to achieve its goals is the use of emission control measures, many of which were established as part of the previous AQMP adopted in 2007. For example, between 2008 and 2011, twelve control measures or rules were adopted or amended by the SCAQMD. Adoption of these measures was intended to result in a reduction of 22.5 tons per day of VOC, 7.6 tons per day of NOx, 4.0 tons per day of SOx, and 1.0 ton per day of $PM_{2.5}$ by 2014. Additional reductions from these adopted rules were to be achieved by 2023. The 2016 Draft Air Quality Management strategies and measures are to meet the following:

- NAAQS: 8-hour Ozone (75 ppb) by 2032
- Annual PM2.5 (12 µg/m3) by 2021-2025
- 24-hour PM2.5 (35 µg/m3) by 2019
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)

The 2012 AQMP emission control measures most applicable to the proposed project are the transportation control measures (TCMs), which are based on SCAG's adopted 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and 2011 Federal Transportation Improvement Program (FTIP). The measures proposed improve every component of the regional multi-modal transportation system, including:

- *Active transportation*
- *Highways*
- *Transit*
- *Passenger and high-speed rail*
- *Transportation demand management (TDM)*
- *Goods movement*
- *Aviation and airport ground access*
- *Arterials*
- *Operations and maintenance*
- *Transportation system management (TSM)*

Table 4.2-3 lists applicable TCMs and the corresponding PlanWC and Downtown Plan and Code policies that support each TCM.

Table 4.2-3
PlanWC and the Downtown Plan and Code Consistency with SCAQMD Transportation Control Measures

Transportation Control Measure	PlanWC and the Downtown Plan and Code Policy
Section 108 (f) 1. Programs for Improved Public Transit	**Our Accessible Community** **Policy 4.6:** Work with transit providers to develop high-quality facilities for transit users, including access facilities. **Action 4.6a:** Explore a free or discount fare zone for transit Downtown. **Action 4.6b:** Work with Foothill Transit to formalize parking for park-and-ride patrons. **Action 4.6c:** Explore changes to Go West routes. Go West service could potentially be improved by modifying route alignments and layover/recovery policy in order to allow for a regular, easy-to-remember "clockface" headway or frequency of every 60 minutes on the Red and Blue Lines. **Action 4.6d:** Implement bus-only lanes and high-quality bus stops on West Covina Parkway between Sunset and Vincent.
Section 108 (f) 5. Traffic Flow Improvement Programs that Achieve Emissions Reductions	**Our Natural Community** **Policy 1.1:** Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel. **Action 1.1:** Continue to channel Federal, State and Local transportation funds to programs, and infrastructure improvements that reduce air pollution through the promotion of walking, biking, ride-sharing, public transit use, the use of alternative fuel vehicles or other clean engine technologies. **Our Accessible Community** **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Action 4.2a:** Adopt and apply transportation system performance metrics as described in the Thoroughfares Plan. **Policy 4.5:** Work to eliminate barriers to pedestrian and bicycle travel. **Action 4.5e:** Develop Pedestrian and Bicycle Master Plans identifying community priorities, designing improvements at a conceptual level, and identifying potential funding sources. **Policy 4.6:** Work with transit providers to develop high-quality facilities for transit users, including access facilities. **Policy 4.7:** Increase the efficiency, cost-effectiveness and utility of existing parking and road supply by managing demand. **Action 4.7b:** Improve intersections as needed to comply with performance metrics. **Action 4.7c:** Partner with Caltrans to address transportation issues near the interface between State facilities and City streets.
Section 108 (f) 7. Programs to Limit or Restrict Vehicle Use in Downtown Areas or Other Areas of Emission Concentration Particularly During Periods of Peak Use	**Our Natural Community** **Policy 1.1:** Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel. **Action 1.1:** Continue to channel Federal, State and Local transportation funds to programs, and infrastructure improvements that reduce air pollution through the promotion of walking, biking, ride-sharing, public transit use, the use of alternative fuel vehicles or other clean engine technologies.

Table 4.2-3
PlanWC and the Downtown Plan and Code Consistency with SCAQMD Transportation Control Measures

Transportation Control Measure	PlanWC and the Downtown Plan and Code Policy
	Our Accessible Community **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Policy 4.5:** Work to eliminate barriers to pedestrian and bicycle travel. **Policy 4.6:** Work with transit providers to develop high-quality facilities for transit users, including access facilities. **Policy 4.10:** Improve mobility and accessibility for travelers of all incomes through a process of equitable public engagement, service delivery and capital investment.
Section 108 (f) 8. Programs For the Provision of All Forms of High-Occupancy, Shared-Ride Services	**Our Natural Community** **Policy 1.1:** Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel. **Action 1.1:** Continue to channel Federal, State and Local transportation funds to programs, and infrastructure improvements that reduce air pollution through the promotion of walking, biking, ride-sharing, public transit use, the use of alternative fuel vehicles or other clean engine technologies. **Policy 4.10:** Improve mobility and accessibility for travelers of all incomes through a process of equitable public engagement, service delivery and capital investment. **Action 4.10a:** Identify low-income and transit-dependent communities, and implement pedestrian, bicycle and transit-related improvements in these communities. **Action 4.10b:** Improve multimodal access to schools, senior centers, social service agencies, civic institutions and other destinations used by low-income and other segments of the community.
Section 108 (f) 9. Programs to Limit Portions of Road Surfaces or Certain Sections of the Metropolitan Area to the Use of Non-Motorized Vehicles or Pedestrian Use, Both as to Time and Place	**Our Natural Community** **Policy 1.1:** Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel. **Action 1.1:** Continue to channel Federal, State and Local transportation funds to programs, and infrastructure improvements that reduce air pollution through the promotion of walking, biking, ride-sharing, public transit use, the use of alternative fuel vehicles or other clean engine technologies. **Our Accessible Community** **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Action 4.2b:** Review capital improvement projects to ensure that needs of non-motorized travelers are considered in planning, programming, design, reconstruction, retrofit, maintenance, construction, operations, and project development. **Action 4.2c:** Accommodate the needs of all travelers through a Complete Streets approach to designing new transportation improvements. Complete streets are roadways designed to facilitate safe, comfortable, and efficient travel for all roadway users. **Policy 4.5:** Work to eliminate barriers to pedestrian and bicycle travel.

Table 4.2-3
PlanWC and the Downtown Plan and
Code Consistency with SCAQMD Transportation Control Measures

Transportation Control Measure	PlanWC and the Downtown Plan and Code Policy
	Action 4.5a: Identify gaps in the pedestrian and bicycle facilities networks and define priorities for eliminating these gaps by making needed improvements.
	Action 4.5b: Require the construction of pedestrian and bicycle facilities and amenities, where warranted, as a condition of approval of new development projects.
	Action 4.5c: Accompany installation of new bicycle facilities with educational programs for motorists, bicyclists, and pedestrians — particularly children.
	Action 4.5d: Work with owners of vacant properties adjacent to public walkways to identify beautification opportunities and implement improvements such as landscaping, fencing and/or art installations.
	Action 4.5e: Develop Pedestrian and Bicycle Master Plans identifying community priorities, designing improvements at a conceptual level, and identifying potential funding sources.
	Action 4.5f: Consider implementation of a bikeshare program.
	Action 4.5g: Develop a pedestrian and bicycle path along Walnut Creek Wash between Glendora and Sunset.
	Action 4.5h: Explore opportunities for a "shared street" on Toluca Avenue.
	Policy 4.10: Improve mobility and accessibility for travelers of all incomes through a process of equitable public engagement, service delivery and capital investment.
	Action 4.10a: Identify low-income and transit-dependent communities, and implement pedestrian, bicycle and transit-related improvements in these communities.
	Action 4.10b: Improve multimodal access to schools, senior centers, social service agencies, civic institutions and other destinations used by low-income and other segments of the community.

Source: South Coast Air Quality Management District, 2012 Air Quality Management Plan, Appendix IV-C, Attachment B: 2012 South Coast $PM_{2.5}$ AQMP Reasonably Available Control Measure (RACM) Analysis – TCMs

Mitigation Measures. Impacts would be less than significant; therefore, mitigation beyond adherence to applicable PlanWC policies and AQMP control measures is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold	*Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
Threshold	*Expose sensitive receptors to substantial pollutant concentrations.*

Impact AQ-2 **Development facilitated by the proposed project would result in an incremental increase in air pollutant emissions within West Covina and the South Coast Air Basin. However, implementation of goals, policies, and actions included in the proposed project relating to limiting vehicle use and energy consumption would limit emissions to levels consistent with regional forecasts. Impacts would therefore be *less than significant*.**

Long-term emissions associated with future development in West Covina in accordance with the proposed project are those associated with vehicle trips and stationary sources (electricity and natural gas). Emissions associated with individual projects, depending on project type and size, could exceed project-specific thresholds established by the SCAQMD. However, such projects would be required to undergo independent project-level CEQA review and to include mitigation measures to address potentially significant project-level impacts. As discussed under Impact AQ-1, overall growth within West Covina would be within SCAG regional growth forecasts upon which regional air quality planning is based.

The land use and transportation-related policies in PlanWC and the Downtown Plan and Code are designed to decrease the generation of air pollution and greenhouse gases through the reduction of vehicle miles traveled by promoting infill development in the Downtown area. These policies emphasize pedestrian and bicycle travel. PlanWC includes policies that would reduce vehicle use and vehicle miles traveled and result in a reduction in fuel consumption and resulting air pollutant emissions. The following policies included in the *Our Natural Community* chapter of PlanWC related to circulation and land use design would help to achieve reductions in air pollutant emissions.

P1.1 *Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel.*

> ***A1.1*** *Continue to channel Federal, State and Local transportation funds to programs, and infrastructure improvements that reduce air pollution through the promotion of walking, biking, ride-sharing, public transit use, the use of alternative fuel vehicles or other clean engine technologies.*

P1.2 *Promote the use of energy-efficient vehicles.*

> ***A1.2*** *Continue to control and reduce air pollution emissions from vehicles owned by the City and municipal operations and facilities by expanding the use of alternative fuel, electric, and hybrid vehicles in City fleets.*

P1.3 *Minimize the adverse impacts of growth and development on air quality and climate.*

P1.1 *Prepare and adopt a plan to reduce greenhouse gases as part of the Environmental Impact Report (to be concurrently approved with the West Covina General Plan) to achieve compliance with State mandates, and consistency with the Regional Transportation Plan/ Sustainable Community Strategy to facilitate development by streamlining the approval process, and to improve air quality.*

The following goals included in the *Our Accessible Community* chapter of the Downtown Plan and Code would help reduce air pollutant emissions through promotion of an integrated transportation system:

Goal 8 *Create an integrated transportation system that effectively serves the Downtown area, making Downtown a place where people prefer to walk, bike, or ride public transit rather than drive a car.*

Goal 9 *To improve the experience for transit riders through enhanced amenities, access, safety and landscaping.*

Adherence to these goals, policies, and actions would reduce impacts to a less than significant level.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation beyond adherence to applicable policies from PlanWC and the Downtown Plan is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold	*Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).*
Threshold	*Expose sensitive receptors to substantial pollutant concentrations.*

Impact AQ3 **Individual development projects facilitated by the proposed project would generate construction-related emissions. Such emissions may result in temporary adverse impacts to local air quality that would be temporary for each construction project, but could occur for multiple projects carried out over the next 20 years. However, these emissions can be mitigated on a specific development basis and impacts would therefore be *less than significant*.**

Construction activity facilitated by the proposed project would cause temporary emissions of various air pollutants. Ozone precursors NO_x and CO would be emitted by the operation of construction equipment, while fugitive dust (PM_{10}) would be emitted by activities that disturb the soil, such as grading and excavation, road construction and building construction. As previously stated, the Los Angeles County portion of the Basin is designated non-attainment for ozone (State and Federal standards) and PM_{10} (State standards). Additionally, the potential release of asbestos may occur during building demolition. Information regarding specific development projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with individual construction projects.

Construction activity carried out under the proposed project could occur throughout West Covina. However, it is anticipated that the areas where the highest amount of construction activity would occur are within the Downtown. Individual developments in these and other areas of the City would be subject to independent environmental review under CEQA, at which time SCAQMD project-level thresholds would be used to assess the potential construction-related air quality impacts of the proposal. Depending upon the development type and size, maximum daily emissions associated with individual projects could potentially exceed SCAQMD significance thresholds, resulting in a significant air quality impact.

The SCAQMD has established rules 402 and 403, which require that air pollutant emissions not be a nuisance off-site, and reduce the ambient entrainment of fugitive dust. Rule 403 includes best available control measures (BACM) for all construction activity, contingency control

measures for large operations, and conservation management practices for confined animal facilities. Major categories addressed by Rule 403 to reduce fugitive dust include earth moving, disturbed surface areas, unpaved roads, open storage piles, demolition, and other various construction activities. During construction, individual property owners, developers, or contractors would be required to comply with applicable SCAQMD rules, which reduce temporary construction-related air pollutant emissions. Further, if required, individual projects that could occur under the proposed project would be required to implement additional mitigation if site-specific analysis identifies the potential to exceed applicable thresholds. Adherence to SCAQMD rules would reduce potential construction-related impacts to a less than significant level.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation beyond adherence to applicable PlanWC policies and SCAQMD rules is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold	*Expose sensitive receptors to substantial pollutant concentrations.*

Impact AQ4 **Though future development facilitated by the proposed project may incrementally increase air pollution, mitigation measures included in Section 4.14, *Transportation and Circulation* of this EIR require that future projects analyze and mitigate, if necessary, their potential to create secondary effects related to traffic congestion such as CO hotspots. This would ensure that the proposed project would not lead to sensitive receptors being exposed to substantial pollutant concentrations, and impacts would be *less than significant with incorporated mitigation.***

The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. When evaluating potential long-term air quality impacts to sensitive receptors, the SCAQMD is primarily concerned with high localized concentrations of CO. Motor vehicles, and traffic-congested roadways and intersections are the primary source of high localized CO concentrations. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots."

Implementation of the proposed project would not expose existing or future sensitive uses within the city to substantial CO concentrations. The South Coast Air Basin is in attainment of state and federal CO standards and has been for several years. Background levels of carbon monoxide are generally low. The highest recorded 8-hour average concentration of CO in the basin in 2011 was 4.67 ppm, which is well below the state and federal 8-hour standard of 9 ppm. A review of data for 2015 showed State and Federal standards for CO were not exceeded (SCAQMD, May 2016). Although CO is not expected to be a major air quality concern in Los Angeles County over the planning horizon, elevated CO levels can occur at or near intersections that experience severe traffic congestion. As discussed in Section 4.14, *Transportation and Circulation,* with incorporation of mitigation measures T-1(a) through T-1(c), the proposed project's potential traffic congestion impacts would be mitigated to a less than significant level, except at the intersections not fully under the City's control, such as the intersection of West

Covina Parkway and Interstate 10, which is subject to Caltrans' control. Mitigation Measure T-1(c) requires that future projects of 100 units or more analyze their potential traffic impacts, including secondary impacts such as localized air quality impacts, and mitigate them as necessary in order to avoid any significant impacts. While the City may not be able to ensure that all physical improvements contained in mitigation measures for traffic impacts at this intersection would be carried out, no sensitive uses for localized CO hotspots are located in sufficient proximity to this intersection for there to be a significant impact related to CO hotspots.

Mitigation Measures. With implementation of Mitigation Measure T-1(c) requiring future projects to analyze and mitigate, if necessary, potential secondary effects of intersection-level traffic congestion, the proposed project would not result in traffic congestion at intersections that would expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant with incorporated mitigation.

Significance after Mitigation. Impacts would be less than significant with incorporated mitigation.

Threshold	*Create objectionable odors affecting a substantial number of people.*

Impact AQ5 **Implementation of the proposed project would facilitate development of projects that have the potential to cause odor impacts, but would not create objectionable odors that would affect a substantial number of people. Impacts would be *less than significant*.**

The proposed project would facilitate development within West Covina. Some commercial uses developed under the proposed project may generate odor nuisance effects to the public. Examples of commercial uses that have the potential to cause odor impacts include fast food restaurants, photographic studios, and laundry facilities. However, odors from new commercial uses would be similar to those of existing uses throughout the City and confined to the immediate vicinity of new buildings. As such, significant odor impacts are not anticipated.

Construction activity would also generate temporary airborne odors associated with the operation of construction vehicles (i.e., diesel exhaust) and the application of architectural coatings. However, these odors are not generally considered to be especially offensive. Emissions would be temporary and would be confined to the immediate vicinity of the construction site and activity. Therefore, impacts would be less than significant.

Mitigation Measures. Impacts would be less than significant by following standard construction Best Management procedures; therefore, mitigation measures are not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the State CEQA Guidelines provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. As demonstrated in the impact analysis in this section of the EIR, after incorporation of mitigation measures, the proposed project would not result in any significant impacts relating to air quality, either compared to applicable SCAQMD thresholds, or in terms of policy consistency. The SCAQMD thresholds used in this analysis are from the AQMP, which is designed to bring the region into attainment with federal and state health based standards and to comply with Clean Air Act requirements. All other agencies in the region are subject to the AQMP, and the proposed project's less than significant air quality impacts, when combined with emissions from other sources in the region, would therefore not be cumulatively significant.

4.3 BIOLOGICAL RESOURCES

Direct and indirect impacts to the following special-status biological resources are discussed below: regulated waterways and wetlands; sensitive habitats and mature native trees; sensitive plants and animals; and wildlife movement corridors.

4.3.1 Setting

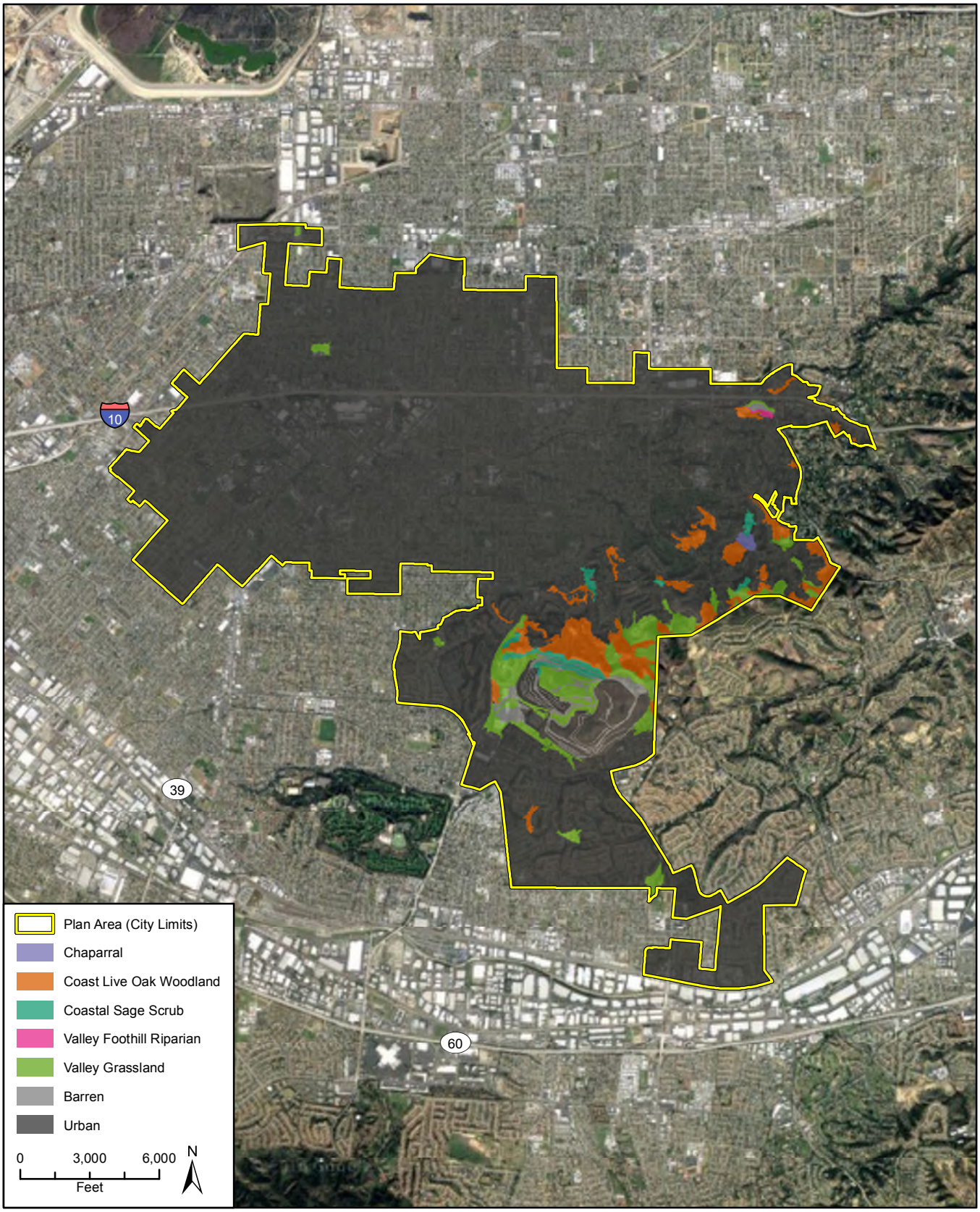
a. Plan Area Habitat Types. The City of West Covina (City) is located in the eastern portion of the San Gabriel Valley between the major metropolitan areas of Los Angeles and the Inland Empire, and is highly accessible from Interstate 10. The majority of the City is developed and defined by urban sprawl, with the San Jose Hills providing a visual backdrop that frames the City (City of West Covina, 2006). The City controls Galster Park Wildlife refuge and other natural hillside areas that provide important habitats and species of special concern. Figure 4.3-1 shows the vegetation communities within the City limits, while Figure 4.3-2 shows the locations of potential sensitive species in the Plan Area and vicinity.

The plan area contains several sensitive ecological areas, including Walnut Woodland and Coast Live Oak Woodland. North-facing slopes harbor both Coast Oak Woodland and strands of mixed chaparral. While Coast Oak Woodlands and Walnut Woodlands are different plant communities, they are often both classified as Coast Oak Woodland and strands of mixed chaparral, as shown on Figure 4.3-1. South-facing slopes host Coastal Sage Scrub in shallow, dry soils. Areas with moderate slopes and broad ridge lines may consist of almost entirely non-native grasslands. Drainages within the hills and adjacent to Walnut Creek are vegetated with Oak Riparian Woodlands (City of West Covina, 2006). The following paragraphs describe habitats in and around the plan area that contain significant biological resources.

Valley Grasslands. Non-native grasslands in southern California valleys consist of non-native annual grasses and forbs. These opportunistic species include brome grass (*Bromus sp*), wild oat (*Avena fatua*), and black mustard (*Brassica nigra*). Characteristic of other parts of southern California, this community became established as a result of livestock grazing, preventing larger plants such as shrubs or trees from becoming established. Only annuals can finish their life cycle and set seed within the valley grassland. Non-native grasslands are found throughout the San Jose Hills (City of West Covina, 2006).

Valley Riparian Forest. The valley riparian forest is dominated by coast live oak (*Quercus agrifolia*). The availability of water, however, differentiates it from the Coast Oak Woodland community. Riparian trees species such as California sycamore (*Platanus racemosa*) and willows (*Salix* sp.) grow in this habitat. Oak riparian forest is mainly found near Walnut Creek, which flows across the central section of the City from east to west, and open drainage ways. This habitat supports the endangered Least Bell's Vireo. Due to stream channelization and development, however, much oak riparian forest habitat is disappearing in southern California (City of West Covina, 2006). As shown in Figure 4.3-1, only one small pocket of valley riparian forest habitat remains in West Covina, in the northeastern part of the City near the intersection of Grand Avenue and Holt Avenue.

Coastal Sage Scrub. Coastal sage scrub is a lower elevation plant community, generally occurring on dry slopes lower in elevation than chaparral. It is composed of subshrubs or shrubs that are deciduous and not as stiff branched as chaparral plants tend to be. Coastal sage



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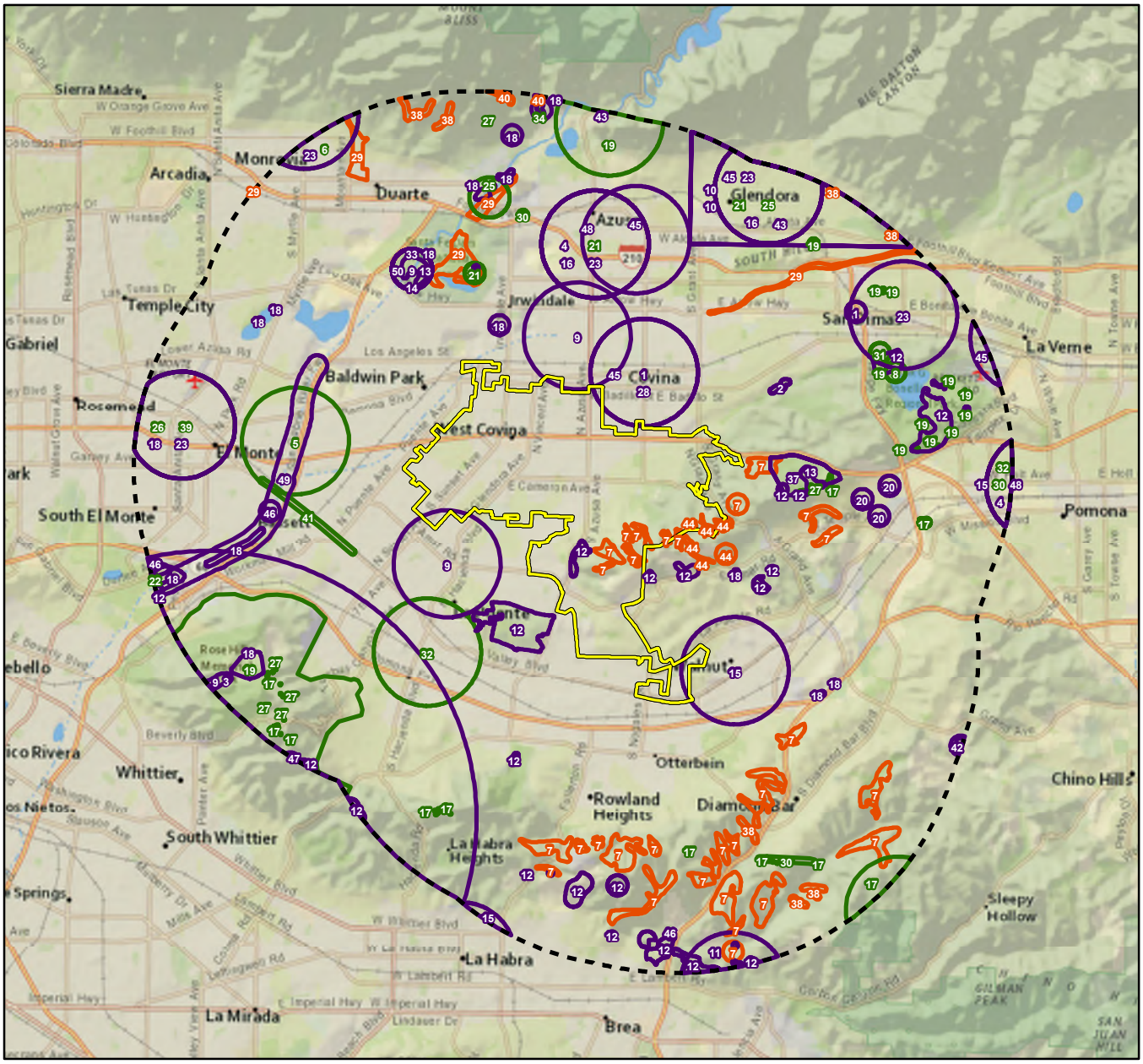
Additional data provided by US Department of Agriculture, 2014.

Vegetation Communities

Figure 4.3-1



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Additional data provided by the: California Natural Diversity Database, March 2016.

0 1.5 3
Miles

N

Plan Area (City Limits)
5-Mile Buffer

CNDDB

Animals
Plants
Natural Communities

1 - American badger
2 - arroyo chub
3 - bank swallow
4 - big free-tailed bat
5 - Brand's star phacelia
6 - California saw-grass
7 - California Walnut Woodland
8 - chaparral ragwort
9 - coast horned lizard
10 - Coast Range newt
11 - coastal cactus wren
12 - coastal California gnatcatcher
13 - coastal whiptail
14 - Cooper's hawk
15 - Crotch bumble bee
16 - hoary bat
17 - intermediate mariposa-lily
18 - least Bell's vireo
19 - many-stemmed dudleya
20 - merlin
21 - mesa horkelia
22 - Nevin's barberry
23 - pallid bat
24 - Parish's gooseberry
25 - Parry's spineflower
26 - Peruvian dodder
27 - Plummer's mariposa-lily
28 - pocketed free-tailed bat
29 - Riversidian Alluvial Fan Sage Scrub
30 - Robinson's pepper-grass
31 - round-leaved filaree
32 - San Bernardino aster
33 - San Diego black-tailed jackrabbit
34 - San Gabriel Mountains dudleya
35 - Santa Ana speckled dace
36 - Santa Ana sucker
37 - southern California rufous-crowned sparrow
38 - Southern Coast Live Oak Riparian Forest
39 - southern mountains skullcap
40 - Southern Sycamore Alder Riparian Woodland
41 - southern tarplant
42 - tricolored blackbird
43 - two-striped garter snake
44 - Walnut Forest
45 - western mastiff bat
46 - western pond turtle
47 - western spadefoot
48 - western yellow bat
49 - western yellow-billed cuckoo
50 - yellow-breasted chat

Special Status Species Within 5 Miles
Reported by California Natural Diversity Database

Figure 4.3-2

scrub is found on dry slopes, usually near the coast but, as evidenced by its presence in West Covina, can extend into inland valleys below 3,000 feet. Within the San Jose Hills, this plant community is found in scattered patches with mixed chaparral. This community is highly variable in appearance and composition, depending upon the conditions of the area in which it is established. There is a pronounced difference between vegetation on north-facing and south-facing slopes. On south-facing slopes, the vegetation has small leaves and is often drought deciduous. On north-facing slopes, larger shrubs associated with the chaparral community may be found. Dominant plants in coastal sage scrub include California sagebrush (*Artemisia californica*), California Encelia (*Encelia californica*),white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and California buckwheat (*Eriogonum fasciculatum*) (City of West Covina, 2006).

Chaparral. Mixed chaparral is a shrub community composed of robust species. Within the San Jose Hills, species include laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), lemonade berry (*Rhus integrifolia*), chamise (*Adenostoma fasciculatum*), California buckwheat, sugar bush (*Rhus ovata*), and Mexican elderberry (*Sambucus mexicana*). Chaparral is the dominant habitat in the mountains of Southern California. Chaparral can grow on steep hillsides with poor, thin soil that cannot support other larger plants. The chaparral plant community can tolerate long periods without rain, in dry soil and high temperatures (City of West Covina, 2006).

Southern Willow Scrub. A well-developed southern willow scrub community grows along Live Oak Creek and at the point where the creek flows into Puddingstone Reservoir, approximately three miles northeast of the plan area. This community is dominated by willow species, which form nearly monotypic stands due to their dense growth. These stands generally reach 10 to 20 feet in height with little understory vegetation. Other plant species within this habitat include Fremont cottonwood (*Populus fremontii*) and California sycamore (City of West Covina, 2006).

Coast Live Oak Woodland. Coast Live Oak Woodland is a plant community dominated by several types of oaks. In the San Jose Hills, the dominant species is the coast live oak, which typically grows to heights of 20 to 40 feet. Understory vegetation can include grasslands or shrub communities such as toyon, gooseberry (*Ribes sp.*), lemonadeberry, and Mexican elderberry. Within the San Jose Hills, Coast Oak Woodland is scattered throughout, but is most prevalent on north-facing slopes and in drainage bottoms (City of West Covina, 2006).

Walnut Woodland. The Walnut Woodland community can be found with oak-dominated woodlands or as a distinct plant community. The Southern California black walnut (*Juglans californica*) grows 10 to 30 feet high, most commonly, in open stands. Similar to oak woodlands, the understory varies from grasses to shrubs. Thus, it forms stands ranging from savannahs to forests throughout the San Jose Hills. This plant community is particularly important for West Covina as the San Jose Hills host the largest remaining stand of Southern California black walnut trees in the region (City of West Covina, 2006).

b. Special-Status Resources. The term special-status biological resources includes those plants, animals, vegetation communities, jurisdictional drainages and other sensitive biological resources that are governed under federal, state, and local laws and regulations. Information regarding the occurrences of special-status species in the vicinity of the plan area was obtained from searching the California Department of Fish and Wildlife's (CDFW) Natural Diversity Data Base (CNDDB, March 2016) and California Native Plant Society's Electronic Inventory

(CNPS March 2016) for the USGS Baldwin Park 7.5-minute quadrangle. These databases contain records of reported occurrences of federal- or state-listed endangered, threatened, rare, or proposed endangered or threatened species, federal species of concern, state species of special concern, or otherwise sensitive species or habitat that may occur within a five-mile radius of the Plan Area. Lists from the U.S. Fish and Wildlife Service (USFWS) and CDFW were also reviewed, and lists of common and sensitive wildlife and plant species potentially occurring within the plan area were created. This search range encompasses a sufficient distance to accommodate for regional habitat diversity and to overcome the limitations of the CNDDB (the CNDDB is based on reports of actual occurrences and does not constitute an exhaustive inventory of every resource).

Listed Species. Federal, State, and local authorities under a variety of legislative acts share regulatory authority over biological resources. The CDFW has direct jurisdiction under law for biological resources through the State Fish and Game Code and under the California Endangered Species Act. The federal Endangered Species Act also provides direct regulatory authority over specially designated organisms and their habitats to the U.S. Fish and Wildlife Service (USFWS). These acts specifically regulate listed and candidate endangered and threatened species, which are defined as:

- ***Endangered Species:*** *any species that is in danger of extinction throughout all or a significant portion of its range.*
- ***Threatened Species:*** *any species that is likely to become an endangered species within the foreseeable future throughout all or a significant part of its range.*

Special-Status Animals. Several reptile, bird, and mammal species of concern are known or possibly found in the plan area, based on a search of the California Natural Diversity Database (CNDDB). Table 4.3-1 identifies these animal species that are known to occur or have the potential to occur within the plan area, four of which have a State or federal listing status: Bank swallow (*Riparia riparia*), which is State Threatened; Coastal California gnatcatcher (*Polioptila californica californiac*), which is Federal Threatened; Least Bell's vireo (*Vireo bellii pusilus*), which is Federal and State Endangered; and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), which is Federal Threatened and State Endangered. Figure 4.3-2 identifies the general locations of these four sensitive animal species identified by the CNDDB (March 2012). While Figure 4.3-2 shows only one of these species (Coastal California gnatcatcher) occurring within the plan area, the others occur within a five mile radius of the plan area, and thus have the potential to also occur within the plan area. State or federally listed species are accorded the highest protection status.

Table 4.3-1
Special-Status Animals With the Potential to Occur in West Covina

Common Name	Scientific Name	Agency Status (Federal/State/Other)	Habitat
Reptiles			
Coast horned lizard	*Phrynosoma blainvillii*	--/--/SSC	PRESENT. Occurs in the Angeles National Forest. Prefers forest/woodland, grassland/herbaceous, savanna, shrubland, chaparral, conifer woodland, hardwood woodland, and mixed woodland.

Table 4.3-1
Special-Status Animals With the Potential to Occur in West Covina

Common Name	Scientific Name	Agency Status (Federal/State/Other)	Habitat
Birds			
Bank Swallow	*Riparia riparia*	--/**ST**/--	POTENTIAL. Occurs in riparian scrub and riparian woodland.
Coastal California gnatcatcher	*Polioptila californica californica*	**FT**/--/SSC	PRESENT. Occurs throughout the San Jose Hills. Prefers Riversidean and Diegan sage scrub habitats.
Cooper's hawk	*Accipiter cooperii*	--/CSC/--	POTENTIAL. Riparian forest and woodland.
Least Bell's vireo	*Vireo bellii pusillus*	**FE**/**SE**/--	PRESENT. Prefers dense brush, mesquite, willow-cottonwood forest, streamside thickets, and scrub oak, in arid regions but often near water, moist woodland, bottomlands, woodland edge, scattered cover and hedgerows in cultivated areas. Willow-dominated riparian woodlands.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	**FT**/**SE**/--	POTENTIAL. Occurs in riparian forest with dense cover and water nearby.
Yellow-breasted chat	*Icteria virens*	--/--/SSC	POTENTIAL. Occurs in riparian forest, riparian scrub, and riparian woodland, usually along streams.
Mammals			
American badger	*Taxidea taxus*	--/--/SSC	POTENTIAL. Prefers open grassland and desert area with friable soils, and open uncultivated ground.
Big free-tailed bat	*Nyctinomops macrotis*	--/--/SSC	POTENTIAL. Roosts in buildings, caves, and occasionally in holes in trees, crevices in high cliffs or rock outcrops; prefers rugged, rocky canyons.
Pallid bat	*Antrozous pallidus*	--/--/SSC	POTENTIAL. Rocky canyons, open farmland, scattered desert scrub, grassland, shrubland, woodland, and mixed conifer forest. Roosts in caves, crevices, and trees; forages in a variety of habitats.
Pocketed free-tail bat	*Nyctinomops femorosaccus*	--/--/SSC	PRESENT. Occurs north of the San Jose Hills. Usually associated with rugged canyons, high cliffs, and rock outcroppings. Roosts in rock crevices and caves during the day; may also roost in buildings or under roof tiles.
San Diego black-tailed jackrabbit	*Lepus californicus bennetti*	--/--/SSC	POTENTIAL. Occurs in open areas or semi-open country usually in grasslands, agricultural fields, or sparse coastal scrub.

Table 4.3-1
Special-Status Animals With the Potential to Occur in West Covina

Common Name	Scientific Name	Agency Status (Federal/State/Other)	Habitat
Western mastiff bat	*Eumops perotis californicus*	--/--/SSC	POTENTIAL. Primarily arid lowlands, especially deserts. Open, semi-arid habitats including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban habitats.
Western yellow bat	*Lasiurus xanthinus*	--/--/SSC	POTENTIAL. Prefers hardwood forest, hardwood woodland, suburban/orchard, and urban/edificarian. Roosts in trees, including palm trees under the fronds.

Sources: California Natural Diversity Database (CNDDB), March 2016.

KEY:
FE=Federally Endangered
FT=Federally Threatened
FC=Federal Candidate
DL=Federal Delisted
SE=State Endangered
ST=State Threatened
CFP=California Fully Protected
CSC=California Species of Concern
SSC = CDFW species of special concern
Rare = Rare species, State ranking as rare
MMPA=Marine Mammal Protection Act

Special-Status Plants. Special-status plant species are either listed as endangered or threatened under the federal or California Endangered Species Acts, or rare under the California Native Plant Protection Act, or considered to be rare (but not formally listed) by resource agencies and the scientific community. CDFW and local governmental agencies may also recognize special listings developed by focal groups (i.e. Audubon Society Blue List; California Native Plant Society (CNPS) Rare and Endangered Plants; U.S. Forest Service regional lists). Table 4.3-2 shows 13 special-status plant species that may occur within the plan area, one of which has a State and federal listing status, Nevin's barberry (*Berberis nevinii*), Federal and California Endangered; Figure 4.3-2 illustrates the general locations of special-status species documented within the Plan Area by the CNDDB (March 2016).

Table 4.3-2
Special-Status Plants with the Potential to Occur in West Covina

Common Name	Scientific Name	Agency Status (Federal/State/ CRPR/Other)	Habitat
California androsace	*Androsce elongate ssp. acuta*	--/--/4.2	POTENTIAL. Chaparral, cismontane woodland, coastal scrub, meadows and seeps, valley and foothill grassland; 150 – 1200 m.
Engelmann oak	*Quercus engelmannii*	--/--/4.2	POTENTIAL. Chaparral, riparian woodland, valley and foothill grassland; 50 – 1300 m.
Intermediate mariposa lily	*Calochortus weedii var. intermedius*	--/--/4.2	POTENTIAL. Chaparral, valley and foothill grassland; 105 – 855 m.
Many-stemmed dudleya	*Dudleya multicaulis*	--/--/1B.2	POTENTIAL. Prefers chaparral, coastal scrub, and valley and foothill grasslands, often in clay soils; 15 – 790 m.

Table 4.3-2
Special-Status Plants with the Potential to Occur in West Covina

Common Name	**Scientific Name**	**Agency Status (Federal/State/ CRPR/Other)**	**Habitat**
Mesa horkelia	*Horkelia cuneata ssp. puberula*	--/--/1B.1	POTENTIAL /UNKNOWN. Occurs within the city limits, however, presumed extirpated. Prefers chaparral, cismontane woodland, and coastal scrub on sandy or gravelly soils
Nevin's barberry	*Berberis nevinii*	**FE/CE**/1B.1	POTENTIAL. Chaparral, cismontane woodland, coastal scrub, riparian scrub; 70 – 825 m.
Parish's oxytheca	*Acanthoscyphus parishii var. parishii*	--/--/4.2	POTENTIAL. Chaparral and lower montane coniferous forest; 1220 – 2600 m.
Round-leaved filaree	*California macrophylla*	--/--/1B.1	POTENTIAL. Cismontane woodland, valley and foothill grassland.
San Bernardino aster	*Symphyotrichum defoliatum*	--/--/1B.2	PRESENT. Occurs within city limits, as well as, east of the city. Prefers areas near ditches, streams, springs, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland (vernally mesic) habitats; 2 – 2040 m.
Slender mariposa lily	*Calochortus clavatus var. gracilis*	--/--/1B.2	POSSIBLE. Chaparral, valley and foothill grassland; 320 – 1000 m.
Southern California black walnut	*Juglans californica*	--/--/4.2	PRESENT. Chaparral, cismontane woodland, coastal scrub, and riparian woodland; 50 – 900 m.
Southern tarplant	*Centromadia parryi ssp. australis*	--/--/1B.1	POTENTIAL. Marshes and swamps, valley and foothill grassland, vernal pools.
Western spleenwort	*Asplenium vespertinum*	--/--/4.2	POTENTIAL. Rocky chaparral, cismontane woodland, and coastal scrub; 180 – 1000 m.

Sources: California Native Plant Society (CNPS), March 2016 California Natural Diversity Database (CNDDB), March 2016.

KEY:
FE=Federally Endangered SE=State Endangered
FT=Federal Threatened ST=State Threatened

California Native Plant Society (CNPS):
1A: Plants presumed extinct in California
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California,, but more common elsewhere.
3: Plants about which we need more information.
4: Plants of limited distribution, a watch list.

California Rare Plant Rank (CRPR):
0.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 – Fairly endangered in California (20-80% occurrences threatened)
0.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

c. Wildlife Corridors. Wildlife corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as between foraging and denning areas, or they may be regional in nature, allowing movement across the landscape. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return.

The San Jose Hills support a diversity of wildlife and provide linkages between the San Gabriel Mountains and the Puente Hills/Chino Hills Complex. The San Jose Hills unfold in a series of discontinuous habitat blocks and patches, facilitating movements and exchanges between larger habitat areas. Current open space, spaces currently available for the City of West Covina to develop, and channel corridors all have a high potential to augment current patches and serve as corridors (City of West Covina, 2006). Potential habitat corridors within the plan area include two potential wildlife movement corridors from the Puente Hills to Puddingstone Reservoir, which pass through the eastern part of the plan area in the San Jose Hills.

d. Special-Status Habitats. Special-status habitats are vegetation types, associations, or sub-associations that support concentrations of special-status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife. Although special-status habitats are not afforded legal protection unless they support special-status species, potential impacts on them may increase concerns and trigger mitigation suggestions by resources agencies for those habitats considered sensitive by federal, State, and local agencies due to their rarity or value in providing habitat for vegetation, fish, and wildlife.

Sensitive habitats are special-status plant communities considered sensitive by federal, State, and local agencies due to their rarity or value in providing habitat for vegetation, fish, and wildlife. Sensitive habitats present within the plan area include: Walnut Woodland, Coast Live Oak Woodland, southern willow scrub, and oak riparian forest.

Because the Plan Area contains some natural or semi-natural drainages (see Impact discussion B-3), and other natural, undeveloped areas, the following special-status habitats may be present within the Plan Area :

- *Drainages, wetlands and associated riparian vegetation under the jurisdiction of CDFW as waters of the State or U.S. Army Corps of Engineers (USACE) as waters of the U.S.*
- *Wildlife Linkages and Corridors*

e. Regulatory Setting. The following is a summary of the regulatory context under which biological resources are managed at the federal, state, and local level. Agencies with responsibility for protection of biological resources within the plan area include:

- *U.S. Fish and Wildlife Service (USFWS; federally listed species and migratory birds)*
- *California Department Fish and Wildlife (CDFW; waters of the State, state listed and fully-protected species, and other sensitive plants and wildlife)*
- *U.S. Army Corps of Engineers (USACE; wetlands and other waters of the United States)*
- *Los Angeles Regional Water Quality Control Board (LARWQCB; waters of the State)*
- *City of West Covina (GP/LCP Goals, Policies, and Actions, West Covina Municipal Code (WCMC))*

The following discussion provides a summary of those laws that are most relevant to biological resources in the vicinity of the plan area.

U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service (USFWS) implements the Migratory Bird Treaty Act (16 USC Section 703-711) and the Bald and Golden Eagle Protection Act (16 United States Code (USC) Section 668). USFWS and the National Oceanic and Atmospheric Administration (also called NOAA Fisheries) share responsibility for implementing the Federal Endangered Species Act (FESA; 16 USC § 153 *et seq)*. USFWS generally implements the FESA for land and freshwater species, while NOAA Fisheries implements the FESA for marine and anadramous species. Projects that would result in take of any federally listed threatened or endangered species are required to obtain permits from the USFWS or NOAA Fisheries through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of FESA, depending on the involvement by the federal government in permitting or funding the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what mitigation measures would be required to avoid jeopardizing the species.

Take under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of FESA; however, the USFWS and NOAA Fisheries advise project applicants that they could be elevated to listed status at any time.

The *Migratory Bird Treaty Act of 1918* (MBTA), as amended in 1972, protects nesting migratory birds by making it unlawful to "take" (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many other species. It is possible that other state or federal sensitive or special-status avian species may also be adversely affected by new development in the City.

The federal *Endangered Species Act* (FESA), which is administered and enforced by the USFWS and the National Marine Fisheries Service, would also prohibit any activity that kills or injures fish or wildlife, and emphasizes that such activities may include significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife.

California Department of Fish and Wildlife. The CDFW derives its authority from the Fish and Game Code of California Species listed under the California Endangered Species Act (CESA; Fish and Game Code Section 2050 *et seq,*), which prohibits take of listed threatened or endangered species. Take under CESA is restricted to direct killing of a listed species and does not prohibit indirect harm by way of habitat modification.

Fish and Game Code Sections 3503, 3503.5, and 3511 describe unlawful take, possession, or needless destruction of birds, nests, and eggs. Fully protected birds (Section 3511) may not be taken or possessed except under specific permit. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs.

Species of Special Concern (CSC) is a category used by CDFW for those species considered to be indicators of regional habitat changes or considered to be potential future protected species. Species of Special Concern do not have any special legal status except that afforded by the Fish and Game Code. The CSC category is intended by the CDFW for use as a management tool to include these species into special consideration when decisions are made concerning the development of natural lands.

CDFW also has authority to administer the Native Plant Protection Act (Fish and Game Code Section 1900 *et seq*). The Act requires CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the Act, the owner of land where a rare or endangered native plant is growing is required to notify the department at least 10 days in advance of changing the land use to allow for salvage of the plant.

Perennial and intermittent streams also fall under the jurisdiction of CDFW. Sections 1600 et. seq. of the Fish and Game Code (Streambed Alteration Agreements) gives CDFW regulatory authority over work within the stream zone (which could extend to the 100-year flood plain) consisting of, but not limited to, the diversion or obstruction of the natural flow or changes in the channel, bed, or bank of any river, stream or lake.

U.S. Army Corps of Engineers. Under Section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act, the USACE has authority to regulate activity that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. Perennial and intermittent creeks and adjacent wetlands are considered waters of the United States and are within the regulatory jurisdiction of the USACE. The USACE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or acres. In achieving the goals of the Clean Water Act, the Corps seeks to avoid adverse impacts and to offset unavoidable adverse impacts on existing aquatic resources. Any fill or adverse modification of waters of the U.S., wetlands would require a permit from the Corps prior to the start of work. Typically, permits issued by the Corps are a condition of a project as mitigation to offset unavoidable impacts on wetlands and other waters of the U.S. in a manner that achieves the goal of no net loss of wetland acres or values.

Regional Water Quality Control Board. The protection of water quality in the watercourses of the City of West Covina is under the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). The Board establishes requirements prescribing discharge limits and establishes water quality objectives through the Los Angeles County Municipal Storm Water National Pollutant Discharge Elimination System (NPDES) Permit. The Standard Urban Storm Water Mitigation Plan (SUSMP), which is part of the NPDES Permit, addresses specific storm water pollution requirements for new developments such as those that may be carried out under the proposed project. As co-permittee, the City of West Covina is responsible for assuring that new developments are in compliance with the SUSMP.

City of West Covina. The City's *Preservation, Protection and Removal of Trees* Ordinance (Section 26-288 through 26-295 of the WCMC) requires permits for the removal of significant trees, heritage trees, and trees on public property; replacement planting when significant trees, heritage trees, and trees on public property are removed; and encourages tree preservation. A

significant tree is identified in WCMC Section 26-289(12) as a tree located on private and/or public property that meets one or more of the following requirements:

a. Is located in the front yard of a lot or parcel and has a caliper of one (1) foot or more
b. Is located in the street-side yard of a corner lot and has a caliper of one (1) foot or more
c. Is located anywhere on a lot, has a caliper of six (6) inches, or more, and is one of the following species:

    - Any oak tree native to California, including, but not limited to: valley oak, California live oak, canyon oak (*Quercus chrysolepis*), scrub oak (*Quercus dumoso*), mesa oak (*Quercus engelmanii*), and interior live oak (*Quercus wislezenii*)
    - California sycamore
    - American sycamore (*Platanus occidentalis*).

WCMC Section 26-289(6) defines a heritage tree as a tree identified as such by planning commission resolution upon the commission finding that the tree or group of trees:

1. Is of historical value because of its association with a place, building, natural feature, or an event of local, regional, or national historic significance
2. Is identified on any historic or cultural resources survey as a significant feature of a landmark, historic site, or historic district
3. Is representative of a significant period of the city's development; or
4. Is designated for protection or conservation in a specific plan, conditional use permit, precise plan of design, tract or parcel map or similar development approval.

WCMC Section 26-289(6) also defines a heritage tree as any of the Southern California black walnut tree species (Juglans californica), located in the San Jose Hills found within West Covina's jurisdictional boundaries, subject to certain conditions and exceptions.

Pursuant to WCMC Section 26-290, a permit is required to remove protected trees, although certain exceptions are defined under WCMC Section 26-291.

4.3.2 Impact Analysis

a. Methodology and Significance Thresholds.

Methodology. The impact analysis is based on available literature regarding the existing biological resources within the plan area. Environmental impacts relative to biological resources may be assessed using impact significance criteria from federal, state, and local regulations. Project impacts to flora and fauna may be determined to be significant even if they do not directly affect rare, threatened, or endangered species.

CEQA, Chapter 1, Section 21001 (c) states that it is the policy of the State of California to "prevent the elimination of fish and wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities." Environmental impacts relative to biological resources may be assessed using impact significance criteria encompassing CEQA guidelines and federal, state and local plans, regulations, and ordinances.

Significance Thresholds. The *CEQA Guidelines* Appendix G provides the following general statements to determine that significant impacts to biological resources could occur if a project action would:

- *Have a substantial adverse effect (i.e. significantly reduce species population, reduce species habitat, restrict reproductive capacity), either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, regulations, or by CDFW or USFWS;*
- *Have a substantial adverse effect (i.e. direct/indirect reduction) on any riparian habitat or other sensitive natural community identified in local or regional plans, policies regulations, or by the CDFW or USFWS;*
- *Have a substantial adverse effect (i.e. direct/indirect reduction) on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to, marsh vernal pool, coastal, etc.) through direct removal, filling, or hydrological interruption, or other means;*
- *Interfere substantially (i.e. direct/indirect reduction) with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;*
- *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and*
- *Conflict with the provisions of an adopted Habitat Preservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

b. Project Impacts and Mitigation Measures.

Threshold:	*Have a substantial adverse effect (i.e. significantly reduce species population, reduce species habitat, restrict reproductive capacity), either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, regulations, or by CDFW or USFWS; or have a substantial adverse effect (i.e. direct/indirect reduction) on any riparian habitat or other sensitive natural community identified in local or regional plans, policies regulations, or by the CDFW or USFWS.*

Impact B-1 **Potential direct and indirect impacts to listed special-status species and sensitive habitats would not occur as a result of development facilitated by the proposed project because impacts would largely be avoided by PlanWC's emphasis on intensification/reuse of already urbanized areas and through implementation of goals and policies in PlanWC. Impacts to listed and special-status species and sensitive habitats would therefore be *less than significant*.**

As indicated in Section 4.3.1, *Setting*, a variety of wildlife species are present throughout the City, including various bird and mammal species, although areas that may provide habitat for special-status species in the City are primarily located in the San Jose Hills and other open space areas scattered throughout the City.

Special-status State or federally listed species with the potential to occur in the City include: coastal California gnatcatcher, bank swallow, Least Bell's vireo, and western yellow-billed cuckoo (Figure 4.3-2). State or federally listed special-status plant species with the potential to occur in the City include Nevin's barberry (Figure 4.3-2). The majority of special-status plant communities occur in the eastern portion of the City. Special-status plant communities within West Covina include California Walnut Woodland, valley foothill riparian, Coast Live Oak Woodland, and walnut forest. While Coast Live Oak Woodlands, California Walnut Woodlands, and walnut forests are different plant communities, they are often all classified as Coast Live Oak Woodland and strands of mixed chaparral, as shown on Figure 4.3-1.

The majority of development within the City under the proposed project would consist of infill and urban expansion of developed areas, which do not support a wide diversity of biological resources. The majority of development and new growth would be directed to the Downtown district, and several neighborhoods and corridors. The four corridors are urban transportation thoroughfares, and do not support special-status species or sensitive habitats. The following corridors where growth is directed by Plan WC include North Azusa Avenue, Glendora Avenue, Sunset Avenue, and Valley Boulevard.

All development under the proposed project would be subject to the provisions of the various federal and State natural resources regulations (discussed in Section 4.3.1, *Setting*) and their respective permitting processes. In addition, PlanWC Policy P1.6, shown below, would encourage the conservation and protection of public open space within the City, thus protecting special-species.

Our Natural Community Chapter Policies

P1.6 *Preserve, conserve, and add to public open space.*

A1.6 *Maintain the existing conservation areas and prohibit any development in spaces designated as parks and open space on the land use plan.*

A1.6b: *Continue to add public open spaces through developer dedication, in-lieu fees, or conservation easements.*

While Policy P1.6 would account for potential direct effects to sensitive special-status species, there remains the potential for new development to result in indirect effects, such as lighting and dust, on sensitive habitat and special-status species in areas adjacent to or near proposed development. In addition, because the presence of species and extent of development on specific sites is not known at this time, it is possible that previously unidentified species are present in the City. However, individual future developments will be subject to further environmental review and, as appropriate, project-specific mitigation. Additionally, the proposed project focuses the majority of potential future development as infill development in the Downtown and along major transportation corridors, not directly adjacent to undeveloped natural areas. For these reasons, impacts would be less than significant.

Mitigation Measures. The proposed project focuses the majority of potential future development as infill development in the Downtown and along major transportation corridors, not directly adjacent to undeveloped natural areas, and future individual projects would be subject to CEQA review. Additional mitigation with respect to PlanWC implementation is unnecessary.

Significance After Mitigation. Impacts to special-status species and habitats would remain less than significant.

Impact B-2 **Implementation of the proposed project would not result in a reduction in nesting opportunities for resident and migratory avian species of special concern because of conservation and preservation policies within PlanWC and compliance with the Migratory Bird Treaty Act. This impact is therefore *less than significant*.**

As with most urbanized environments, landscape features within the City, such as trees, shrubs, herbaceous plants, and parklands, could serve as temporary habitats or foraging grounds for wildlife. As discussed in Section 4.3.1e, *Regulatory Setting*, migratory avian species that may use portions of the City for nesting during the breeding season are protected under the MBTA. Construction-related activities that may include, but are not necessarily limited to, building demolition and/or relocation, grading, materials laydown, access and infrastructure improvements, and building construction, could result in the disturbance of nesting migratory species covered under the MBTA. The most identifiable potential direct impact to migratory species would involve the removal of vegetation, particularly trees that may serve as perching or nesting sites for migratory birds. This could occur in the existing landscape vegetation throughout the City. Potential direct impacts related to the removal of oak trees would be limited by the provisions of the City of West Covina *Preservation, Protection and Removal of Trees* Ordinance. The Ordinance requires permits for the removal of significant trees, heritage trees, and trees on public property; requires replacement planting when significant trees, heritage trees, and trees on public property are removed; and encourages tree preservation.

Impacts related to the removal of vegetation not covered under the ordinance could have adverse effects on nesting migratory species. However, individual future developments will be subject to further environmental review and, as appropriate, project-specific mitigation. Additionally, Plan WC Policies P1.6 and P1.9 of the *Our Natural Community* Chapter, listed below, would help to offset the potential impacts to trees by encouraging open space conservation and tree planting.

Our Natural Community Chapter Policies

P1.6 *Preserve, conserve, and add to public open space.*

A1.6: *Maintain the existing conservation areas and prohibit any development in spaces designated as parks and open space on the land use plan.*

A1.6b: *Continue to add public open spaces through developer dedication, in-lieu fees, or conservation easements.*

P1.9 *Plant to maximize the social, economic, and environmental benefits of trees.*

A1.9b: *Increase the number of street trees by adding new trees in the Downtown area of the three corridors (Azusa, Sunset, and Glendora Avenue).*

A1.9c: *Pursue an expanded and equitable distribution of trees and greening throughout the City. Fill in the gaps in canopy cover, address aging tree population, and identify vacant and new planting spots. Target plating where pedestrian and public real*

improvements are prioritized such as safe streets to schools and parks. Set a citywide tree canopy coverage goal.

A1.9d: *Develop a street tree management plan – outline a maintenance strategy, creating planting plans and identify capital funding needs.*

Under provisions of the federal Migratory Bird Treaty Act (MBTA), it is unlawful "by any means or manner to pursue, hunt, take, capture, (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined by USFWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture, or collect" any migratory bird or any part, nest or egg of any migratory bird covered by the conventions, or to attempt those activities. Migratory birds include all native birds in the Unites States, except those non-migratory species such as quail and turkey that are managed by individual states. Compliance with the MBTA would ensure that migratory bird species are protected during buildout of the proposed project.

Mitigation Measures. Compliance with the MBTA, PlanWC Policies, and the WCMC would minimize impacts to resident and migratory avian species of special concern. Additional mitigation with respect to PlanWC implementation is not needed.

Significance After Mitigation. Impacts to resident and migratory avian species of special concern would be less than significant.

Threshold:	*Have a substantial adverse effect (i.e. direct/indirect reduction) on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to, marsh vernal pool, coastal, etc.) through direct removal, filling, or hydrological interruption, or other means.*

Impact B-3 **While the proposed project would not facilitate development that would directly impact riparian and wetland habits, there would be potential for adverse indirect impacts from such development on wetlands, including man-made wetlands, and areas under the jurisdiction of the CDFW and USACOE. However, compliance with existing regulations, and implementation of PlanWC policies, would reduce potential impacts to a *less than significant* level.**

The major streams that run through West Covina include Walnut Creek, Puente Creek, and a small portion of Big Dalton Wash. These waterways have been channelized for flood control, allowing development close to the water, and therefore do not contain associated wetland habitat. However, there are several man made ponds, detention basins, or wetlands within the City that may be present as drainage features for highways or developments, and some natural areas may contain small depressions and/or drainage features. For example, Walnut Creek in the eastern portion of the City may have several natural drainage features. Such areas may be subject to Army Corps of Engineers jurisdiction. Compliance with the requirements of the Clean Water Act would be required for any project proposed under PlanWC or the Downtown Plan. In addition, PlanWC includes Policy P1.5, which would require new development to minimize impervious area, runoff, and pollution, reducing impacts to federally protected wetlands and riparian habitat.

Our Natural Community Chapter Policies

P1.5 *Where appropriate, new development shall minimize impervious area, minimize runoff and pollution, and incorporate best management practices.*

A1.5: *Develop standards to increase pervious surfaces to recharge groundwater basin, where appropriate.*

Mitigation Measures. Implementation of PlanWC Policy P1.5 and the associated action listed above would minimize impacts to wetlands and riparian habitats from development. Additionally, appropriate State and federal regulations pertaining to CDFW and USACOE permits for wetland development would ensure the appropriate buffers and other protections for wetlands are implemented for individual projects. Additional mitigation measures with respect to PlanWC are not needed.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Interfere substantially (i.e. direct/indirect reduction) with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

Impact B-4 **Development carried out under the proposed project would largely avoid impacts to wildlife movement corridors by emphasizing intensification/reuse of existing urbanized areas. Impacts would be *less than significant*.**

As discussed in Section 4.3.1c, *Wildlife Corridors,* the San Jose Hills support a diversity of wildlife and provide linkages between the San Gabriel Mountains and the Puente Hills/Chino Hills Complex. Potential habitat corridors within the City include two potential wildlife movement corridors from the Puente Hills to Puddingstone Reservoir, which pass through the eastern part of the City in the San Jose Hills.

The proposed project focuses on intensification of already existing developed areas, and the majority of development and new growth would be directed to the Downtown district and several neighborhoods and urban corridors. The level of change that would result from the proposed project ranges from reinvestment in existing buildings and minor improvements to utility infrastructure and the public realm, to the occasional infill development that completes the prevalent development pattern.

PlanWC Policy P1.6, listed below, would help avoid potential impacts to wildlife movement corridors by encouraging open space conservation.

Our Natural Community Chapter Policies

P1.6 *Preserve, conserve, and add to public open space.*

A1.6: *Maintain the existing conservation areas and prohibit any development in spaces designated as parks and open space on the land use plan.*

A1.6b: *Continue to add public open spaces through developer dedication, in-lieu fees, or conservation easements.*

Implementation of the proposed project would preserve open space within the City, thus preserving existing wildlife corridors.

Mitigation Measures. The features of the proposed project discussed above would reduce wildlife movement impacts to a less than significant level. Additional mitigation with respect to PlanWC implementation is not needed.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

Impact B-5 Development under the proposed project would be in substantial conformance with federal, state, and local applicable policies protecting biological resources. Impacts would be *less than significant*.

Implementation of the proposed project would be subject to all applicable federal, state, and regional policies and regulations related to the protection of important biological resources. Specifically, development under PlanWC would be required to comply with the policies and regulations described previously and listed below:

- *Federal Endangered Species Act*
- *Federal Migratory Bird Treaty Act*
- *California Endangered Species Act*
- *California Fish and Game Code*
- *California Environmental Quality Act – Treatment of Special Status Plan and Animal Species*

PlanWC includes policies that would help ensure that future development within the plan area would comply with the provisions of each of these federal, State, and regional laws, regulations, or plans. In addition, development under the proposed project would be subject to the provisions of the City of West Covina *Preservation, Protection and Removal of Trees* Ordinance. The Ordinance requires permits for the removal of significant trees, heritage trees, and trees on public property; replacement planting when significant trees, heritage trees, and trees on public property are removed; and encourages tree preservation. The following PlanWC policy and associated actions would help to improve the City streetscape by maintaining and planting trees.

Our Natural Community Chapter Policies

P1.9 *Plant to maximize the social, economic, and environmental benefits of trees.*

A1.9.b: *Increase the number of street trees by adding new trees in the Downtown area of the three corridors (Azusa, Sunset, and Glendora Avenue).*

A1.9c: *Pursue an expanded and equitable distribution of trees and greening throughout the City. Fill in the gaps in canopy cover, address aging tree population, and identify*

vacant and new planting spots. Target plating where pedestrian and public real improvements are prioritized such as safe streets to schools and parks. Set a citywide tree canopy coverage goal.

A1.9d: *Develop a street tree management plan – outline a maintenance strategy, creating planting plans and identify capital funding needs.*

Mitigation Measures. Implementation of PlanWC Policy P1.9 and associated actions would achieve compliance with local policies and ordinances pertaining to biological resource protection. Additional mitigation with respect to implementation of the proposed project is not needed.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Conflict with the provisions of an adopted Habitat Preservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

Impact B-6 **Because West Covina is not located in a habitat preservation or conservation plan area and is not within one of the Significant Ecological Areas (SEAs) in Los Angeles County, the proposed project would not conflict with the provisions of an adopted Habitat Preservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.** ***No impact.***

The City of West Covina is not located in a habitat preservation or conservation plan area and is not within one of the Significant Ecological Areas (SEAs) in Los Angeles County. PlanWC therefore would not conflict with this threshold and as such there would be no impact relative to such plans.

Mitigation Measures. The City of West Covina is not subject to an adopted Habitat Preservation Plan or Natural Community Conservation Plan; therefore, mitigation is not needed.

Significance After Mitigation. No impact.

c. **Cumulative Impacts.** Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Larger regional impacts to wildlife movement are analyzed under Impact B-4, and have been found to be less than significant. Therefore, the analysis of project impacts also constitutes the cumulative analysis.

4.4 CULTURAL RESOURCES

This section analyzes the potential impacts of the proposed project on cultural resources. Impacts to both pre-historic archaeological resources and historic resources are addressed.

4.4.1 Setting

Cultural resources include prehistoric resources, historic resources, and Native American resources. Prehistoric resources represent the remains of human occupation prior to European settlement. Historic resources represent remains after European settlement and may be part of a "built environment," including man-made structures used for habitation, work, recreation, education and religious worship, and may also be represented by houses, factories, office buildings, schools, churches, museums, hospitals, bridges and other structural remains. Native American resources include ethnographic elements pertaining to Native American issues and values.

a. Prehistoric and Historical Background. Prior to European settlement, West Covina was inhabited by Gabrielino/Tongva Native Americans. The Gabrielino/Tongva lived along the coast and inland in Southern California. Gabrielino/Tongva men were hunters and warriors, responsible for feeding and defending their families. The women cared for children, cooked, and gathered herbs and food for the tribe. The Spanish arrived in the early 16th century, and Franciscan monks of Spain established the San Gabriel Mission in 1771, claiming the entire San Gabriel Valley including West Covina as their estate. The mission recruited the local Native Americans to Christianity, and taught them agriculture and building skills. In 1810, Mexico claimed independence from Spain and took over the land.

In 1842, John Rowland and William Workman came from Taos, New Mexico and applied for a land grant from Mexican Governor Juan Bautista Alvarado. They received preliminary title to 48,790 acres, which encompassed almost all of West Covina. Governor Don Pico gave the final title in 1845 for the cost of $1,000 in gold.

Between 1842 and 1900, West Covina's economy focused around raising cattle. Cattle provided commodities of beef, hide, horns, and candle tallow. In 1865, the first known businessman and settler arrived in West Covina, opening a stagecoach stop. Prior to 1900, a few wheat farms were attempted in West Covina, but they were marginally successful because there was no steady water source for irrigation.

In 1876, E.J. Baldwin acquired the majority of West Covina and leased almost all of the land to cattle ranchers and wheat farmers. In 1903, he began selling West Covina land. The same year, the first successful water well in West Covina, with an attached steam engine for pumping, was constructed, allowing for irrigation of over 200 acres through a series of hand-dug ditches. This development attracted settlers to West Covina, turning the economy from cattle ranching to agriculture.

When the irrigation system was established, the first farmers planted pumpkins and West Covina became known as Pumpkin Center. Other crops such as beans, alfalfa, wheat, and potatoes flourished in West Covina as a result of the rich alluvial soil from historic flooding. In 1904, a hybrid walnut tree was planted and four years later it produced a bumper crop, creating

a new industry for the City. Besides walnuts, wheat farming became West Covina's major cash crop after 1908.

West Covina was part of Baldwin's fourth subdivision, and has upheld many of the streets and their associated names such as: Irwindale, Glendora, Service, Merced, and Francisquito. The subdivision was originally 164 plots about 8.25 acres each. About 200 people moved into West Covina between 1900 and 1910. West Covina's first settlers were primarily young couples with children that sought entrepreneurial opportunities within a new planned community. Following establishment of the subdivision growth occurred primarily to the east and south of the City.

On February 5, 1923, West Covina was incorporated after collecting the necessary 500 signatures; the population was only 507. Boundaries of the new city were set just above Puente Street on the north, and halfway between Hollenbeck and Azusa on the east. Shortly after incorporation, a City Hall was established and the City's economic and geographical future was fundamentally determined by the placement of California Highway 99 through the heart of the community in 1935. In the late 1950's, the highway was widened and became Interstate 10, allowing West Covina to become an economic hub.

Long standing walnuts began to die in the 1940's due to larvae of the coddling moth, and the region's walnut packing plant closed in 1948. To replace the walnut trees residents grew citrus, vegetables, and flowers. In the 1940's and 1950's, all farming in the City began to diminish as land owners found it more profitable to sell their land for residential and commercial development. From 1940 to 1950, the City experienced about 400 percent growth from a population of 1,072 to 4,000.

In the 1960's, the City adopted the slogan "Headquarters City" because a real estate development report claimed that West Covina was a city with attractions of shopping, business, medical care, and government services. From 1950 to 1962, West Covina grew 1,500 percent and was acclaimed the fastest growing city in the country in the early 1950's. Residents were mainly young couples with children and World War II veterans accessing the new jobs that could be reached by Interstate 10. To accommodate the mammoth demand for housing West Covina executed 44 annexations of land around its original borders.

West Covina is now a built out city, with a 2016 population of 107,873 residents, and housing demand has caused non-residential land uses including schools, agriculture, and commercial property to be replaced with housing developments. The City's limited commercial space is primarily retail and service-based, and the largest employers are health services and education. The majority of new growth under PlanWC would be directed to the Downtown district and certain corridors within the City, focusing on where the development pressures are greatest and change is desired. Housing and job growth is targeted to strategic areas along the corridors and neighborhood centers (PlanWC 2016).

b. Archaeological and Historic Resources. A National Register of Historic Places Database search found no archaeological or historic resources in the City of West Covina. However, there are a number of structures within West Covina that the City has identified as having local historical and architectural interest and exemplifying the history of West Covina's built environment. The City has recommended nomination of these properties to the California

Register of Historical Places (City of West Covina, Most Historic Properties, 2016). These properties include:

- *637 S. California Avenue*
- *863 S. California Avenue*
- *2527 E. Cameron Avenue*
- *833 S. Coral Tree Drive*
- *1940 E. Cortez Avenue*
- *2036 E. Cortez Avenue*
- *2922 E. Cortez Avenue*
- *1708 W. Eldred Avenue*
- *1336 S. Fleetwell Avenue*
- *505 S. Hollenbeck Street*
- *137 S. Lark Ellen Avenue*
- *747 N. Lark Ellen Avenue*
- *803 S. Lark Ellen Avenue*
- *809 S. Lark Ellen Avenue*
- *831 S. Lark Ellen Avenue*
- *1127 W. Merced Avenue*
- *237 N. Orange Avenue*
- *521 N. Orange Avenue*
- *2204 W. Pacific Avenue*
- *1032 E. Puente Avenue*
- *1038 E. Puente Avenue*
- *1314 E. Puente Avenue*
- *1550 E. Puente Avenue*
- *1106 W. Rowland Avenue*
- *1440 E. Rowland Avenue*
- *1628 E. Rowland Avenue*
- *188 N. Sunkist Avenue*
- *1951 S. Sunset Avenue*
- *611 N. Sunset Avenue*
- *611 N. Vincent Avenue*
- *1241 S. Willow Avenue*

c. Regulatory Setting. The regulatory background provided below offers an overview of federal, state, and local criteria used to assess historic significance as well as West Covina's existing regulatory process pertaining to development projects that may impact historical resources.

National Register of Historic Places (NRHP). The *National Historic Preservation Act of 1966* established the NRHP as the official Federal list of cultural resources that have been nominated by State Offices for their historical significance at the local, State, or national level. Properties listed in the NRHP, or "determined eligible" for listing, must meet certain criteria for historical significance and possess integrity of form, location, and setting. Significance is determined by four aspects of American history or prehistory recognized by the NRHP Criteria. Eligible properties must meet at least one of the criteria and exhibit integrity, measured by the degree to which the resource retains its historical properties and conveys its historical character, the degree to which the original fabric has been retained, and the reversibility of changes to the property.

Listing in the NRHP assists in preservation of historic properties through the following actions: recognition that a property is of significance to the nation, the state, or the community; consideration in planning for federal or federally-assisted projects; eligibility for federal tax benefits; consideration in the decision to issue a federal permit; and qualification for federal assistance for historic preservation grants, when funds are available. Properties may qualify for NRHP listing if they:

A. *Are associated with events that have made a significant contribution to the broad patterns of our history*
B. *Are associated with the lives of persons significant in our past*

C. *Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction*
D. *Have yielded, or may be likely to yield, information important in prehistory or history*

According to the NRHP guidelines, the essential physical features of a property must be present for it to be considered significant. Further, in order to qualify for the NRHP, a resource must retain its integrity, or the "ability to convey its significance." The seven aspects of integrity are:

1. *Location (the place where the historic property was constructed or the place where the historic event occurred)*
2. *Design (the combination of elements that create the form, plan, space, structure, and style of a property)*
3. *Setting (the physical environment of a historic property)*
4. *Materials (the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property)*
5. *Workmanship (the physical evidence of the crafts of a particular culture or people during any given period of history or prehistory)*
6. *Feeling (a property's expression of the aesthetic or historic sense of a particular period of time)*
7. *Association (the direct link between an important historic event or person and a historic property)*

The relevant aspects of integrity depend upon the NRHP criteria applied to the property. For example, a property nominated under the location criterion would be likely to convey its significance primarily through integrity of location, setting, and association. A property nominated solely under the design criterion would usually rely primarily on integrity of design, materials, and workmanship.

California Register of Historic Resources (CRHR). State law also protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources in CEQA documents. A cultural resource is an important historical resource if it meets any of the criteria found in Section 15064.5(a) of the CEQA Guidelines. These criteria are nearly identical to those for the NRHP. A resource is eligible for listing on the California Register if it meets any of the following criteria for listing:

A. *It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage*
B. *It is associated with the lives of persons important in our past*
C. *It embodies the distinctive work of an important creative individual, or possesses high artistic values*
D. *It has yielded, or may be likely to yield, information important in prehistory or history*

The State Historic Preservation Office (SHPO) maintains the CRHR. Properties listed, or formally designated eligible for listing, on the NRHP are nominated to the CRHR and then selected to be listed on the CRHR, as are State Landmarks and Points of Interest.

Public Resources Code §5097.98. This bill addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or

inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. It has been incorporated into Section 15064.5(e) of the State CEQA Guidelines.

California Assembly Bill 52 (AB 52). As of July 1, 2015, California AB 52 was enacted and expands CEQA by establishing a formal consultation process for California tribes within the CEQA process. The bill specifies that any project that may affect or cause a substantial adverse change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native American tribe that is traditional and culturally affiliated with the geographic area of the proposed project." According to the legislative intent of AB 52, "tribes may have knowledge about land and cultural resources that should be included in the environmental analysis for projects that may have a significant impact on those resources." Section 21074 of AB 52 also defines a new category of resources under CEQA called "tribal cultural resources." Tribal cultural resources are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and either listed on or eligible for the CRHR or a local historic register, or if the lead agency chooses to treat the resource as a tribal cultural resource.

California Senate Bill 18 (SB 18). The proposed project includes amendments to the City's General Plan and West Covina Municipal Code (WCMC) to alter several land use and zoning designations. Due to these amendments, the proposed project must comply with California Public Resources Code § 65352.3 – 65352.4 (SB 18), which requires local governments to conduct meaningful consultation with California Native American tribes on the contact list maintained by the Native American Heritage Commission (NAHC) prior to the adoption or amendment of both general plans and specific plans for the purpose of protecting cultural places on lands affected by the proposal. Under SB 18, local governments must contact each tribal government identified by the NAHC to invite them to participate in consultation via written notice. Once a tribe requests consultation, local and tribal governments must seek a mutually agreeable resolution for preserving or mitigating impacts to cultural places. Consultation should establish a meaningful dialogue between local and tribal governments to identify and encourage preservation of Native American cultural places.

City of West Covina Historic Recourse Preservation Ordinance. The Historic Preservation Ordinance of the WCMC (Section 17-101) establishes a legal basis for the designation of historic properties and classifies the identification, protection, enhancement, perpetuation, and use of historic resources. Under WCMC Section 17-111 a historic resource may be designated a landmark, and an area may be designated as historic if it meets one or more of the following criteria:

- *It exemplifies or reflects special elements of the city's cultural, social, economic, political, aesthetic, engineering, or architectural history*
- *It is identified with persons or events significant in local, regional, state or national history*
- *It embodies distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship*
- *It is representative of the notable work of a builder, designer, or architect*
- *It has unique location or physical characteristic(s) or represents an established and familiar visual feature or landmark of a neighborhood, community, or the City.*

Section 17-121 through Section 17-124 of the WCMC identify the requirements and eligibility for historic districts and landmarks. Section 17-141 protects historic landmarks and properties, stating, "For landmarks or properties within a historic district no person shall alter, restore, reconstruct, demolish, remove, replace, or relocate exterior improvement or architectural feature that is a contributing characteristic of the resource or visible from any public right-of-way, unless granted a certificate of appropriateness."

The California Historical Building Code (CHBC) is applied to projects that alter, repair, or restore existing buildings and structures designated as landmarks or included in part of a historic district (WCMC Section 17-133). WCMC Section 17-141 outlines the proper treatment for any landmarks or properties within a historic district. For landmarks or properties within a historic district, no person shall alter, restore, reconstruct, demolish, remove, replace, or relocate any exterior improvement or architectural feature that is either a contributing characteristic of the resource or visible from any public right-of-way; alter, restore, reconstruct, demolish, remove, replace, or relocate any permanent sign visible from a public right-of-way; or alter, restore, reconstruct, demolish, remove, replace, or relocate any interior characteristic that was identified as contributing during the designation without being granted a certificate of appropriateness. Approval of such work is required even if no other permits or entitlements are required by the City. Procedures are set forth in WCMC Section 17-142 for the granting of a certificate of appropriateness in cases of substantial economic hardship. For minor alterations the commission may, by resolution, adopt a list of those types of alterations that are subject to approval of a certificate of appropriateness that are deemed to be "minor" in nature. The commission may modify the list of minor alterations from time to time by resolution as circumstances warrant. Applications for certificates of appropriateness involving only minor alterations are reviewed pursuant to procedures in WCMC Section 17-142(e).

4.4.2 Impact Analysis

a. Methodology and Significance Thresholds. The following thresholds of significance are based on Appendix G to the 2016 *State CEQA Guidelines*. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would :

- *Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5 of the CEQA Guidelines*
- *Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5 of the CEQA Guidelines*
- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature*
- *Disturb any human remains, including those interred outside of formal cemeteries*

A "substantial adverse change" in the significance of a historical resource is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." CEQA Guidelines Section 15064.5(b) states that the significance of an historical resource is "materially impaired" when a project does any of the following:

- *Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register of Historical Resources*

- *Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources... or its identification in an historical resources survey..., unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or*
- *Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA*

CEQA Guidelines Section 15064.5 also states that the term "historical resources" shall include the following:

1. *A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in, the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et.seq.).*
2. *A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.*
3. *Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (Public Resources Code Section 5024.1, Title 14 CCR, Section 4852) as follows:*
    - *(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;*
    - *(B) Is associated with the lives of persons important in our past;*
    - *(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or*
    - *(D) Has yielded, or may be likely to yield, information important in prehistory or history. (Guidelines Section 15064.5)*

b. Project Impacts and Mitigation Measures.

Threshold:	*Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5*

Impact CR-1 Development under the proposed project would not result in a substantial adverse change in the significance of a historical resource because historic resources are protected under Sections 17-134 to 17-

140 of the West Covina Municipal Code. Impacts would be *less than significant*.

PlanWC identifies areas within West Covina with the potential for the most change from development. The updated General Plan Land Use Map incorporated into PlanWC reflects the community's vision to direct the majority of new growth to the Downtown area, and housing and job growth is targeted in this area and along the strategic corridors and neighborhood centers. Several historic resources of local importance are located within or in proximity to the planned development areas, including 1951 S. Sunset Avenue.

Based on Section 15064.5 of the State CEQA Guidelines, PlanWC and the Downtown Plan and Code– and future development activities facilitated by those plans – would have a significant impact on historical resources if they would cause substantial adverse change in the significance of a historical resource. Historical resources include properties eligible for listing on the National Register of Historic Places, the California Register of Historic Resources, or the local register of historical resources. In addition, as explained in Section 15064.5, "[s]ubstantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."

The potential for new development or related projects carried out under PlanWC and the Downtown Plan and Code to affect historical resources depends upon the location of the proposed development with respect to identified historical resources within the City. Any future development project that directly involves or is located near an identified historical resource would have the potential to result in a substantial adverse change to a historical resource. The types of project impacts that may cause a "substantial adverse change" in the significance of an historical resource include:

- *Demolition or substantial alteration without consideration of historic features*
- *Incompatible massing, size, scale or architectural style of new development adjacent to one or more historical resources*
- *Obstruction or extensive shading of significant views to and from a historical resource by new development*
- *Incompatible re-use of a historical resource*
- *Disruption of a historical resource's integrity of setting*
- *Long-term loss of access to a historical resource*

As described in Section 4.1.1c, *Regulatory Setting*, the WCMC protects locally designated historic resources from alteration, repair, restoration, or change, and outlines proper treatment of historic landmarks and properties, requiring a certificate of appropriateness for modifications to a historical structure (WCMC Section 17-142). While there are currently no designated National Register-listed properties in West Covina, the City has recommended nomination of certain properties to the California Register of Historical Places (see Section 4.1.1b, *Archaeological and Historic Resources*) and has identified a process for protecting landmarks and historic districts.

Future development projects may cause substantial adverse changes to one or more of the potential historical resources listed in subsection 4.1.1b, *Archaeological and Historic Resources*. These potential historic resources are not currently designated and have not been fully evaluated for their local register availability, but the City identifies them as important historic

sites. Substantial adverse changes that may occur to these resources include demolition, relocation, or alteration of one or more resources, such that the resource and/or the potential historic district in which it is located is "materially impaired." Because these resources are identified as potentially historic they are protected under the WCMC and require a certificate of appropriateness approved by the City for alterations, demolition, or relocation. Additionally, any discretionary action, including new development under the proposed project, which would potentially affect any historic properties, would be subject to CEQA review, which would allow project-level analysis of potential impacts to these resources. For these reasons, potential impacts to historic resources from implementation of the proposed project would be less than significant.

Mitigation Measures. Impacts to historic resources would be less than significant and no mitigation is required**.**

Significance After Mitigation. Impacts to historic resources would be less than significant without mitigation.

Threshold:	*Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5.*

Impact CR-2 Ground-disturbing activities associated with development carried out under the proposed project could result in damage to or destruction of archaeological and/or Native American cultural resources. Impacts would be *less than significant with mitigation incorporated.*

West Covina has a long cultural history and is known to have been home to Native American groups prior to settlement by Euro-Americans. Archaeological materials associated with occupation of the City are known to exist and have the potential to provide important scientific information regarding history and prehistory.

During preparation of PlanWC and the Downtown Plan and Code, the Native American Heritage Commission (NAHC) was provided the Notice of Preparation (NOP) for the proposed project. On February 22, 2016 the NAHC replied with a comment letter recommending tribal consultation for the proposed project. However, the comment letter did not include a mailing list of Native American tribes. No requests for consultation were submitted to the City as a result of the consultation process for the proposed project.

Ground-disturbing activities associated with the proposed project, particularly in areas that have not previously been developed with urban uses, or when excavation depths exceed those previously attained, have the potential to damage or destroy historic or prehistoric archaeological resources that may be present on or below the ground surface. Consequently, damage to or destruction of sub-surface cultural resources could occur as a result of development under the proposed project. This is a potentially significant impact.

Mitigation Measures. The following mitigation measure is required to reduce impacts from development on potential subsurface archaeological and/or Native American cultural resources.

CR-2 Add the following policies to the *Our Creative Community* Chapter of PlanWC:

Assess, avoid, and mitigate potential impacts to archeological, paleontological, and tribal cultural resources through the CEQA review process for development projects carried out within the City.

Comply with existing regulations relating to Native American resources, including California Environmental Quality Act Section 15064.5(d) and (e) and Public Resources Code §5097.98 concerning burial grounds, and Assembly Bill 52 and Senate Bill 18 for consultation with Native American tribes for development projects carried out within the City.

Significance After Mitigation. Impacts to archaeological and/or Native American resources would be less than significant with the above mitigation involving policies to assess, avoid, and mitigate impacts to archaeological resources and adhere to existing regulations relating to Native American resources.

Threshold:	*Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.*

Impact CR-3 Ground-disturbing activities associated with development under the proposed project could result in damage to or destruction of unique paleontological resources within rock units or geologic features. Impacts would be *less than significant with mitigation incorporated.*

Paleontological resources may be present in fossil-bearing soils and rock formations below the ground surface. Ground-disturbing activities in fossil-bearing soils and rock formations have the potential to damage or destroy paleontological resources that may be present below the ground surface. Therefore, activities resulting from implementation of the proposed project, including construction-related and earth-disturbing actions, could damage or destroy fossils in these rock units resulting in a significant impact. There are no policies within PlanWC in place to protect paleontological resources, therefore policies are needed to ensure the protection of paleontological resources. Mitigation Measure CR-2 would ensure that potential impacts to paleontological resources would be assessed, avoided, and mitigated through the CEQA review process for development projects carried out within the City.

Mitigation Measures. Compliance with Mitigation Measure CR – 2 would reduce impacts to paleontological resources to a less than significant level.

Significance After Mitigation. Impacts to paleontological resources would be less than significant with mitigation because Mitigation Measure CR – 2 would require adding a policy to PlanWC that would avoid and mitigate for paleontological resources.

Threshold:	*Disturb any human remains, including those interred outside of formal cemeteries.*

Impact CR-4 Ground-disturbing activities associated with development under the proposed project could result in damage to or destruction of human burial grounds. Impacts would be *less than significant with mitigation incorporated.*

Human burials outside of formal cemeteries often occur in prehistoric archeological contexts. Although the majority of the City is built out, the potential still exists for these resources to be present. Excavation during construction activities in the City would have the potential to disturb these resources, including Native American burials.

Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the California Public Resources Code. The California Health and Safety Code (Sections 7050.5, 7051, and 7054) has specific provisions for the protection of human burial remains. Existing regulations address the illegality of interfering with human burial remains, and protects them from disturbance, vandalism, or destruction, and established procedures to be implemented if Native American skeletal remains are discovered. Public Resources Code §5097.98 also addresses the disposition of Native American burials, protects such remains, and established the NAHC to resolve any related disputes.

Implementation of these regulations would help ensure that development carried out under the proposed project would have a less than significant impact from potential disturbance of human remains, including those interred outside of formal cemeteries. However, because there are no policies within PlanWC in place that address this issue; mitigation is necessary to make sure it is the City's policy to follow these regulations. Mitigation Measure CR-2 is to add such a policy to PlanWC.

Mitigation Measures. Compliance with Mitigation Measure CR – 2 would reduce impacts to human remains and burial grounds to a less than significant level.

Significance After Mitigation. Impacts to human burial grounds would be less than significant after mitigation requiring compliance with CEQA Section 15064.5(d) and (e) and Public Resources Code §5097.98.

c. **Cumulative Impacts.** Because the proposed project is comprised of a General Plan Update and Downtown Plan, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis.

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4.5 GEOLOGY AND SOILS

This section of the EIR analyzes the potential physical environmental effects related to seismic hazards, underlying soil characteristics, slope stability, erosion, and existing mineral resources within the City of West Covina from implementation of the proposed PlanWC and Downtown Plan and Code. Data used to prepare this section were obtained from the California Geological Survey (CGS), the United States Geological Survey (USGS), the National Elevation Dataset, the City of West Covina Natural Hazard Mitigation Plan, and other sources.

4.5.1 Physical Setting

a. Regional Geology. The City of West Covina is located in the San Gabriel Valley approximately 19 miles east of Downtown Los Angeles. The proposed project lies entirely within the Peninsular Ranges geomorphic province. This geomorphic province occupies the southwestern corner of California and contains the Laguna Mountains, the San Jacinto Mountains, the Santa Ana Mountains, and the Santa Rosa Mountains. The northern portion of the province includes the Los Angeles Basin and is bound on the east by the Colorado Desert and on the north by the transverse ranges, including the San Gabriel Mountains (CGS, 2002). The topographic trend roughly parallels the Coast Ranges, but the geology more closely resembles the Sierra Nevada with granitic rock that intrudes through the older metamorphic rocks (CGS, 2002).

The geology of Southern California formed as a result of complex plate tectonics and fault movement. The most notable fault in Southern California, the San Andreas Fault, is a right lateral strike-slip (or transform) fault that marks the boundary between the Pacific tectonic plate and the North American tectonic plate (Wallace, 1990). Both plates are moving northward, but the Pacific plate is moving at a faster rate than the North American plate and the relative difference in the two rates results in movement along the San Andreas Fault (Wallace, 1990). Northwest of the Los Angeles basin, where the southern San Joaquin Valley meets the San Emigdio and Tehachapi Mountains, the orientation of the San Andreas Fault changes from generally northwest to west-northwest (Wallace, 1990). This portion of the fault system is known as the "Big Bend" (Singer, 2005). Another large fault in Southern California, the left-lateral Garlock Fault, intersects the San Andreas fault system at this location. This bend in the San Andreas fault system results in transpressional forces between the two tectonic plates, a geologic result of which was the uplift of the Transverse Ranges, including the San Gabriel Mountains that rise to the north of the City (Wallace, 1990).

The compression between the two plates also resulted in the formation of numerous reverse and thrust faults throughout the Los Angeles Basin. Several of these thrust faults are located near the City of West Covina and are discussed in more detail below. South of the Big Bend, the trace of the San Andreas fault is paralleled by several other major strike-slip faults, including the San Jacinto fault and the Elsinore fault (Singer, 2005).

The Los Angeles Basin is an alluviated lowland, or coastal plain, that is underlain by a structural depression (Yerkes et al., 1965). Deposition of mostly marine sediments has occurred sporadically since the Late Cretaceous period and continuously since the middle Miocene period (Yerkes et al., 1965). This marine and non-marine deposition over a long geologic

timeframe resulted in a layer of organic-rich sediments that is up to several miles thick in some places (Yerkes et al., 1965). These organic-rich sediments are the source of the vast petroleum reserves that have been extracted from the basin throughout the 20th century (Yerkes et al., 1965).

b. Local Geologic Setting. The topography of the City is characterized primarily by relatively flat alluvial plains in the northwest and steeper slopes associated with the San Jose Hills in the southeast. Elevation within the City ranges from approximately 320 feet in the lowlands to approximately 1280 feet in the hills (USGS, 2016).

Most of the City is urbanized, and the majority of the land surface is covered in structures and pavement, which limits the extent of exposed surface soils. Three dominant soil orders exist within the City. Miscellaneous area/urban land occupies the northwest portion of the City and mollisols occupy the southeast portion, including the San Jose Hills. A narrow strip of alfisols exists just northwest of the San Jose Hills, and separates the two previously mentioned dominant soil orders (NRCS, 2010). These dominant soil orders consist of sandy gravel, sandy silt, sandy clay, silty clay, and clay (City of West Covina, 2004). Soils north of Interstate 10 consist mainly of sandy gravel and sandy silt (City of West Covina, 2004). Further south, the soil texture transitions to sandy silt and silty clay, then to silty clay and clay (City of West Covina, 2004). The soil texture in the San Jose Hills is a mixture of gravel, sand, silt, and clay (City of West Covina, 2004). Scattered areas of exposed bedrock in the hills consist of sandstone, shale, and conglomerate (Cutsforth, 1947).

c. Faulting and Seismicity. Generally defined, an earthquake is an abrupt release of accumulated energy in the form of seismic waves when movement occurs along a fault. The City of West Covina lies in a seismically active region of Southern California, with several major active faults in the area, including the San Andreas, Sierra Madre, and Whittier-Elsinore Fault zones. However, in addition to these known faults, movement along buried blind thrust faults that have no obvious surface features can also occur.

The severity of an earthquake generally is expressed in two ways—magnitude and intensity. The energy released, measured on the Moment Magnitude (M_W) scale, represents the size of an earthquake. The Richter Magnitude (M) scale has been replaced in most modern building codes by the M_W scale because the M_W scale provides more useful information to design engineers. Short period are expressed in accelerations (g), medium in Velocities and long periods in ground movement in feet per second, both horizontal and vertical. Current code has changed from average of two directions to "at the greatest direction." The intensity of an earthquake is measured by the Modified Mercalli Intensity (MMI) scale, which emphasizes the current seismic environment at a particular site and measures groundshaking severity according to damage done to structures, changes in the earth surface, and personal accounts. Table 4.5-1 (Modified Mercalli Intensity Scale) identifies the level of intensity according to the MMI scale and describes that intensity with respect to how it would be received or sensed by its receptors.

Table 4.5-1
Modified Mercalli Intensity Scale

Modified Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions
II	Felt by a few people at rest, especially in upper floors of buildings
III	Felt noticeably indoors, but not always recognized as a quake; vibration like a passing truck
IV	Felt indoors by many and outdoors by few. Sensation like heavy truck striking building
V	Felt by nearly everyone. Some breakage of windows, dishes, and plaster
VI	Felt by all; some heavy furniture moved; falling plaster; damage small
VII	Damage negligible in buildings of good design and construction
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings; Walls, monuments, chimneys fall
IX	Damage considerable; buildings shift off foundations
X	Most masonry and frame structures destroyed; railroad rails bent
XI	Few structures remain standing; bridges destroyed
XII	Damage total; lines of sight and level are distorted; objects thrown into the air

Source: US Geological Survey. http://earthquake.usgs.gov/learn/topics/mercalli.php. Accessed May 2016

Numerous faults in the Los Angeles area are categorized as active, potentially active, and inactive. A fault is classified as *active* if it has moved during Holocene time (during the last 11,000 years). A fault is classified as *potentially active* if it has experienced movement within Quaternary time (during the last 1.8 million years). Faults that have not moved in the last 1.8 million years are generally considered *inactive*. Surface displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, fault troughs and saddles, the alignment of depressions, sag ponds, and the existence of steep mountain fronts.

Regional Faults. Earthquakes from several active and potentially active faults in the Southern California region could affect future development that would be facilitated by the proposed project, although no known regional faults directly traverse the city. A summary of the active faults nearest to the City of West Covina is provided below.

San Andreas Fault Zone—This fault zone runs southeast to northwest and is located approximately 24 miles to the northeast of the City at the nearest point (DOC, 2010). The fault zone extends from the Gulf of California northward to the Cape Mendocino area where it continues northward along the ocean floor. The length of the fault and its active seismic history indicates that it has a very high potential for large-scale movement in the near future (Magnitude 8.0+ on Richter scale), and should be considered important in land use planning for most cities in California.

Sierra Madre Fault System—Located approximately three miles north of the city, at the base of the San Gabriel Mountains, this fault system forms a prominent 50-mile long east/west structural zone on the south side of the San Gabriel Mountains (DOC, 2010). It consists of a complex system of dips and slips and has a left lateral reverse component. The Sierra Madre Fault system has been responsible for uplift of the San Gabriel Mountains by faulting in response to tectonic compression. In many places, the faults have placed basement bedrock over alluvium where they dip northerly below the steep topographic front of the San Gabriel Mountains. This fault zone has an expected maximum capability of a moment magnitude (M_w) 7.0 earthquake (SCEDC, 2016).

Whittier-Elsinore Fault Zone—This fault zone is located along the southern base of the Puente Hills, approximately 4 miles south-southwest of the City (DOC, 2010). This northwest-trending fault runs from Whittier Narrows southeast across the Santa Ana River, past Lake Elsinore, into western Imperial County and then into Mexico. This fault zone has an expected maximum capability of a magnitude 6.8 earthquake on the segment of the fault zone closest to West Covina (from the San Gabriel River to the Santa Ana River), but an expected maximum capability of 7.75 outside of this area, including segments to the north and south.

San Gabriel Fault—The eastern portion of this fault is considered potentially active, and the portion of the fault by the Castaic Area of Los Angeles County is considered active. This fault is located approximately 11 miles north of the city at the closest point (DOC, 2010). This fault extends from Frazier Park to Mount Baldy Village, a distance of approximately 84 miles. Due to the length of its surface trace, the San Gabriel Fault is believed capable of generating a magnitude 7.8 earthquake.

Verdugo Fault—Located approximately 16 miles west-northwest of the City, this active fault bounds the south flank of the Verdugo Mountains, and appears to merge with the Eagle Rock-San Rafael Fault System in the vicinity of the Verdugo Wash. Low magnitude earthquakes (less than 3.0) which have been attributed to activity along the Verdugo Fault are occasionally recorded in the Burbank-Glendale area. No direct evidence of ground displacement has been observed associated with these low-magnitude earthquakes. The Verdugo Fault has a high potential for future activity and is capable of generating a magnitude 6.4 earthquake.

Santa Monica-Hollywood-Raymond Fault System—This fault system is located approximately 6 miles northwest of the City at the nearest point (DOC, 2010). This west-trending system of oblique, reverse, and left-lateral faults separates the Transverse Ranges geomorphic province from the Peninsular Ranges geomorphic province (Hernandez and Treiman, 2014). The fault system is considered active, having shown movement during the Holocene period, and could generate a moderate seismic event (magnitude 6.6).

Newport-Inglewood Fault Zone—Located approximately 20 miles southwest of the City, this active fault zone could generate a 7.0+ magnitude earthquake within the next 50 to 100 years.

San Jacinto Fault Zone – This major strike-slip fault zone runs southeast to northwest, roughly parallel to the San Andreas fault zone, and is located approximately 20 miles east of the City at the nearest point. This active fault zone could generate a large earthquake, and produced the 5.9 magnitude Terwilliger Valley earthquake in 1937.

Puente Hills Thrust Fault Zone – This is a blind thrust fault zone (meaning it has no surface expression) that has recently been determined to be active, and is thought to be responsible for a 5.1-magnitude earthquake in the vicinity of La Habra in 2014, as well as the 5.9-magnitude Whittier Narrows earthquake in 1987. It is located, approximately, beneath the Puente Hills, to the southwest and outside of the City of West Covina. It has recently been estimated that this fault zone is capable of producing an earthquake of up to a magnitude of 7.5 on the Richter scale.

Local Faults. In addition to these regional faults, there are several local faults located within or near the City that are considered potentially active. No recent seismic activity has been recorded along these faults in the last 10,000 years (DOC, 2010). However, a major earthquake occurring along any of these faults would be capable of generating seismic hazards and strong groundshaking effects within the City. These local faults include the Indian Hill, San Jose, and Walnut Creek Faults. These local faults are further described below and are illustrated in Figure 4.5-1.

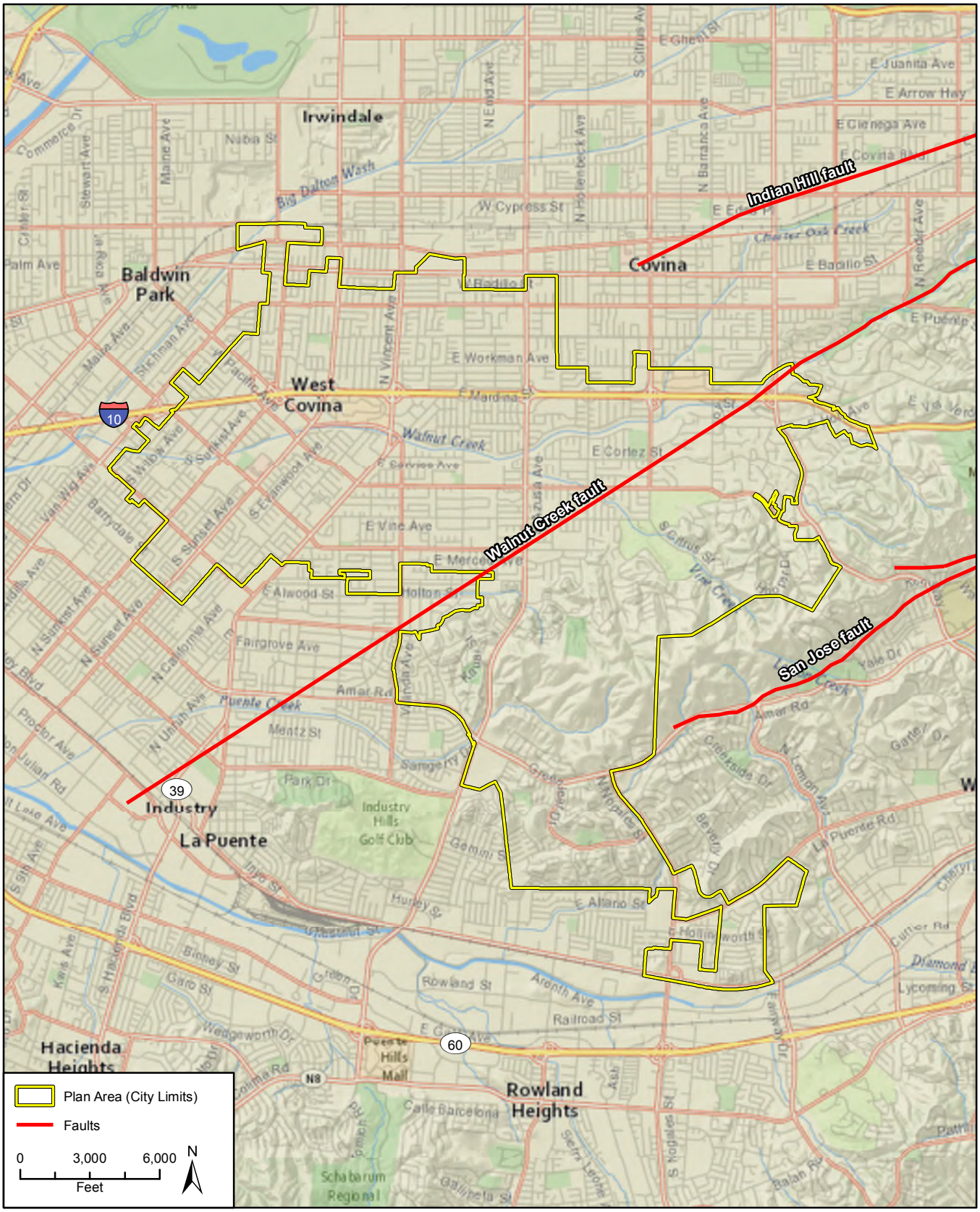
Indian Hill Fault—This fault is located just northeast of the City and runs in an east/west direction for approximately 9 kilometers. It is believed to be a single strand and is considered potentially active. This fault serves as a barrier to groundwater movement and offsets soils of Late Pleistocene age, which is the reason it is considered potentially active.

San Jose Fault—This fault is classified as potentially active and is located in the San Jose Hills, just east of the City. The fault is approximately 13 kilometers long and runs in a northeast/southwest direction, approximately parallel to the I-10 freeway. The fault has an 80 to 85 degree upward dip and has a reverse movement with the north side up. The fault displaces upper Miocene sedimentary and volcanic rocks as much as 2,700 feet vertically, with a 100-meter vertical offset in older subsurface alluvium.

Walnut Creek Fault – This fault runs southwest to northeast and roughly divides the City, following the northern boundary of the San Jose Hills. This fault is potentially active and is classified as a Quaternary fault of undifferentiated age. This fault is concealed and surface rupture along is unlikely, but the fault does serve as a sub-surface water barrier within Quaternary alluvium (CDMG, 1978).

Of the local faults, the probability of earthquake activity is considered the highest along the San Jose Fault, with possible ground rupture. None of the nearby local faults have been placed in an Alquist-Priolo Earthquake Fault Zone (CGS, 2016), which, as discussed under *Surface Rupture* in Section d below, are delineated and defined by the State Geologist and identify areas where potential surface rupture along a fault could occur. Thus, no surface fault rupture hazard is anticipated along the fault traces that pass through or near the City.

Recent Seismic Activity. Historically, earthquakes have caused substantial groundshaking in the Southern California region, and include the following: the 1933 Long Beach earthquake (magnitude 6.4 on Richter scale), along the Newport-Inglewood Fault Zone; the 1971 San Fernando earthquake (magnitude 6.7), along the San Fernando-Sierra Madre Fault; the 1987 Whittier Narrows earthquake (magnitude 5.9), along the Puente Hills Thrust Fault Zone; the 1988 Pasadena earthquake (magnitude 5.0); the 1990 earthquake north of Pomona (magnitude 5.3); the 1991 Sierra Madre earthquake (magnitude 5.8); the 1992 Landers area earthquake



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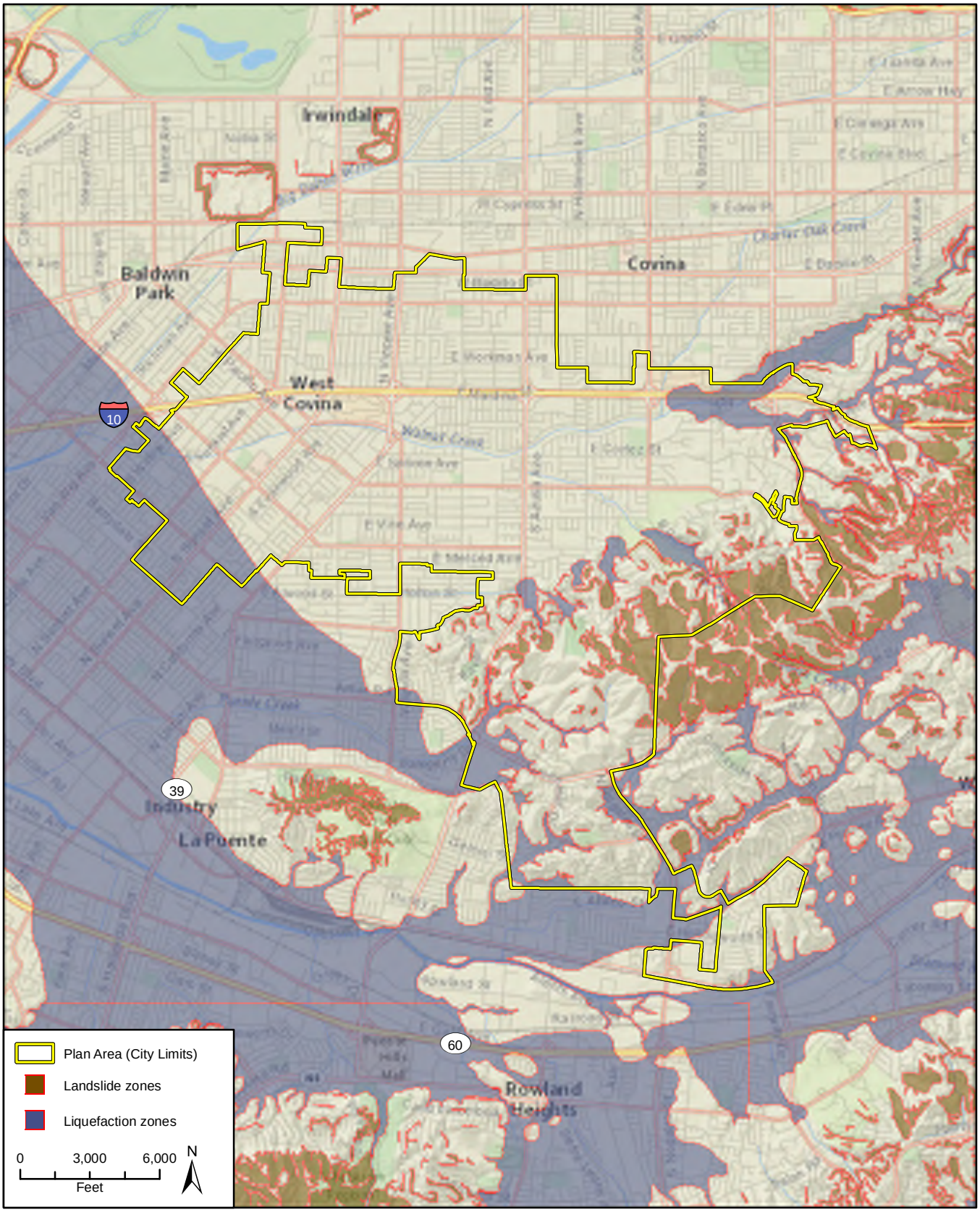
Additional data provided by US Geological Survey, 2010.

Local Faults

Figure 4.5-1



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Additional data provided by County of Los Angeles, 2016.

Landslide and Liquefaction Zones

Figure 4.5-2

(magnitude 7.4); and the 1994 Northridge earthquake (magnitude 6.7), along the Oakridge Fault. In addition, the 2008 Chino Hills earthquake (magnitude 5.5) was the strongest earthquake felt in the greater Los Angeles region since the 1994 Northridge earthquake and resulted in damage to a number of buildings in the city, including City Hall.

d. Seismic Hazards. Hazards associated with earthquakes include primary hazards, such as surface rupture and groundshaking, as well as secondary hazards, such as liquefaction, lateral spreading, ground lurching, tsunamis, and dam inundation. These hazards are described below. Figure 4.5-2 illustrates potential seismic hazards present in the vicinity of the City of West Covina.

Surface Rupture. Surface rupture represents the breakage of ground along the surface trace of a fault, which is caused by the intersection of the fault surface area ruptured in an earthquake with the Earth's surface. Fault displacement occurs when material on one side of a fault moves relative to the material on the other side of the fault. This can have particularly adverse consequences when buildings are located within the rupture zone. It is not feasible, from a structural or economic perspective, to design and build structures that can accommodate rapid displacement involved with surface rupture. Amounts of surface displacement can range from a few inches to tens of feet during a rupture event.

The Alquist-Priolo Earthquake Fault Zoning Act regulates development near active faults to mitigate the hazard of surface fault rupture. Essentially, this Act contains two requirements: (1) it prohibits the location of most structures for human occupancy across the trace of active faults; and (2) it establishes Earthquake Fault Zones and requires geologic/seismic studies of all proposed developments within 1,000 feet of the zone. The Earthquake Fault Zones are delineated and defined by the State Geologist and identify areas where potential surface rupture along a fault could occur. As stated previously, the City is not located within an Alquist-Priolo Earthquake Fault Zone.

Groundshaking. The major cause of structural damage from earthquakes is groundshaking. The intensity of ground motion expected at a particular site depends upon the magnitude of the earthquake, the distance to the epicenter, and the geology of the area between the epicenter and the property. Greater movement can be expected at sites located on poorly consolidated material, such as alluvium, within close proximity to the causative fault, or in response to a seismic event of great magnitude.

Liquefaction. Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, in which the water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together. This is caused by a sudden temporary increase in pore water pressure due to seismic densification or other displacement of submerged granular soils.

Liquefaction more often occurs in earthquake-prone areas underlain by young alluvium where the groundwater table is within 30 feet of the ground surface. In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

The City of West Covina is located in an area that has varying potential for liquefaction. According to the Seismic Hazard Zone maps for the Baldwin Park and San Dimas Quadrangles, liquefaction zones are present in the western and southwestern portions of the city, as well as in scattered segments along the northern face of the San Jose Hills and along Walnut Creek at the eastern edge of the City. Areas of the city subject to earthquake-induced liquefaction are shown in Figure 4.5-2.

Lateral Spreading. Lateral spreading involves the lateral displacement of surficial blocks of sediment (e.g., alluvium, terrace sands) as a result of liquefaction in a subsurface layer. The initial gradient of a particular project site that fails in lateral spreading can be very small since the soil mass usually moves on a liquefied layer of loose, saturated granular material.

Ground Lurching. Certain soils have been observed to move in a wave-like manner in response to intense seismic groundshaking, forming ridges or cracks on the ground surface. Areas underlain by thick accumulations of colluvium and alluvium appear to be more susceptible to ground lurching than bedrock. Under strong seismic ground motion conditions, lurching can be expected within loose, cohesionless soils, or in clay- rich soils with a high moisture content. Generally, only lightly loaded structures, such as pavement, fences, pipelines, and walkways, are damaged by ground lurching; more heavily loaded structures appear to resist such deformation.

Tsunamis. Tsunamis occur when large areas of the submerged continental shelf or slope are rapidly displaced vertically. The City of West Covina is located approximately 40 miles from the Pacific Ocean; consequently, there is no potential for tsunami damage within the City.

Dam Inundation. As discussed in Section 4.8, *Hydrology and Water Quality*, inundation of portions of the City could occur following the failure of the Puddingstone Dam, the San Dimas Dam, or the Santa Fe Dam (LA County, 2016). However, the potential danger due to dam failure on these reservoirs is relatively low since their primary function is flood control and large quantities of water are not stored in these reservoirs except during periods of heavy rain.

e. Soil Hazards. Hazards associated with soils include erosion, shrink/swell potential, landslides, and subsidence, as described below. Most of the City is urbanized and the majority of the land surface is covered in structures and pavement, which limits the extent of exposed surface soils. Three dominant soil orders exist within the City. Miscellaneous area/urban land occupies the northwest portion of the City and mollisols occupy the southeast portion, including the San Jose Hills. A narrow strip of alfisols exists just northwest of the San Jose Hills, and separates the two previously mentioned dominant soil orders (NRCS, 2010). These dominant soil orders consist of sandy gravel, sandy silt, sandy clay, silty clay, and clay (City of West Covina, 2004).

Soil Erosion. Erosion refers to the removal of soil by water or wind. The effects of erosion are intensified with an increase in slope (as water moves faster, it gains momentum to carry more debris), the narrowing of runoff channels (which increases the velocity of water), and by the removal of groundcover, which leaves the soil exposed. Within the City, moderate erosion potential exists for soils with smaller grain size and lower cohesion, such as sandy silt. Surface improvements, such as paved roads and buildings, decrease the potential for erosion because the soil is no longer exposed to the elements, although such impermeable surfaces also decrease

infiltration of water into soils and can thus increase the amount and velocity of runoff, and potentially erosion, in downstream locations.

Shrink/Swell. A soil's potential to shrink and swell depends on the amount and types of clay in the soil. Montmorillonite and bentonite clays are more responsive to changes in water content than other types of clay. They expand when wet and shrink when dry. Moreover, the higher the clay content, the more the soil will swell when wet and shrink when dry. Highly expansive soils can cause structural damage to foundations and roads without proper structural engineering and are generally less suitable or desirable for development than non-expansive soils because of the necessity for detailed geologic investigations and costlier grading applications. Soils in the southern portion of the City with higher clay content may exhibit moderate shrink/swell properties.

Landslides. The geologic character of an area determines its potential for landslides. Steep slopes, the extent of erosion, and the rock composition of a hillside can aid in predicting the probability of slope failure. Common triggering mechanisms of slope failure include undercutting slopes by erosion or grading; saturation of marginally stable slopes by rainfall or irrigation; and shaking of marginally stable slopes during earthquakes. According to the Baldwin Park and San Dimas Quadrangle Seismic Hazard Maps, the hillsides located within the San Jose Hills in the southeastern portion of the City exhibit landslide potential. Figure 4.5-2 shows potential landslide zones within the City of West Covina.

Subsidence. Subsidence occurs at great depths below the surface when subsurface pressure is reduced by the withdrawal of fluids (e.g. groundwater, natural gas, or oil) resulting in sinking of the ground. The City of West Covina may be susceptible to subsidence from groundwater withdrawal as a result of drought conditions and declining groundwater levels. Although the City sources a majority of its drinking water from local groundwater sources, the San Gabriel Valley Groundwater Basin is adjudicated and groundwater levels are actively managed. This active management of groundwater levels reduces the risk of subsidence due to groundwater overdraft.

4.5.2 Regulatory Setting

a. Federal

Clean Water Act. Congress enacted the Clean Water Act (CWA), formerly the Federal Water Pollution Control Act of 1972, with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is administered by the California State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCB). The City is within a watershed administered by the LARWQCB.

Individual projects within the City that disturb more than one acre would be required to obtain NPDES coverage under the California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit). The

Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing Best Management Practices (BMPs) the discharger would use to prevent and retain stormwater runoff and to prevent soil erosion.

International Building Code. The International Building Code (IBC) is published by the International Code Council (ICC). The scope of this code covers major aspects of construction and design of structures and buildings. The IBC has replaced the Uniform Building Code (UBC) as the basis for the California Building Code (CBC) and contains provisions for structural engineering design. The 2015 IBC addresses the design and installation of structures and building systems through requirements that emphasize performance. The IBC includes codes governing structural as well as fire- and life-safety provisions covering seismic, wind, accessibility, egress, occupancy, and roofs.

b. State

California Building Code. The California Building Code (CBC), Title 24, Part 2 provides building codes and standards for design and construction of structures in California. The 2013 CBC is based on the 2012 IBC with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

Alquist-Priolo. The Alquist-Priolo Earthquake Fault Zoning Act of 1972 was passed into law following the destructive February 9, 1971 Mw 6.6 San Fernando earthquake. The Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the Act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep. This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive.

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act (the Act) of 1990 was passed into law following the destructive October 17, 1989 Mw 6.9 Loma Prieta earthquake. The Act directs the California Geological Survey (CGS) to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

c. Local

West Covina General Plan. Both the *Safety Element* of West Covina's current General Plan and the proposed West Covina General Plan (PlanWC) contain policies and actions to limit the exposure to potential natural hazards, including seismic hazards. If the proposed project is implemented, the policies and actions within PlanWC would apply. These policies and actions

require all development to comply with the provisions of the latest CBC, including provisions related to proper design and engineering to mitigate potential impacts from seismic events.

4.5.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology. This section describes the potential environmental impacts of the proposed project relevant to geology and soils. The impact analysis is based on an assessment of baseline conditions for the proposed project area, including topography, geologic and soil conditions, and seismic hazards, as described in Section 4.5.1, *Physical Setting*. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to development predicted to occur under the proposed project. This section describes impacts in terms of location, context, duration, and intensity, and recommends mitigation measures, when necessary, to avoid or minimize impacts.

Significance Thresholds. The following thresholds of significance are based on Appendix G of the State *CEQA Guidelines*. For the purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

  i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault

  ii) Strong seismic ground shaking

  iii) Seismic-related ground failure, including liquefaction

  iv) Landslides

- *Result in substantial soil erosion or the loss of topsoil*

- *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse*

- *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property*

- *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water*

As discussed previously, there are no known active faults or Alquist-Priolo Earthquake Fault Zones within the City that would result in surface rupture. Therefore, implementation of the proposed project would have ***no impact*** associated with exposing people or structures to surface rupture of a known earthquake fault and no further discussion of surface rupture is

included in this document. In addition, the City of West Covina is almost entirely built out with established utility services. New development would consist of infill development connecting to existing sewer trunk lines or future expansion of sewer trunk lines. Development under the proposed project would not require the use of septic tanks. Therefore, ***no impact*** associated with septic tanks would result, and no further discussion is included in this document.

b. Project Impacts and Mitigation Measures.

Threshold:	*Expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure including liquefaction, or landslides*

Impact GEO-1 Development facilitated by the proposed project may result in exposure of people or structures to potentially substantial adverse effects resulting from seismic ground shaking, seismic-related ground failure including liquefaction, or landslides. However, compliance with applicable regulations and the policies contained in PlanWC would reduce impacts related to seismic groundshaking to a *less than significant* level.

As discussed in Section 4.5.1, *Physical Setting*, there are a number of potentially active and active fault systems located within and near West Covina, and the City is subject to seismic effects from large magnitude earthquakes.

Development under the proposed project would result in additional residential nonresidential development within the City. As such, additional residents and employees would be potentially exposed to the effects of seismic groundshaking from regionally generated earthquakes. The additional structures built under the proposed project could also experience substantial damage during seismic groundshaking events. On the other hand, because development facilitated by the proposed project would primarily involve infill on already developed parcels, such development would in many cases replace older buildings subject to seismic damage with newer structures built to current seismic standards.

As required by California Building Code (CBC) Chapter 16 for the construction of new buildings or structures, specific engineering design and construction measures would be implemented to anticipate and avoid the potential for adverse impacts to human life and property caused by seismically induced groundshaking. In addition, the *Our Healthy and Safe Community* chapter of PlanWC includes policies and actions to achieve the goal of limiting exposure to potential natural hazards through adoption and enforcement of appropriate building standards, land use controls, and environmental review (Policy P6.15). Actions related to this policy require compliance with the latest CBC design and engineering standards, and require CEQA environmental review to analyze and as necessary mitigate potential natural hazards on a site-specific basis. PlanWC Policy P6.16 requires the City and developers to take actions to reduce the potential for loss of life or property in areas of high seismic risk and areas subject to landslide and liquefaction hazards. Actions associated with this policy require geological and soils engineering investigations in areas of moderate or high landslide risk, potential liquefaction and subsidence areas, and critical seismic zones where potential ground acceleration values exceed applicable standards of the CBC. Implementation of Policy P6.21 and

its associated actions require the City to update its Natural Hazard Mitigation Plan (NHMP) every five years in order to reflect changing conditions, best practices, the current regulatory environment, and advancements in knowledge.

Implementation of the proposed project , in conformance with the identified regulatory requirements, would ensure that adverse effects caused by seismic and geologic hazards such as strong groundshaking are minimized. Additionally, new development would be required to comply with the building design standards of CBC Chapter 33 for the construction of new buildings or structures. With these standards, specific engineering design and construction measures would be incorporated into individual development projects to anticipate and avoid the potential for adverse impacts. Thus, compliance with applicable regulations and the policies contained in PlanWC and NHMP would reduce impacts related to seismic groundshaking to a less than significant level.

As indicated in Figure 4.5-2, areas of potential liquefaction in West Covina include the western and southwestern portions of the City, as well as scattered segments along the northern face of the San Jose Hills and along Walnut Creek at the eastern edge of the City. Some new development that would be facilitated by implementation of the proposed project could be located in areas susceptible to liquefaction. However, most new development under the proposed project would occur in already developed areas such as the Downtown area and along key transportation corridors. Existing and future development in these areas has been and will continue to be designed to withstand potential liquefaction hazards. Compliance with existing regulations would ensure that building foundations are properly anchored and stabilized to withstand damage from potential liquefaction. PlanWC Action P6.16 requires site-specific geotechnical studies to determine the soil properties and potential for liquefaction in a specific area prior to development. Compliance with the standards set forth in the Uniform Building Code (UBC) would require an assessment of this hazard and the incorporation of design measures into structures to mitigate this hazard if development is considered feasible.

In addition to liquefaction, strong ground motion can also worsen existing unstable slope conditions, particularly if coupled with saturated ground conditions. Seismically-induced landslides can overrun structures, people or property, sever utility lines, and block roads, thereby hindering rescue operations after an earthquake. Slope stability depends on many factors and their interrelationships. Rock type and pore water pressure are arguably the most important factors, as well as slope steepness due to natural or human-made undercutting. Where slopes have failed before, they may fail again.

The hillsides located within the San Jose Hills in the southeastern portion of the City exhibit earthquake-induced landslide potential. Development that would be facilitated by the proposed project would generally be located in the Downtown area and along major transportation corridors, outside of identified landslide hazard areas.

Compliance with the standards set forth in the current CBC would require an assessment of hazards related to landslides and liquefaction and the incorporation of design measures into structures to mitigate these hazards if development were considered feasible in these areas. In addition, PlanWC Policy P6.16 requires the City and developers to take actions to reduce the potential for loss of life or property in areas of high seismic risk and areas subject to landslide

hazards. Also, any development on steep terrain would require site-specific slope stability design to ensure adherence to the standards contained in Appendix Chapter A33, Excavation and Grading, of the CBC, as well as California Division of Occupational Safety and Health (DOSH, CAL/OSHA) requirements for shoring and stabilization.

Compliance with applicable regulations and policies identified in the proposed project would ensure that impacts from strong seismic ground shaking or seismic-related ground failure such as liquefaction, or landslides, would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Result in substantial soil erosion or the loss of topsoil*

Impact GEO-2 Development facilitated by the proposed project would not result in substantial soil erosion and loss of topsoil because it would be required to comply with applicable regulations and standards, as well as policies and actions identified in PlanWC. Impacts would be *less than significant*.

Construction. The City's topography is relatively flat, with a gentle slope to the southwest. Thus, the potential for soil erosion over a large part of the City is low. In the southeastern portion of the City where the slopes are more severe within the San Jose Hills, the opportunity for soil erosion increases. Soils with smaller grain size and lower cohesion, such as sandy silt, have moderate erosion potential. Development under the proposed project would involve construction activities such as stockpiling, grading, excavation, paving, and other earth-disturbing activities. Loose and disturbed soils are more prone to erosion and loss of topsoil by wind and water.

Construction activities that disturb one or more acres of land surface are subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) adopted by the State Water Resources Control Board (SWRCB). Compliance with the permit requires each qualifying development project to file a Notice of Intent with the SWRCB. Permit conditions require development of a stormwater pollution prevention plan (SWPPP), which must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and non-stormwater management controls. Inspection of construction sites before and after storms is also required to identify stormwater discharge from the construction activity and to identify and implement erosion controls, where necessary.

For construction activities that would be subject to a Construction General Permit, Section 9-34 of the West Covina Municipal Code (WCMC) requires proof of application for the NPDES permit prior to issuance of a grading permit from the City and prior to commencement of any construction activities. The grading permit includes requirements for protective measures, such

as desilting basins or other temporary drainage or control measures, for any work performed between October 1 of any year and April 15 of the following calendar year.

Erosion from new construction projects or redevelopment projects in the City would be controlled through implementation of the requirements and Best Management Practices (BMPs) contained in existing regulations, including the NPDES Construction General Permit and the City's grading permit. PlanWC also includes policies and actions designed to minimize stormwater runoff, which in turn would minimize erosion and soil loss. Policy P1.5 seeks to minimize impervious area, minimize runoff and pollution, and incorporate best management practices for new development. Compliance with the regulations discussed above would reduce the risk of soil erosion related to construction activities. Because erosion would be minimized, impacts related to soil loss from construction activities facilitated by the proposed project would be less than significant.

Operation. For new developments and redevelopment projects, Section 9-36 of the WCMC requires implementation of a standard urban stormwater mitigation plan (SUSMP) that the City would review and approve prior to construction and operation of a new development. The SUSMP shall include conditions that consist of low-impact development (LID) structural and non-structural BMPs. LID controls reduce the amount of impervious area of a completed project site and promote the use of infiltration and other controls that reduce runoff and erosion. The City's stormwater management program or watershed management program shall contain specific conditions and procedures for meeting development and SUSMP requirements. The program shall contain an updated SUSMP guidance manual, a LID impact design manual, and USEPA's Green Street guidance manual.

Erosion from operation of new development projects or redevelopment projects in the City would be controlled through implementation of the requirements and BMPs contained in existing regulations, including the SUSMP. The proposed PlanWC also includes policies and actions designed to minimize stormwater runoff and erosion. Policy P1.5 seeks to minimize impervious area, minimize runoff and pollution, and incorporate best management practices for new development.

Compliance with the regulations discussed above would reduce the risk of soil erosion during operation of development facilitated by the proposed project . Because erosion would be minimized, impacts related to soil loss during operation of development projects facilitated by the proposed project would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse*

Impact GEO-3 Adherence to existing regulations and the policies included in PlanWC would ensure that development facilitated by the proposed project would not result in safety impacts related to lateral spreading, subsidence, or collapse. Impacts would be *less than significant*.

Impacts related to landslides and liquefaction are addressed under Impact GEO-1. This analysis addresses impacts related to unstable soils as a result of lateral spreading, subsidence, or collapse. As discussed in Section 4.5.1d, *Seismic Hazards*, lateral spreading occurs as a result of liquefaction. As such, liquefaction-prone areas would also be susceptible to lateral spreading. Further, West Covina may be susceptible to subsidence from groundwater withdrawal as a result of prior drought conditions and groundwater pumping.

Development within the City would be required to comply with the CBC regarding the minimum standards for structural design and site development. The CBC, which is based on the UBC, has been modified for California conditions with numerous more detailed and/or more stringent regulations. The CBC requires that "classification of the soil at each building site shall be determined when required by the building official" and that "the classification shall be based on observation and any necessary test of the materials disclosed by borings or excavations." The CBC provides standards, including but not limited to: excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soils strength loss. Thus, an acceptable degree of soil stability can be achieved for soil materials by the CBC-required incorporation of soil treatment programs (replacement, grouting, compaction, drainage control, etc.) in the excavation and construction plans to address site-specific soil conditions.

As part of the construction permitting process, the City requires completed reports of soil conditions at specific construction sites to identify potentially unsuitable soil conditions including lateral spread, subsidence, and collapse. The evaluations must be conducted by registered soil professionals, and measures to eliminate inappropriate soil conditions must be applied. The design of foundation support must conform to the analysis and implementation criteria described in CBC Chapter 18.

Policy 6.15 of the *Our Healthy and Safe Community* chapter of PlanWC limits exposure to potential natural hazards through adoption and enforcement of appropriate building standards, land use controls, and environmental review. Actions related to this policy would require compliance with the latest CBC design and engineering standards (Action A6.15a), and require CEQA environmental reviews to analyze and as necessary mitigate potential natural hazards on a site-specific basis (Action A6.15c). Policy P6.16 is to take actions to reduce the potential for loss of life or property in areas of high seismic risk and areas subject to landslide and liquefaction hazards. Actions associated with this policy would require geological and soils engineering investigations in areas of moderate or high landslide risk, potential liquefaction and subsidence areas, and critical seismic zones where potential ground acceleration values exceed applicable standards of the CBC (Action A6.16).

Adherence to existing regulations and the policies included in PlanWC would ensure that development facilitated by the proposed project would have a less than significant impact

associated with the exposure of people or structures to hazards associated with unstable geologic units or soils.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Be located on expansive soil, creating substantial risks to life or property*

Impact GEO-4 Development facilitated by the proposed project may result in the construction of facilities on expansive soils, but would not create substantial risk to people and structures because all development would be required to comply with the standards of the CBC. Impacts would therefore be *less than significant*.

As discussed in Section 4.5.1b, *Local Geologic Setting*, three dominant soil orders are present within the City. Miscellaneous area/urban land occupies the northwest portion of the City and mollisols occupy the southeast portion, including the San Jose Hills. A narrow strip of alfisols exists just northwest of the San Jose Hills, and separates the two previously mentioned dominant soil orders (NRCS, 2010). These dominant soil orders consist of sandy gravel, sandy silt, sandy clay, silty clay, and clay (City of West Covina, 2004). Soils north of Interstate 10 consist mainly of sandy gravel and sandy silt (City of West Covina, 2004). Further south, the soil texture transitions to sandy silt and silty clay, then to silty clay and clay (City of West Covina, 2004). Soils with high clay content have the highest potential for shrink-swell. Soils with high clay content are found primarily in the southern portion of the City.

Policy 6.15 of the *Our Healthy and Safe Community* chapter of PlanWC is to limit exposure to potential natural hazards through adoption and enforcement of appropriate building standards, land use controls, and environmental review. Actions related to this policy would require compliance with the latest CBC design and engineering standards (Action A6.15a), and require CEQA environmental reviews to analyze and as necessary mitigate potential natural hazards on a site-specific basis (Action A6.15c). The CBC includes requirements to address soil related hazards. Typical measures to treat hazardous soil conditions involve removal, proper fill selection, and compaction. Adherence to policies included in PlanWC and compliance with the requirements of the CBC would reduce impacts related to expansive soils to a less than significant level.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

c. Cumulative Impacts. Because the proposed project is a General Plan update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. Implementation of PlanWC may cumulatively increase the potential for exposure to seismic hazards, soil erosion, or unstable soils. However, implementation of the policies and actions contained in PlanWC and the Downtown Plan, combined with compliance with existing laws and regulations, would reduce cumulative geology and soils impacts to a less than significant level.

4.6 GREENHOUSE GAS EMISSIONS

This section discusses potential impacts of the proposed project related to greenhouse gas emissions and climate change. Air quality impacts are discussed in Section 4.2*, Air Quality.*

4.6.1 Setting

a. Climate Change and Greenhouse Gases. Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2013), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (95 percent or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-20th century (IPCC, 2013).

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Observations of CO_2 concentrations, globally-averaged temperature, and sea level rise are generally well within the range of the extent of the earlier IPCC projections. The recently observed increases in CH_4 and N_2O concentrations are smaller than those assumed in the scenarios in the previous assessments. Each IPCC assessment has used new projections of future climate change that have become more detailed as the models have become more advanced.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a

specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. CO_2 has a 100-year GWP of one. By contrast, methane CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2007).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34°C cooler (CalEPA, 2006). However, emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The following discusses the primary GHGs of concern.

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO_2 are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (United States Environmental Protection Agency [U.S. EPA], 2014). CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the second half of the 20th century. Concentrations of CO_2 in the atmosphere have risen approximately 40 percent since the industrial revolution. The global atmospheric concentration of CO_2 has increased from a pre-industrial value of about 280 parts per million (ppm) to 391 ppm in 2011 (IPCC, 2007; Oceanic and Atmospheric Administration [NOAA], 2010). The average annual CO_2 concentration growth rate was larger between 1995 and 2005 (average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates (NOAA, 2010). Currently, CO_2 represents an estimated 74 percent of total GHG emissions (IPCC, 2007). The largest source of CO_2 emissions, and of overall GHG emissions, is fossil fuel combustion.

Methane. Methane (CH_4) is an effective absorber of radiation, though its atmospheric concentration is less than that of CO_2 and its lifetime in the atmosphere is limited to 10 to 12 years. It has a GWP approximately 25 times that of CO_2. Over the last 250 years, the concentration of CH_4 in the atmosphere has increased by 148 percent (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of CH_4 include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (U.S. EPA, 2014).

Nitrous Oxide. Concentrations of nitrous oxide (N_2O) began to rise at the beginning of the industrial revolution and continue to increase at a relatively uniform growth rate (NOAA, 2010). N_2O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source fossil fuel combustion are the major sources of N_2O emissions. The GWP of nitrous oxide is approximately 298 times that of CO_2 (IPCC, 2007).

Fluorinated Gases (HFCS, PFCS, and SF_6). Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfurhexafluoride (SF_6), are powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the Montreal Protocol (1987) and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most SF_6 emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but these compounds have much higher GWPs. SF_6 is the most potent GHG the IPCC has evaluated.

b. Regulatory Framework. The following regulations address both climate change and GHG emissions.

International and Federal Regulations. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was produced in 1992. The UNFCCC is an international environmental treaty with the objective of "stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This is generally understood to be achieved by stabilizing global GHG concentrations between 350 and 400 ppm, in order to limit global average temperature increases between 2 and 2.4°C above pre-industrial levels (IPCC, 2007). The UNFCCC itself does not set limits on GHG emissions for individual countries or enforcement mechanisms. Instead, the treaty provides for updates, called "protocols," that would identify mandatory emissions limits.

Five years later, the UNFCCC brought nations together again to draft the *Kyoto Protocol* (1997). The Kyoto Protocol established commitments for industrialized nations to reduce their collective emissions of six GHGs (CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs) to 5.2 percent below 1990 levels by 2012. The United States is a signatory of the Kyoto Protocol, but Congress has not ratified it, and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007). The first commitment period of the Kyoto Protocol ended in 2012. Governments, including 38 industrialized countries, agreed to a second commitment period of the Kyoto Protocol beginning January 1, 2013 and ending either on December 31, 2017 or December 31, 2020, to be decided by the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its seventeenth session (UNFCCC, 2011).

In Durban (17th session of the Conference of the Parties in Durban, South Africa, 2011), governments decided to adopt a universal legal agreement on climate change. Work began on that task immediately under a new group called the Ad Hoc Working Group on the Durban Platform for Enhanced Action. Progress was also made regarding the creation of a Green Climate Fund (GCF) for which a management framework was adopted (UNFCCC, 2011; United Nations, 2011).

In December 2015, the 21st session of the Conference of the Parties (COP21) adopted the Paris Agreement. The deal requires all countries that ratify it to commit to cutting greenhouse gas emissions, with the goal of peaking greenhouse gas emissions "as soon as possible" (Worland,

2015). The agreement includes commitments to (1) achieve a balance between sources and sinks of greenhouse gases in the second half of this century; (2) to keep global temperature increase "well below" 2°C (3.6°F) and to pursue efforts to limit it to 1.5°C; (3) to review progress every five years; and (4) to spend $100 billion a year in climate finance for developing countries by 2020 (UNFCCC, 2015). The agreement includes both legally binding measures, like reporting requirements, as well as voluntary or non-binding measures, such as the setting of emissions targets for any individual country (Worland, 2015).

Federal Regulations. The United States Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act.

The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The first annual reports for these sources were due in March 2011.

On May 13, 2010, the U.S. EPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 tons CO_2e per year for GHG emissions. New and existing industrial facilities that meet or exceed that threshold will require a permit after that date. On November 10, 2010, the U.S. EPA published the "PSD and Title V Permitting Guidance for Greenhouse Gases." The U.S. EPA's guidance document is directed at state agencies responsible for air pollution permits under the Federal Clean Air Act to help them understand how to implement GHG reduction requirements while mitigating costs for industry. It is expected that most states will use the U.S. EPA's new guidelines when processing new air pollution permits for power plants, oil refineries, cement manufacturing, and other large pollution point sources.

On January 2, 2011, the U.S. EPA implemented the first phase of the Tailoring Rule for GHG emissions Title V Permitting. Under the first phase of the Tailoring Rule, all new sources of emissions are subject to GHG Title V permitting if they are otherwise subject to Title V for another air pollutant and they emit at least 75,000 tons CO_2e per year. Under Phase 1, no sources were required to obtain a Title V permit solely due to GHG emissions. Phase 2 of the Tailoring Rule went into effect July 1, 2011. At that time, new sources were subject to GHG Title V permitting if the source emits 100,000 tons CO_2e per year, or they are otherwise subject to Title V permitting for another pollutant and emit at least 75,000 tons CO_2e per year.

On July 3, 2012, the U.S. EPA issued the final rule that retains the GHG permitting thresholds that were established in Phases 1 and 2 of the GHG Tailoring Rule. These emission thresholds determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

California Regulations. California Air Resources Board (ARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. California has numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires ARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction from 2009 levels by 2012 and 30 percent by 2016. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (ARB, 2011).

In 2005, Executive Order (EO) S-3-05 established statewide GHG emissions reduction targets. EO S-3-05 provides that by 2020, emissions shall be reduced to 1990 levels and by 2050, emissions shall be reduced to 80 percent below 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include reduction of passenger and light duty truck emissions, reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05), and requires ARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires ARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by ARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, recycling, and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted over the last five years. Implementation activities are ongoing and ARB is currently in the process of updating the Scoping Plan.

In May 2014, ARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines ARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 goals set forth in EO S-3-05. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan.

It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (ARB, 2014).

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

ARB Resolution 07-54 establishes 25,000 MT of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005 percent of California's total inventory of GHG emissions for 2004.

Senate Bill (SB) 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing ARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, ARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035.

In April 2011, SB 2X required California to generate 33 percent of its electricity from renewable energy by 2020. On April 29, 2015, Governor Brown issued an executive order to establish a statewide mid-term GHG reduction target of 40 percent below 1990 levels by 2030. According to ARB, reducing GHG emissions by 40 percent below 1990 levels in 2030 ensures that California will continue its efforts to reduce carbon pollution and help to achieve federal health-based air quality standards. Setting clear targets beyond 2020 also provides market certainty to foster investment and growth in a wide array of industries throughout the State, including clean technology and clean energy. ARB is currently working to update the Scoping Plan to provide a framework for achieving the 2030 target. The updated Scoping Plan is expected to be completed and adopted by ARB in 2016 (ARB 2015).

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

Local Regulations and CEQA Requirements. Pursuant to the requirements of SB 97, the California Resources Agency has amended the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance for analyzing and mitigating GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, they give lead agencies the discretion to set quantitative or qualitative thresholds for assessing and mitigating GHGs and climate change impacts.

The general approach to developing a threshold of significance for GHG emissions is to identify the emissions level at which a project would not be expected to substantially conflict with existing California legislation adopted for the purpose of sufficiently reducing statewide GHG emissions to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), the San Luis Obispo Air Pollution Control District (SLOAPCD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. PlanWC and the Downtown Plan and Code would be subject to SCAQMD significance thresholds for GHGs.

Local Action Plans. In September 2011, the City of West Covina adopted its Energy Action Plan (EAP), identifying goals to guide the City toward the implementation of policies, strategies, and actions that are both cost-effective and environmentally sound. The goals of the EAP include the following:

- *5% of local businesses participating in SCE energy efficiency programs by 2014*
- *15% of local homeowners participating in SCE energy efficiency programs by 2013*
- *Energy use at City facilities reduced by at least 30% by 2013*

To reach these goals, the City plans to complete several municipal projects, including kitchen retrofits in several buildings and a lighting project at the Senior Center. The City will also promote energy savings communitywide by developing an ordinance to encourage energy efficiency upgrades in existing buildings.

4.6.2 Impact Analysis

a. Methodology and Significance Thresholds. Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines in March 2010 for the feasible mitigation of GHG emissions or the effects of GHG emissions. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. For individual projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds. However, use of these thresholds would not be appropriate for the proposed project because these thresholds are meant to be applied to individual projects, while the proposed project is a general plan update and Downtown plan and code that is programmatic in nature, encompassing cumulative development within the City over the next 20 years.

Appendix G of the *CEQA Guidelines* provides the following general statements to determine that significant impacts related to GHG emissions could occur if a project action would:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

As explained above, use of quantitative, project-level thresholds for GHG emissions would not be appropriate for the proposed project because it is programmatic in nature. For this reason, in

the impact analysis below, the threshold for determining whether or not GHG emissions would be significant under criteria 1 listed above is whether or not the proposed project would increase per capita GHG emissions, which is a more accurate and determinable measurement of the proposed project's overall environmental impacts related to GHG emissions.

b. Project Impacts and Mitigation Measures.

Threshold	*Would the proposed project increase per capita GHG emissions?*

Impact GHG-1 Development facilitated by the proposed project would generate GHG emissions. However, policies contained in PlanWC and the Downtown Plan to promote transit-oriented infill development and provide incentives for high-performance buildings and infrastructure would reduce overall per capita GHG emissions within West Covina. Impacts would therefore be *less than significant*.

Development carried out under the proposed project would generate GHG emissions through vehicle use. The proposed project could facilitate intensified development in the Downtown area. The focus, though, is on walkable mixed-use developments to connect neighborhoods to reduce vehicle use in the Downtown area while maintaining the City's other established neighborhoods. Development facilitated by the proposed project is forecast to add approximately 2,100 additional housing units to the City, as well as other development (see Chapter 2.0, *Project Description*). Total vehicle miles traveled (VMT) may increase with this development, potentially resulting in an incremental increase in GHG emissions. Development would also generate GHG emissions through energy consumption. However, PlanWC and the Downtown Plan and Code include land use strategies to reduce vehicle trips and reduce greenhouse gas emissions per capita within West Covina.

Policy 3.6 of the *Our Well Planned Community* chapter of PlanWC is to reduce West Covina's production of greenhouse gas emissions and contribution to climate change, and adapt to the effects of climate change. Action 3.6 would promote transit-oriented infill development and provide incentives for high-performance buildings and infrastructure to reduce West Covina's per capita GHG emissions and contribution to climate change. Policies and actions 1.1 through 1.3 in the *Our Natural Community* chapter would also promote alternative transportation modes and the use of energy-efficient vehicles to reduce GHG emissions from vehicular travel.

The *Our Accessible Community* sections of PlanWC and the Downtown Plan and Code include policies and actions that are designed to decrease the generation of air pollution and greenhouse gases through the reduction of vehicle miles traveled by supporting "Downtown first" infill development, and tying mixed-land uses and higher-density development to high-capacity corridor transit routes.

Integration of residential uses with commercial uses, along with enhancing the pedestrian network, would encourage alternative transportation and discourage vehicle trips. Because the proposed project would encourage infill development and promote the establishment and practice of alternative transit such as walking and biking as a mode of transportation, it would

contribute to long-term reductions in per capita GHG emissions as demonstrated in SCAG's 2016-2040 RTP/SCS and PlanWC being consistent with that plan (see Impact GHG-2).

Mitigation Measures. Policies contained in PlanWC and the Downtown Plan would limit GHG emissions. Individual development projects that could occur would be required to undergo CEQA review and would be subject to policies contained in PlanWC and the Downtown Plan to reduce GHG impacts. No mitigation measures outside of adherence to these policies would be required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold	*Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Impact GHG-2 The proposed project would be consistent with the major initiatives contained in SCAG's 2016-2040 RTP/SCS to reduce GHG emissions per capita by eight percent by 2020, 18 percent by 2035, and 21 percent by 2040, all compared to 2005 levels. Impacts would be *less than significant.*

SB 375 required the ARB to set regional targets for GHG emissions from use of light duty vehicles associated with land use decisions. Metropolitan Planning Organizations (MPOs) must address their regional GHG reductions targets in a Sustainable Communities Strategy (SCS) as part of the MPO's Regional Transportation Plan (RTP). SCAG adopted an RTP/SCS for the planning period of 2016-2040 on April 7, 2016. The primary goal of SCAG's SCS is to provide a vision for future growth in Southern California that will reduce per capita GHG emissions from automobiles and light trucks. The SCAG target is to reduce emissions by 8% per capita by 2020, 18% per capita by 2035, and 21% per capita by 2040, all compared to 2005 levels.

Implementation of policies contained in PlanWC and the Downtown Plan would help reduce per capita emissions by promoting infill and mixed-use development, and alternative transportation modes (see discussion in Impact GHG-1). The Downtown Code would implement these policies in the Downtown. The proposed project would be consistent with the major initiatives identified in the 2016-2040 RTP/SCS to reduce GHG emissions (see Table 4.6-1). Through consistency with the 2016-2040 RTP/SCS, the proposed project would help the region accomplish an 8% reduction in GHG gas emissions per capita by 2020, an 18% reduction by 2035, and a 21% reduction by 2040—compared with 2005 levels, as modeled in the RTP/SCS. This meets or exceeds the state's mandated reductions, which are 8% by 2020 and 13% by 2035. Impacts would therefore be less than significant.

Table 4.6-1
PlanWC and Downtown Plan Consistency with SCAG 2016-2040 RTP/SCS

2016-2040 RTP/SCS Major Initiatives	PlanWC and Downtown Plan Policies
FOCUSING NEW GROWTH AROUND TRANSIT The 2016 RTP/SCS plans for focusing new growth around transit, which is supported by the following policies: identifying regional strategic areas for infill and investment; structuring the Plan on centers development; developing "Complete Communities"; developing nodes on a corridor; planning for additional housing and jobs near transit; planning for changing demand in types of housing; continuing to protect stable, existing single-family areas; ensuring adequate access to open space and preservation of habitat; and incorporating local input and feedback on future growth..	**Our Natural Community** **Policy 1.1:** Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel. **Our Prosperous Community** **Policy 2.6:** Create a diversity of housing options. **Action 2.6a:** Support higher-intensity and higher-quality multifamily development in the Downtown. **Our Well Planned Community** **Policy 3.4:** Direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent with the character of surrounding districts and neighborhoods, to support new uses that can be more successful. Provide opportunities for healthy living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and socializing. **Policy 3.6:** Reduce West Covina's production of greenhouse gas emissions and contribution to climate change, and adapt to the effects of climate change. **Action 3.6:** Key Land use adaptation strategies to reduce greenhouse gas emissions are: • Promoting transit-oriented infill development, and • Providing incentives for high-performance buildings and infrastructure. **Our Accessible Community** **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Policy 4.5:** Work to eliminate barriers to pedestrian and bicycle travel. **Action 4.5b:** Require the construction of pedestrian and bicycle facilities and amenities, where warranted, as a condition of approval of new development projects. **Action 4.5e:** Develop Pedestrian and Bicycle Master Plans identifying community priorities, designing improvements at a conceptual level, and identifying potential funding sources. **Policy 4.6:** Work with transit providers to develop high-quality facilities for transit users, including access facilities. **Policy 4.7:** Increase the efficiency, cost-effectiveness and utility of existing parking and road supply by managing demand. **Policy 4.10:** Improve mobility and accessibility for travelers of all incomes through a process of equitable public engagement, service delivery and capital investment.
PROMOTING WALKING, BIKING AND OTHER FORMS OF ACTIVE TRANSPORTATION The 2016 RTP/SCS plans for continued progress in developing our regional bikeway network, assumes all local active transportation plans will be implemented, and dedicates resources to maintain and	**Our Natural Community** **Policy 1.1:** Promote alternative transportation modes like walking, biking, and transit that reduce emissions related to vehicular travel. **Our Well Planned Community** **Policy 3.4:** Direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent

Table 4.6-1
PlanWC and Downtown Plan Consistency with SCAG 2016-2040 RTP/SCS

2016-2040 RTP/SCS Major Initiatives	PlanWC and Downtown Plan Policies
repair thousands of miles of dilapidated sidewalks.	with the character of surrounding districts and neighborhoods, to support new uses that can be more successful. Provide opportunities for healthy living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and socializing. **Policy 3.6:** Reduce West Covina's production of greenhouse gas emissions and contribution to climate change, and adapt to the effects of climate change. **Action 3.6:** Key Land use adaptation strategies to reduce greenhouse gas emissions are: • Promoting transit-oriented infill development, and • Providing incentives for high-performance buildings and infrastructure. **Our Accessible Community** **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Policy 4.5:** Work to eliminate barriers to pedestrian and bicycle travel. **Action 4.5a:** Identify gaps in the pedestrian and bicycle facilities networks and define priorities for eliminating these gaps by making needed improvements. **Action 4.5b:** Require the construction of pedestrian and bicycle facilities and amenities, where warranted, as a condition of approval of new development projects. **Action 4.5e:** Develop Pedestrian and Bicycle Master Plans identifying community priorities, designing improvements at a conceptual level, and identifying potential funding sources.
IMPROVING AIR QUALITY AND REDUCING GREENHOUSE GASES It is through integrated planning for land use and transportation that the SCAG region, through the initiatives discussed in this section, will strive toward a more sustainable region.	**Our Well Planned Community** **Policy 3.4:** Direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent with the character of surrounding districts and neighborhoods, to support new uses that can be more successful. Provide opportunities for healthy living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and socializing. **Policy 3.6:** Reduce West Covina's production of greenhouse gas emissions and contribution to climate change, and adapt to the effects of climate change. **Action 3.6:** Key Land use adaptation strategies to reduce greenhouse gas emissions are: • Promoting transit-oriented infill development, and • Providing incentives for high-performance buildings and infrastructure.
A Land Use growth pattern that accommodates the region's future employment and housing needs and protects sensitive habitat and natural resource areas.	**Our Well Planned Community** **Policy 3.4:** Direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent with the character of surrounding districts and neighborhoods, to support new uses that can be more successful. Provide opportunities for healthy living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and socializing. **Action 3.6:** Key Land use adaptation strategies to reduce

Table 4.6-1
PlanWC and Downtown Plan Consistency with SCAG 2016-2040 RTP/SCS

2016-2040 RTP/SCS Major Initiatives	PlanWC and Downtown Plan Policies
	greenhouse gas emissions are: • Promoting transit-oriented infill development, and • Providing incentives for high-performance buildings and infrastructure.
EXPANDING OUR REGIONAL TRANSIT SYSTEM TO GIVE PEOPLE MORE ALTERNATIVES TO DRIVING ALONE The 2016 RTP/SCS includes $56.1 billion for capital transit projects and $156.7 billion for operations and maintenance. To make transit a more attractive and viable option, the 2016 RTP/SCS also supports implementing and expanding transit signal priority; regional and inter-county fare agreements and media; increased bicycle carrying capacity on transit and rail vehicles; real-time passenger information systems to allow travelers to make more informed decisions; and implementing first/last mile strategies to extend the effective reach of transit.	**Our Accessible Community** **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Policy 4.5:** Work to eliminate barriers to pedestrian and bicycle travel. **Action 4.5a:** Identify gaps in the pedestrian and bicycle facilities networks and define priorities for eliminating these gaps by making needed improvements. **Action 4.5b:** Require the construction of pedestrian and bicycle facilities and amenities, where warranted, as a condition of approval of new development projects. **Action 4.5e:** Develop Pedestrian and Bicycle Master Plans identifying community priorities, designing improvements at a conceptual level, and identifying potential funding sources. **Policy 4.6:** Work with transit providers to develop high-quality facilities for transit users, including access facilities. **Policy 4.10:** Improve mobility and accessibility for travelers of all incomes through a process of equitable public engagement, service delivery and capital investment.
OPTIMIZING THE PERFORMANCE OF THE TRANSPORTATION SYSTEM The 2016 RTP/SCS earmarks $9.2 billion for Transportation System Management (TSM) improvements.	**Our Accessible Community** **Policy 4.2:** Accommodate multimodal mobility, accessibility, and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets. **Action 4.2a:** Adopt and apply transportation system performance metrics as described in the Thoroughfares Plan. **Action 4.7b:** Improve intersections as needed to comply with performance metrics.

Source: Southern California Association of Governments, 2016-2040 RTP/SCS

Mitigation Measures. No mitigation measures outside of adherence to the policies in PlanWC and the Downtown Plan would be required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Analysis of GHG-related impacts is cumulative in nature because climate change is global in nature, resulting from the accumulation of GHGs in the global atmosphere, and resulting in impacts that occur across the globe and are not specific to the location in which the GHGs are emitted. As discussed in Section 4.6.1b, *Regulatory Setting*, the State of California has mandated an 80 percent reduction in GHG emissions by 2050. Numerous agencies around the state, including the City of West Covina, are required to and have adopted

regulations to meet this goal, and additional regulations to meet the State's GHG reduction goals are expected to be adopted in the decades ahead.

Development carried out under the proposed project, combined with other future development outside West Covina, could potentially increase overall GHG emissions. As indicated in Impact GHG-1, GHG emissions associated with the proposed project would be less than significant, and therefore not cumulatively considerable, as development is directed toward creating mixed-use, transit and pedestrian friendly projects to reduce per capita vehicle miles travelled and GHG emissions. The proposed project is consistent with SCAG's adopted 2016-2040 RTP/SCS as indicated in Impact GHG-2, and PlanWC and the Downtown Plan include policies directed toward reducing GHG emissions, as listed in Table 4.6-1. The proposed project's contribution to cumulative levels of GHGs would therefore not be cumulatively considerable and cumulative impacts to climate change would be less than significant.

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4.7 HAZARDS AND HAZARDOUS MATERIALS

This section analyzes impacts associated with exposure to hazards and hazardous materials. Specifically, this analysis addresses impacts related to hazardous materials use and transportation, the accidental release of hazardous materials, new development or re-development on contaminated sites, air traffic hazards, interference with emergency response and evacuation plans, and the risk of exposure to wildland fires.

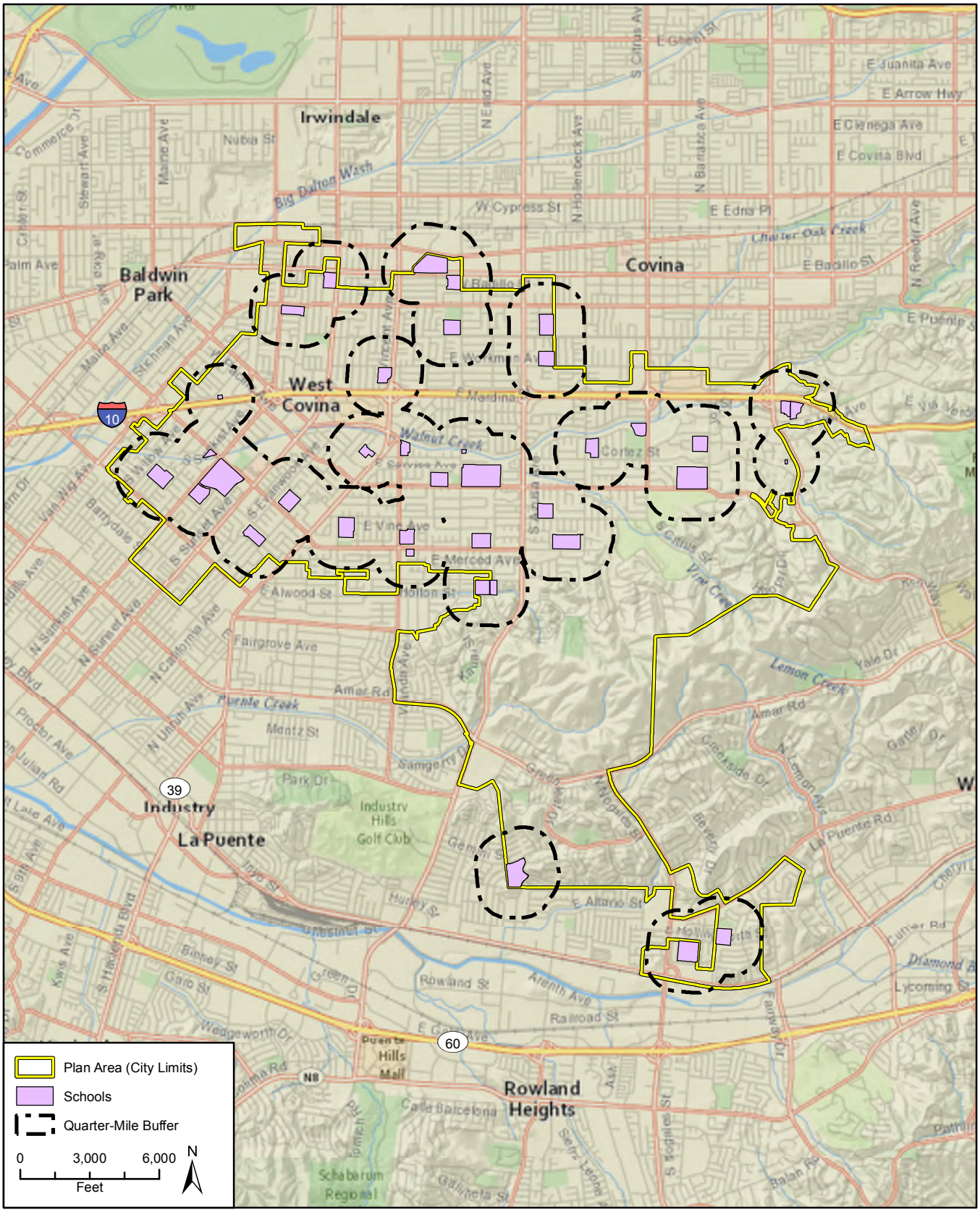
4.7.1 Setting

a. Land Use Patterns. Small quantities of hazardous materials in West Covina are routinely used, stored, and transported in commercial and retail businesses as well as in educational facilities, hospitals, and households. Hazardous materials users and waste generators in the city include businesses, public and private institutions, and households. Federal, state, and local agency databases maintain comprehensive information on the locations of facilities using large quantities of hazardous materials, as well as facilities generating hazardous waste. Some of these facilities use certain classes of hazardous materials that require accidental release scenario modeling and risk management plans to protect surrounding land uses.

Past and present land use patterns are good predictors of the potential for past contamination by hazardous materials and the current use and storage of hazardous materials. Industrial sites and certain commercial land uses, such as dry cleaners, are more likely to use and store large quantities of hazardous materials than residential land uses. Land use patterns are also useful for identifying the location of sensitive receptors, such as schools, day-care facilities, hospitals, and nursing homes. In West Covina, industrial and commercial land uses are concentrated along major transportation corridors, such as Interstate 10, Azusa Avenue, Glendora Avenue, and Sunset Avenue. Schools are distributed fairly evenly throughout the City as shown on Figure 4.7-1, Schools and ¼-Mile Buffers.

b. Existing Hazardous Material Contamination. Several existing contaminants, including asbestos, lead (in sources such as lead-based paint in buildings or in soil), and contaminated soil and groundwater, may be present in West Covina. Due to the age of some existing buildings in the City that may be redeveloped under the proposed project, asbestos may be present in those structures and could be mobilized during demolition activities. Similarly, lead may be present in paint that was sold prior to 1978 or in soil that was contaminated by leaded gasoline or improperly discarded batteries. Existing soil contamination may also be present at potential redevelopment sites due to contamination from household hazardous wastes. The U.S. EPA describes household hazardous waste as leftover household products that can catch fire, react, explode under certain circumstances, or that are corrosive or toxic (U.S. EPA, 2016). Household hazardous wastes are similar to the operational project-related hazardous materials described above, and include products such as paints, cleaners, oils, batteries, and pesticides (U.S. EPA, 2016).

The State Water Resources Control Board GeoTracker website identifies Leaking Underground Storage Tanks (LUST) cleanup sites, Cleanup Program Sites (formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites), military sites, land disposal sites (landfills), permitted underground storage tank sites, Waste Discharge Requirement sites, Irrigated Lands



Imagery provided by National Geographic, ESRI, and its licensors © 2016.
Additional data provided by County of Los Angeles, 2016

Schools and 1/4-mile Buffers

Figure 4.7-1

Regulatory Program sites, and Department of Toxic Substances Control cleanup and hazardous waste permit sites. A search of the GeoTracker database on May 9th, 2016 identified 53 sites within the City of West Covina that matched one of the categories listed above (SWRCB, 2016). A list of these sites and their cleanup status is provided in Appendix B of this EIR. Most of those sites were listed as "Completed – Case Closed." The BKK Sanitary Landfill/Class I Area is listed as an active Department of Toxic Substances Control (DTSC) Cleanup Site as well as a DTSC Hazardous Waste Permit site (SWRCB, 2016). Two gas stations and the West Covina School District Administration offices are listed as open LUST sites (SWRCB, 2016).

c. Airports and Aircraft Hazards. There are no public or private airports in West Covina. The nearest airports are the San Gabriel Valley Airport (formerly named the El Monte Airport) located approximately four miles to the west in El Monte and Brackett Field Airport located just over four miles to the east in La Verne. West Covina is not within the San Gabriel Valley Airport Influence Area as defined by the Los Angeles County Airport Land Use Plan (Los Angeles County ALUC, 2004). Similarly, West Covina is not within the Brackett Field Airport Influence Area as defined by the Brackett Field Airport Land Use Compatibility Plan (Los Angeles County ALUC, 2015). Public exposure to safety hazards for people living or working in West Covina from either of these airports is minimal.

d. Emergency Response Plans. Presidential Directive HSPD 5 identifies steps for improved coordination in response to incidents and requires a National Response Plan (NRP) and a National Incident Management System (NIMS). NIMS is a comprehensive, national approach to incident management developed to improve the coordination of federal, state and local emergency response nationwide. The State of California's NIMS Advisory Committee issued "California Implementation Guidelines for the National Incident Management System" to assist local governments and other entities to incorporate NIMS into already existing programs, plans, training and exercises. West Covina is engaged in an ongoing effort to upgrade the City's Covina Emergency Response Plan to incorporate the NIMS.

The foundation of California's emergency planning and response is a statewide mutual aid system which is designed to ensure that adequate resources, facilities, and other support is provided to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation.

The California Disaster and Civil Defense Master Mutual Aid Agreement (California Government Code Sections 8555–8561) requires signatories to the agreement to prepare operational plans to use within their jurisdiction, and outside their area. These plans include fire and non-fire emergencies related to natural, technological, and war contingencies. The State of California, all state agencies, all political subdivisions, and all fire districts signed this agreement in 1950.

Section 8568 of the California Government Code, the "California Emergency Services Act," states that "the State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out the provisions thereof." The Act provides the basic authorities for conducting emergency operations following the proclamations of emergencies by the Governor or appropriate local authority, such as a City Manager. The provisions of the act are further

reflected and expanded on by appropriate local emergency ordinances. The Act further describes the function and operations of government at all levels during extraordinary emergencies, including war.

All local emergency plans are extensions of the State of California Emergency Plan. The State Emergency Plan conforms to the requirements of California's Standardized Emergency Management System (SEMS), which is the system required by Government Code 8607(a) for managing emergencies involving multiple jurisdictions and agencies (CalEMA, 2009). The SEMS incorporates the functions and principles of the Incident Command System (ICS), the Master Mutual Aid Agreement (MMAA), existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination (CalEMA, 2009b). Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs (CalEMA, 2009b). The SEMS consists of five organizational levels that are activated as necessary, including: field response, local government, operational area, regional, and state (CalEMA, 2009b). The State of California Governor's Office of Emergency Services divides the state into six mutual aid regions. The City of West Covina is located in Mutual Aid Region I, which includes Los Angeles, Orange, San Luis Obispo, Santa Barbara, and Ventura Counties (CalACS, 2016).

In an emergency, governmental response is an extension of responsibility and action, coupled with normal day-to-day activity. Normal governmental duties will be maintained, with emergency operations carried out by those agencies assigned specific emergency functions. The City has adopted the SEMS to manage response to multi-agency and multi-jurisdiction emergencies and to facilitate communications and coordination between all levels of the system and among all responding agencies. Chapter 1 of Division 2 of Title 19 of the California Code of Regulations established the standard response structure and basic protocols to be used in emergency response and recovery.

West Covina's Natural Hazards Mitigation Plan (NHMP) addresses natural hazards, risks and mitigation actions for the entire city (City of West Covina, 2004). Adopted in 2004, the NHMP is a response to the federal Disaster Mitigation Act of 2000, which establishes a framework for proactive local planning for natural hazard mitigation. This law requires every local, county and state government to:

- Conduct an assessment of the natural hazards that pose a threat to the jurisdiction
- Determine the potential financial impact of these hazards
- Create a plan to mitigate these hazards
- Implement the Plan to reduce the impacts of natural disasters

The preparation and adoption of such a Plan is required to be eligible for funding from the Federal Emergency Management Agency (FEMA).

The NHMP includes a review of crucial facilities in the case of an emergency, the facilities and developments most vulnerable to natural hazards and the main risks facing the city. These hazards include earthquakes (groundshaking, liquefaction and earthquake-induced landslides), landslides, wildfires, flooding, and windstorms (City of West Covina, 2004). For each of these

possible events, the NHMP prioritizes risks and vulnerabilities and proposes mitigation actions (City of West Covina, 2004).

e. Wildland Fire Hazards. Many factors contribute to an area being at risk of structural fires in terms of local fire departments' capabilities to control them, including the construction size and type, built-in protection, density of construction, and street widths The City's daytime population levels may also add to the congestion and difficulty of ingress and egress of emergency response vehicles. Older homes that were constructed prior to modern building standards and fire code requirements are more susceptible to urban fires.

Topography is an important factor in determining the level of wildland fire risk. Flat, urban areas generally present a lower probability risk of wildland fire compared to hilly, less developed areas. In West Covina, the homes that are at highest risk from damage by wildland fire are located in the San Jose Hills, from Grand Avenue in the east to South Lark Ellen Avenue in the west. The City maintains a natural vegetation park (Galster Park) in this area that contains acres of brush and natural vegetation, developed trails, and campsites. Campfires are permitted in the park except during the driest parts of the year. The developed portion of the San Jose Hills has good roads and a good water supply, which provides the City Fire Department with the necessary tools to respond to the area and fight a wildland fire (City of West Covina, 2004). Current and future development of the BKK landfill area in the San Jose Hills increases roadway access for the Fire Department and decreases the amount of wildland that would be susceptible to fire. The Los Angeles County Fire Department provides fire protection for the Cities of Covina and Walnut and would provide mutual aid to the West Covina Fire Department in the event of a wildland fire in the San Jose Hills (all from City of West Covina 2004).

Fire risk in southern California is determined by a number of factors, including drought, the availability and type of fuels, the Santa Ana Winds, and development in the wildland-urban interface. The area is characterized by a Mediterranean climate of hot, dry summers and mild wet winters. As with much of the West, the region has seen significantly below average rainfall in recent years, leaving parched brush and trees extremely dry and fire prone. The Angeles National Forest is located approximately four miles north of the City of West Covina. In 2009 the largest fire in Los Angeles County modern history, the Station Fire, burned more than 160,000 acres and destroyed more than 200 buildings (CalFIRE 2015). That fire threatened several wildland interface communities near the City of West Covina, including Altadena and La Canada Flintridge.

The California Department of Forestry and Fire Protection (CDF) works in cooperation with the Governor's Office of Emergency Services (OES), as well as neighboring state governments through a network of mutual aid agreements to fight wildland fires. CDF is also a dedicated firefighting partner to the federal government, with experience contributing to firefighting efforts on the 45 million acres of federal lands in California. CDF is the largest multipurpose fire protection agency in the United States, responsible for wildland fire protection of over 31 million acres of California's privately owned watershed lands, as well as services in 36 counties via contracts with local governments. CDF responds to over 5,000 wildland fires each year. CDF commands a force of approximately 4,300 full-time fire professionals, 2,400 seasonal personnel, and over 5,000 volunteers (CalFIRE, 2014). In addition to its approximately 1,100 fire engines,

CDF maintains a significant fleet of aircraft that includes twenty-three air tankers, 15 air tactical planes, and 12 helicopters (CalFIRE, 2014).

f. Regulatory Framework. Hazardous substances are defined by federal and State of California regulations to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that can be hazardous to the environment or human health. Hazardous substances are defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14), and also in the California Code of Regulations (CCR), Title 22, Chapter 11, Article 2, Section 66261, which defines a hazardous material as follows:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed…*

For this analysis, soil that would be excavated from a site containing hazardous materials or construction waste that would be generated during development activities would be considered to be a hazardous waste if it exceeds specific CCR Title 22 criteria, or on federal lands, if it exceeds criteria defined in CERCLA or other relevant federal regulations.

Federal. The United States Environmental Protection Agency (U.S. EPA) is the primary federal agency responsible for implementation and enforcement of hazardous materials regulations. The U.S. EPA was established in 1970 in response to the growing public demand for cleaner water, air and land. U.S. EPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance.

The Federal Toxic Substances Control Act (1976) and the Resources Conservation and Recovery Act (RCRA) of 1976 established a program administered by the U.S. EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA of 1976 was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, in1980. This law (US Code Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enables the revision of the National Contingency Plan. The National Contingency Plan (Title 40, Code of Federal Regulation [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The National Contingency Plan also established the National Priorities List.

Congress amended CERCLA through passage of the Superfund Amendments and Reauthorization Act (SARA) in 1986.

Title 40 CFR Chapter I, Subchapter D Parts 116 and 117 designate hazardous substances under the Federal Water Pollution Control Act and set forth a determination of the reportable quantity for each substance that is designated as hazardous in Title 40 CFR Part 116. Title 40 CFR 117 applies to quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) assures the safety and health of the nation's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA staff establishes protective standards, enforces those standards, and reaches out to employers and employees through technical assistance and consultation programs.

The Federal Aviation Regulation (49 CFR Part 77) establishes standards and notification requirements for objects that may impact navigable airspace. This regulation includes requirements to provide notice to the FAA for proposed new construction or the alteration of existing structures, standards used to determine obstructions to air navigation, the process for aeronautical studies of obstructions to air navigation or navigational facilities, and the process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

State. The California Environmental Protection Agency (Cal-EPA) was created in 1991. It centralized California's environmental authority, consolidating the Air Resources Board, SWRCB, Department of Resources Recycling and Recovery (CalRecycle), DTSC, Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation under one agency. These agencies were unified in a single Cabinet level agency to restore, protect and enhance the environment, and to ensure public health, environmental quality, and economic vitality. Combined, these agencies regulate hazardous materials and hazardous waste that have the potential to cause air, soil, and water contamination. Their missions are summarized below.

- **Air Resources Board.** The Air Resources Board (ARB) is responsible for regulating air quality in the State. The mission of the ARB is to promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state.
- **Department of Pesticide Regulation.** The Department of Pesticide Regulation has the primary responsibility for regulating all aspects of pesticide sales and use to protect the public health and the environment. The Department's mission is to evaluate and mitigate impacts of pesticide use, maintain the safety of the pesticide workplace, ensure product effectiveness, and encourage the development and use of reduced-risk pest control practices while recognizing the need for pest management in a healthy economy.
- **Department of Toxic Substances Control.** The DTSC mission is to restore, protect, and enhance the environment, and to ensure public health, environmental quality, and

economic vitality by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

- **Department of Resources Recycling and Recovery.** The mission of CalRecycle is to protect the public health and safety and the environment through waste prevention, waste diversion, and safe waste processing and disposal.
- **State Water Resources Control Board.** The SWRCB mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.

Government Code Section 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, California Department of Public Health lists of contaminated drinking water wells, sites listed by the SWRCB as having underground storage tank leaks and that have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

In 1993, the State (Cal-EPA) was mandated by Senate Bill 1082 (Health and Safety Code Chapter 6.11) to establish a "unified hazardous waste and hazardous materials management" regulatory program (Unified Program). The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the following six environmental and emergency response programs:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention (CalARP) Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements

The Unified Program is implemented at the local level by various local government agencies certified by the Secretary of Cal-EPA. These agencies, known as Certified Unified Program Agencies (CUPAs), implement all of the Unified Program elements and serve as a local contact for area businesses. The Los Angeles County Fire Department is the City of West Covina's CUPA responsible for administering all six program elements of the Unified Program within the City's jurisdiction.

In order to protect the public health and safety and the environment, the California Office of Emergency Services is in charge of establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on the location, type, quantity, and the health risks of hazardous materials handled, used, stored, or disposed of in the State, which could be accidentally released into the environment, needs to be made available to firefighters, health officials, planners, public safety officers, health care providers, regulatory agencies, and other interested parties. The information provided by business and area plans is necessary in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or

threatened release of hazardous materials into the workplace and environment. The California Highway Patrol and Caltrans are the enforcement agencies for hazardous materials transportation regulations. Transporters of hazardous materials and waste are responsible for complying with all applicable packaging, labeling, and shipping regulations. The Office of Emergency Services also provides emergency response services involving hazardous materials incidents.

CCR Title 19 establishes minimum statewide standards for Hazardous Materials Business Plans. These plans shall include a hazardous material inventory, emergency response plans and procedures, and training program information. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business shall prepare a Hazardous Materials Business Plan if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to defined thresholds.

The California Education Code (Section 17210 et seq.) outlines the requirements of siting school facilities near or on known or suspected hazardous materials sites, or near facilities that emit hazardous air emissions, handle hazardous or acutely hazardous materials, substances, or waste. The code requires that, prior to commencing the acquisition of property for a new school site, an environmental site investigation be completed to determine the health and safety risks (if any) associated with a site. Recent legislation and changes to the Education Code identify the role of DTSC in the assessment, investigation, and cleanup of proposed school sites. All proposed school sites that will receive state funding for acquisition and/or construction must go through a comprehensive investigation and cleanup process under DTSC oversight. DTSC is required to be involved in the environmental review process to ensure that selected properties are free of contamination, or if the property is contaminated, that it is cleaned up to a level that is protective of students and faculty who will occupy the new school. All proposed school sites must be suitable for residential land use, which is DTSC's most protective standard for children.

Cal-OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal-OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (Title 8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. Proposition 65 was intended by its authors to protect California citizens and the State's drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm, and to inform citizens about exposures to such chemicals. Proposition 65 requires the Governor to publish, at least annually, a list of chemicals known to the State to cause cancer or reproductive toxicity. The OEHHA has established safe harbor levels (levels of exposure that trigger the warning requirement) for some, but not all, listed chemicals. Businesses that cause exposures greater than the safe harbor level must provide Proposition 65 warnings.

The Porter-Cologne Water Quality Act is a State law that provides a comprehensive water quality management system for the protection of California waters. The Act designates the SWRCB as the ultimate authority over state water rights and water quality policy, and also established nine Regional Water Quality Control Boards (RWQCB) to oversee water quality on a day-to-day basis at the local and regional levels. The RWQCBs have the responsibility of granting National Pollutant Discharge Elimination System (NPDES) permits and setting waste discharge requirements for storm water runoff from construction sites.

Local. Chapter 8 of the West Covina Municipal Code (WCMC), Civil Defense and Emergencies provides for the preparation and carrying out of plans for the protection of persons and property within the City in the event of an emergency; the direction of the emergency organization; and coordination of the emergency functions of the City with all other public agencies, corporations, organizations, and affected private persons. Chapter 8 of the WCMC also created a City emergency services and disaster council that is charged with developing emergency and mutual aid plans and agreements.

4.7.2 Impact Analysis

a. Methodology and Significance Thresholds

Methodology. This section describes the potential environmental impacts of the proposed project relevant to hazards and hazardous materials. The impact analysis is based on an assessment of baseline conditions for the proposed plan area, including locations of hazardous materials use and storage, existing contaminated sites, air traffic hazards, emergency response and evacuation plan requirements, and the risk of exposure to wildland fires, as described in Section 4.7.1, *Setting*. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to the predicted development that would occur under the proposed project. This section describes impacts in terms of location, context, duration, and intensity, and recommends mitigation measures, when necessary, to avoid or minimize impacts.

Significance Thresholds. The following thresholds of significance are based on Appendix G of the *CEQA Guidelines*. For the purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials*
- *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment*
- *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school*
- *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment*
- *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area*

- *For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area*
- *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan*
- *Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands*

b. Project Impacts and Mitigation Measures.

Threshold:	*Would the proposed project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Impact HAZ-1 **Implementation of the proposed project could result in an incremental increase in the overall routine transport, use, storage, and disposal of hazardous materials within the City. However, compliance with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of the public's potential exposure to these substances, resulting in a *less than significant* impact.**

In a suburban city such as West Covina, residential and commercial or industrial uses reside relatively close to each another or often co-exist. Implementation of the proposed PlanWC and Downtown Plan and Code would facilitate development in the city, including conversion of uses in response to market demand, and more intense use of land in defined focus areas, such as the Downtown area and along major transportation corridors. These focus areas do not reflect the majority of land area in West Covina because most of the City is composed of stable residential, commercial, and industrial areas that would not change substantially as the proposed project is implemented over the next 20 years.

PlanWC projects the following amount of development in West Covina over the next 20 years, with a majority of this growth directed to the Downtown:

- 2,100 residential units
- 400,000 square feet (sf) of office
- 200,000 sf of retail commercial
- 600 hotel rooms

Development that would be facilitated by the proposed project would be focused primarily within several districts, transportation corridors, and neighborhood centers. The four districts designated for growth are Downtown, Eastland, Auto Plaza, and BKK (former landfill site). The four urban corridors designated for growth are North Azusa Avenue, Glendora Avenue, Sunset Avenue, and Valley Boulevard. The four neighborhood centers where development of housing alongside commercial uses is specifically encouraged are Puente Avenue, Aroma Drive and Azusa Avenue, Amar and Azusa, and Nogales Street.

New mixed use and commercial uses in the City (predominantly within the focus areas) may involve the use of hazardous materials and/or the generation of hazardous materials. The majority of development under the proposed project would consist of office space, retail commercial, and residential land use. These types of land use typically do not use or handle large quantities of hazardous materials. However, new residential development could be introduced in areas in close proximity to existing and/or future industrial and commercial development, such as the transportation corridors. The following analysis provides generalized information on the potential for hazards through the routine transport, use, storage, or disposal of hazardous materials associated with future commercial uses in those focus areas.

Exposure of persons to hazardous materials could occur in the following ways: improper handling or use of hazardous materials or hazardous wastes during construction or operation of future developments, particularly by untrained personnel; transportation accident; environmentally unsound disposal methods; or fire, explosion or other emergencies. The types and amounts of hazardous materials would vary according to the nature of the activity. In some cases, it is the type of material that is potentially hazardous; in others, it is the amount of material that could present a hazard.

Whether a person exposed to a hazardous substance would suffer adverse health effects depends upon a complex interaction of factors that determine the effects of exposure to hazardous materials: the exposure pathway (the route by which a hazardous material enters the body); the amount of material to which the person is exposed; the physical form (e.g., liquid, vapor) and characteristics (e.g., toxicity) of the material; the frequency and duration of exposure; and the individual's unique biological characteristics such as age, gender, weight, and general health. Adverse health effects from exposure to hazardous materials may be short-term (acute) or long-term (chronic). Acute effects can include damage to organs or systems in the body and possibly death. Chronic effects, which may result from long-term exposure to a hazardous material, can also include organ or systemic damage, but chronic effects of particular concern include birth defects, genetic damage, and cancer. Existing hazardous materials regulations were established at the state level to ensure compliance with federal regulations in order to reduce the risk to human health and the environment from the routine use of hazardous substances.

Although the overall quantity of hazardous materials and waste generated in the City could incrementally increase as a result of implementation of the proposed project, all new developments that handle or use hazardous materials would be required to comply with the regulations, standards, and guidelines established by the U.S. EPA, State, Los Angeles County, and City of West Covina related to storage, use, and disposal of hazardous materials.

The California EPA requires all businesses that handle more than specified amounts of hazardous materials to submit business plans through the California Environmental Reporting System (CERS). Specifically, any new business that meets the specified criteria must submit a full hazardous materials disclosure report that includes an inventory of the hazardous materials generated, used, stored, handled, or emitted; and emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. The plan needs to identify the procedures to follow for immediate notification to all appropriate agencies and personnel in the event of a release, identification of local emergency medical

assistance appropriate for potential accident scenarios, contact information for all company emergency coordinators of the business, a listing and location of emergency equipment at the business, an evacuation plan, and a training program for business personnel. The West Covina Fire Department inspects businesses to confirm that their business plan is in order and up to date.

Compliance with existing applicable regulations would ensure that risks from routine use, transport, handling, storage, and disposal of hazardous materials would be minimized. Oversight by the appropriate federal, State, and local agencies and compliance by new development with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of the public's potential exposure to these substances. Therefore, this impact would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*
Threshold:	*Would the proposed project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?*

Impact HAZ-2 **Construction and operation activities associated with implementation of the proposed project could result in the release of hazardous materials into the environment through reasonably foreseeable upset and accident conditions or disturbance of existing contamination. However, compliance with existing regulations would minimize the risk of exposure to these substances, resulting in a *less than significant* impact.**

Construction. Because implementation of the proposed project would primarily result in urban infill and redevelopment and intensification of development in specific focus areas within the City, existing structures may need to be demolished prior to construction of new buildings. Demolition of existing structures in the City could result in exposure of construction personnel and the public to hazardous substances such as asbestos or lead-based paints. In addition, the disturbance of soils and the demolition of existing structures could result in the exposure of construction workers or employees to health or safety risks if contaminated structures and/or soils are encountered during construction or maintenance activities. Exposure to contaminated structures or soil could occur from any of the following:

- Possible asbestos-containing materials and lead-based paints associated with existing on-site structures, pipes, and/or debris
- Unknown contaminants that have not previously been identified

Exposure to hazardous materials during construction activities could potentially occur through any of the following:

- Direct dermal contact with hazardous materials
- Incidental ingestion of hazardous materials (usually due to improper hygiene when workers fail to wash their hands before eating, drinking, or smoking)
- Inhalation of airborne dust released from dried hazardous materials

Federal, state, and local regulations govern the renovation and demolition of structures where materials containing lead and asbestos are present. These requirements include: SCAQMD Rules and Regulations pertaining to asbestos abatement (including Rule 1403), Construction Safety Orders 1529 (pertaining to asbestos) and 1532.1 (pertaining to lead) from Title 8 of the California Code of Regulations, Part 61, Subpart M of the Code of Federal Regulations (pertaining to asbestos), and lead exposure guidelines provided by the U.S. Department of Housing and Urban Development (HUD). Asbestos and lead abatement must be performed and monitored by contractors with appropriate certifications from the State Department of Health Services. In addition, Cal/OSHA has regulations concerning the use of hazardous materials, including requirements for safety training, availability of safety equipment, hazardous materials exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous materials, describing the hazards of chemicals, and documenting employee-training programs. All demolition that could result in the release of lead and/or asbestos must be conducted according to Cal/OSHA standards. Adherence to existing regulations, which require appropriate testing and abatement actions for hazardous materials, would minimize exposure to lead and asbestos during construction activities.

Aside from the potential release of hazardous materials from demolition of existing structures within the City, grading and excavation of sites for future development in the City may also expose construction workers and the public to potentially unknown hazardous substances present in the soil or groundwater. If any unidentified sources of contamination are encountered during grading or excavation, the removal activities required could pose health and safety risks such as the exposure of workers, materials handling personnel, and the public to hazardous materials or vapors. Such contamination could cause various short-term or long-term adverse health effects in persons exposed to the hazardous substances.

Potential hazards to construction workers and the public could also result from construction activities on existing land uses that are known to be contaminated. Existing sites that may potentially contain hazardous land uses in the city include the BKK former landfill site and large and small-quantity generators of hazardous waste, such as gas stations and dry cleaners. As noted previously, 53 sites containing or potentially containing hazardous materials contamination are located within West Covina. These sites include leaking underground storage tanks (LUST) and other hazardous materials sites that are listed by the California Department of Toxic Substances Control (DTSC). Most of these sites were listed as "Completed – Case Closed." The BKK Sanitary Landfill/Class I Area is listed as an active DTSC Cleanup Site as well as a DTSC Hazardous Waste Permit site (SWRCB, 2016). Two gas stations and the West Covina School District Administration offices are listed as open LUST sites (SWRCB, 2016). Any new development occurring on these documented hazardous materials sites would be preceded

by remediation and cleanup under the supervision of the DTSC before construction activities could begin.

It is also possible that underground storage tanks (USTs) that were in use prior to permitting and record keeping requirements may be present in the City. If an unidentified UST were uncovered or disturbed during construction activities, it would be closed in place or removed. Removal activities could pose both health and safety risks, such as the exposure of workers, tank handling personnel, and the public to tank contents or vapors. Potential risks, if any, posed by USTs would be minimized by managing the tank according to existing Los Angeles County standards as enforced and monitored by the Department of Environmental Health. The extent to which groundwater may be affected, if at all, depends on the type of contaminant, the amount released, and depth to groundwater at the time of the release. If groundwater contamination is identified, remediation activities would be required by the RWQCB prior to the commencement of any new construction activities. If contamination exceeds regulatory action levels, the developer would be required to undertake remediation procedures prior to grading and development under the supervision of the County Environmental Health Division, County Department of Toxic Substances Control, or RWQCB (depending upon the nature of any identified contamination).

While no specific developments are associated with the proposed project, it is anticipated that older buildings could be demolished as uses are redeveloped under the proposed project, potentially exposing construction workers and nearby residents and/or workers to airborne lead-based paint dust, asbestos fibers, and/or other contaminants. In addition, future development may uncover previously undiscovered soil contamination as well as result in the release of potential contaminants that may be present in building materials (e.g., mold, lead, etc.). However, compliance with existing state and local regulations would reduce impacts to a less than significant level.

Operation. The precise potential future increase in the amount of hazardous materials transported within the City of West Covina as a result of implementation of the proposed project cannot be predicted because specific development projects are not identified in PlanWC or Downtown Plan and Code at a level of detail allowing such analysis. The following discussion focuses on the potential nature and magnitude of risks associated with the accidental release of hazardous materials often used during operations of typical residential and retail-commercial development projects. As described below, compliance with applicable federal and state laws related to the transport, storage and handling of hazardous materials would reduce the likelihood and severity of accidents associated with the use of hazardous materials.

The DOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the Code of Federal Regulations, and implemented by Title 13 of the CCR. The transport of hazardous materials can result in accidental spills, leaks, toxic releases, fire, or explosion. It is possible that licensed vendors could bring some hazardous materials to and from new residential and retail-commercial sites in the City of West Covina as a result of development projects carried out under PlanWC and the Downtown Plan and Code. However, appropriate documentation for all hazardous waste transported in connection with specific project-site activities would be provided as required for compliance with existing hazardous materials regulations codified in

Titles 8, 22, and 26 of the California Code of Regulations, and their enabling legislation set forth in Chapter 6.95 of the California Health and Safety Code. In addition, individual developers would be required to comply with all applicable federal, state, and local laws and regulations pertaining to the transport, use, disposal, handling, and storage of hazardous waste, including but not limited to, Title 49 of the Code of Federal Regulations.

California Building Code requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards. Compliance with all applicable federal and state laws related to the storage of hazardous materials would maximize containment (through safe handling and storage practices described above) and provide for prompt and effective cleanup if an accidental release occurs.

For those employees that would work with hazardous materials, the amount of hazardous materials that are handled at any one time are generally relatively small, reducing the potential consequences of an accident during handling. Further, specific project-site activities would be required to comply with federal and state laws to eliminate or reduce the consequence of hazardous materials accidents. For example, employees who would work around hazardous materials would be required to wear appropriate protective equipment, and safety equipment is routinely available in all areas where hazardous materials are used.

LACoFD Health Hazardous Materials Division personnel respond to hazardous materials incidents in the City of West Covina. Major hazardous materials accidents associated with residential and retail-commercial uses are fairly infrequent, and additional emergency response capabilities are not anticipated to be necessary to respond to the potential incremental increase in the number of incidents that could result from implementation of the proposed project. Further, adherence to applicable regulations as discussed above would be required to reduce any potential consequences of a hazardous materials operational accident.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Impact HAZ-3 Implementation of the proposed project could result in hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school, but compliance with existing regulatory requirements would minimize risks to schools and students, resulting in a *less than significant* impact.

Under the proposed project, the increase of residential and mixed-use land uses, as well as the potential increase in commercial uses, could increase the quantity of sensitive receptors in areas adjacent to industrial and commercial land uses, thereby potentially increasing the risk of exposure to hazardous materials, waste, or emissions. New commercial development, including

gas stations, dry cleaners, and auto-body shops, could occur within ¼-mile of an existing school. Consequently, hazardous materials sites may be located within ¼-mile from school sites.

Since PlanWC does not include any specific development projects, the quantity of hazardous materials proposed for use by future commercial developments within the City is currently unknown. Accidental release or combustion of hazardous materials at new commercial developments could endanger residents or students in the surrounding community.

Public educational services within West Covina are provided primarily by the West Covina Unified School District (WCUSD), Covina-Valley Unified School District (CVUSD), and Rowland Unified School District (RUSD). Three other small school districts are also located at least partially within West Covina: the Hacienda La Puente School District (HLPSD), Walnut Valley School District (WVSD), and Baldwin Park School District (BPSD). Figure 4.7-1 shows the locations of public school facilities in the City as well as a ¼-mile radius surrounding each school. Locations of schools throughout the City can be seen in Figure2-2, *PlanWC Land Use Map* in Section 2-2, *Project Description*.

Given the built-out conditions in the City of West Covina and the wide distribution of schools in the City, it is probable that one or more schools currently exists within one-quarter mile of a facility that has or could emit hazardous air emissions or handle hazardous materials or wastes. It is equally likely that future development and redevelopment in the focus areas may result in an increase in hazardous emissions and handling of hazardous materials and wastes within ¼ mile of an existing or future proposed school. As noted in Section 4.7.1, *Regulatory Framework*, the California Education Code (Section 17210 et seq.) outlines the requirements for siting school facilities near or on known or suspected hazardous materials sites, or near facilities that emit hazardous air emissions, handle hazardous or acutely hazardous materials, substances, or waste.

Hazardous materials and waste generated from future development would not pose a health risk to nearby schools because all businesses that handle or have on-site storage of hazardous materials would be required to comply with the provisions of the City's Fire Code and any additional elements as required in the California Health and Safety Code Article 1 Chapter 6.95 for Business Emergency Plan. As described in Section 4.7-1 above, both the federal and state governments require all businesses that handle more than a specified amount of hazardous materials to submit a business plan to a regulating agency. As such, compliance with the provisions of the City's Fire Code and existing applicable state and federal regulations would minimize the risks associated with exposure of sensitive receptors to hazardous materials. This impact would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Thresholds:	*Would the proposed project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?* *Would the proposed project be located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?*

Impact HAZ-4 Adoption and implementation of the proposed project would not result in an increase in people residing or working near public or private airports. Therefore, the proposed project would not result in substantial airport-related safety hazards. Impacts would be *less than significant*.

There are no public or private airports within West Covina. The nearest airports are the San Gabriel Valley Airport (formerly named the El Monte Airport) located approximately four miles to the west in the City of El Monte, and Brackett Field Airport located just over four miles to the east in the City of La Verne. The City of West Covina is not within the San Gabriel Valley Airport Influence Area as defined by the Los Angeles County Airport Land Use Plan or the Brackett Field Airport Influence Area as defined by the Brackett Field Airport Land Use Compatibility Plan (Los Angeles County ALUC; 2004, 2015). Public exposure to safety hazards for people living or working in the City of West Covina from either of these airports would be minimal. Although flights associated with these airfields may pass over the City and could, due to accidents such as aircraft malfunction, pose a hazard to both new and existing residents and workers in the City, this risk would be minor. The critical air space for both of the airports listed above lies outside of the City of West Covina. Thus, development facilitated by the proposed project would not be subject to substantial airport-related safety hazards. Therefore, impacts related to air traffic hazards would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Impact HAZ-5 PlanWC policies address implementation of adopted emergency response and evacuation plans. Therefore, the proposed project would not result in interference with these types of adopted plans. Impacts would be *less than significant*.

Downtown Plan Policy 8.1 directs the City to accommodate safety needs when planning, designing, and implementing transportation improvements. This would include assessing future projects to ensure they result in adequate emergency access. Mandatory City

development processes also require project review by emergency services, including police and fire, to ensure projects maintain adequate emergency access.

P8.1 *Accommodate multimodal mobility, accessibility and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of Downtown streets.*

A8.1c *Resolve extended response time problems by: Accommodate the needs of all travelers through a Complete Streets approach to designing new transportation improvements. Complete streets are roadways designed to facilitate safe, comfortable, and efficient travel for all roadway users.*

A8.1d *Create and implement a Transition Plan that responds to the needs of people with disability by retrofitting street corners, crossings, and transit stops that do not meet current accessibility standards.*

The West Covina Fire Department provides primary input into and is the chief architect of the City's disaster preparedness plans. The Department operates under a philosophy of "all risk preparedness" and encourages members of the public to be prepared for all types of emergencies, both man-made and natural. Under the "all risk" umbrella, residents are strongly encouraged to prepare for earthquakes, fires, floods, major transportation accidents and hazardous materials spills, power outages, and communicable disease outbreaks. Members of the public are encouraged to be self-sufficient for up to 72 hours following the occurrence of a localized disaster. Other pertinent functions include liaison and coordination of emergency response services with other departments in the City, neighboring jurisdictions, and relief agencies.

As noted in Section 4.7.1, *Setting*, the Natural Hazard Mitigation Plan (NHMP) addresses West Covina's planned response to extraordinary emergency situations associated with man-made and natural disasters. The NHMP provides a set of action items to reduce risk from natural hazards through education, outreach programs to foster the development of partnerships, and implementation of preventative activities such as land use programs that restrict and control development in areas subject to damage from natural hazards. The mitigation plan works in conjunction with other City plans, including the City General Plan and Emergency Operations Plans.

PlanWC Chapter 6, *Our Healthy and Safe Community*, contains policies to ensure adequate planning for emergency response. Three of these policies and their associated actions are listed below.

P6.13 *Optimize firefighting and emergency response capabilities.*

A6.13a *Resolve extended response time problems by:*

- *Increasing fire staffing to coincide with increasing population, development, and call for services;*
- *Require the funding of new services from fees or assessments from new development.*

A6.13b *Co-habit with the Police Department a future public service center to improve the service times in the Downtown area.*

P6.21 *Update West Covina's Natural Hazard Mitigation Plan (NHMP) on a regular basis in order to reflect changing conditions, best practices, regulatory environment, and advancements in knowledge; and to maintain eligibility for public assistance grants.*

A6.21a *Update West Covina's NHMP every 5 years.*

A6.21b *Carry out the actions contained in West Covina's NHMP.*

P6.22 *Develop and disseminate educational programs, through a variety of media, to familiarize the citizens of West Covina with the Safety Element, the NHMP, and related issues.*

A6.22a *Develop and disseminate educational programs regarding the Safety Element, the NHMP, and general safety information to organizations such as school districts, agencies serving the aged and handicapped, industries susceptible to seismic hazards, and civic groups, and encourage them to implement these programs and/or incorporate them into their own safety programs.*

A6.21b *Coordinate with the school districts in the City to initiate educational programs in lower grades using displays and demonstrations that would expose younger children to the nature and strength of fire, for the purpose of tempering their natural curiosity about fire with knowledge of, and a sense of respect for, its hazards.*

A6.21c *Coordinate with the school districts in the City to support or sponsor exhibits and presentations in secondary school demonstrating the more involved aspects of fire dynamics, i.e. major contributing factors of fire hazards and the relationship of fire to the natural ecology. Encourage parental cooperation and assistance in overall fire education programs.*

A6.21d *Make the Safety Element and the NHMP available to builders and realtors, and encourage them to share relevant information from these documents with homebuyers and tenants.*

Implementation of these policies and actions associated with emergency planning and response would ensure that potential impacts from implementation of the proposed project on emergency response and evacuation would be less than significant .

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Impact HAZ-6 Implementation of the proposed project could result in development in urbanized areas adjacent to or intermixed with wildlands. However, implementation of existing hazard reduction standards, as well as policies included in PlanWC, would reduce the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts would be *less than significant*.

Parts of the City of West Covina are susceptible to wildland fires due to its hilly terrain, dry weather conditions and the nature of its plant cover. The high fire risk areas of the City are largely isolated from the fire prone mountainous areas in the region. Therefore, it is unlikely that large wildfires in the San Gabriel Mountains or other large open space areas in the region would spread to the City of West Covina. However, the City does include some areas of high fire risk, particularly in the San Jose Hills from Grand Avenue in the east to South Lark Ellen Avenue in the west (City of West Covina, 2004). The City maintains a natural vegetation park (Galster Park) in this area that contains acres of brush and natural vegetation, developed trails, and campsites (City of West Covina, 2004). Campfires are permitted in the park except during the driest parts of the year (City of West Covina, 2004).

The developed portion of the San Jose Hills has good roads and a good water supply, which provides the City Fire Department with the necessary tools to respond to the area and fight a wildland fire (City of West Covina, 2004). Current and future development of the BKK landfill area in the San Jose Hills increases roadway access for the Fire Department and decreases the amount of wildland that would be susceptible to fire (City of West Covina, 2004). The Los Angeles County Fire Department provides fire protection for the Cities of Covina and Walnut and would provide mutual aid to the City of West Covina Fire Department in the event of a wildland fire in the San Jose Hills.

Implementation of the proposed project could lead to an increase in residential or commercial development in areas that are susceptible to wildland fires. As explained in subsection 4.7.1f, *Wildland Fire Hazards,* in those susceptible areas, particularly in the San Jose Hills, land development is governed by special state and local codes, and property owners are required to follow maintenance guidelines aimed at reducing the amount and continuity of the fuel (vegetation) available. The City also maintains hazard reduction standards that regulate landscaping, firewood storage, debris clearing from rooftops, and other fire hazard reduction techniques.

In addition, Policy P6.17 in Plan WC Chapter 6, *Our Healthy and Safe Community*, requires the City to take actions to reduce the potential for loss of life or property in high fire hazard areas. This policy would be implemented through several required actions, as shown below.

P6.17 *Take actions to reduce the potential for loss of life or property in high fire hazard areas.*

A6.17a *Review and evaluate proposed land uses in extreme and high fire hazard areas for their vulnerability to fire and potential ignition sources.*

A6.17b *Prohibit the use of untreated shake roofs in areas of high and extreme fire hazard.*

A6.17c *Adopt special inspection criteria in those areas of extreme, high, and medium fire risk during critical fire season when the sustained wind velocity exceeds 25 miles per hour.*

A6.17d *Study the adoption of rigid inspection standards for off-road vehicles (such as muffler and spark arrestor controls) and closely control the usage of off-road vehicles during periods of high fire risk (such as "Santa Ana" wind events with low humidity and strong winds).*

A6.17e *Investigate water re-use programs in the hillside areas to aid in fire prevention.*

A6.17f *Work with homeowners and builders constructing homes in or adjacent to high and extreme fire risk areas to make all water in privately owned swimming pools in these areas accessible to fire trucks for use in onsite fire protection. This could be accomplished through the inclusion of suitable gates and driveways in both existing and proposed homes.*

A6.17g *Continue to support programs to reduce fire hazards from vegetation in areas of extreme to high fire risk. Such programs may take a variety of forms and would include current City weed and brush removal programs, as well as control and use of fire retardant plantings.*

With implementation of existing hazard reduction standards, as well as the fire hazard policies and actions in PlanWC, this impact would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

c. Cumulative Impacts. Because the proposed project is composed of a General Plan update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. The proposed project may cumulatively increase the potential for community risk from hazards and hazardous materials. However,

implementation of the PlanWC policies and compliance with existing laws and regulations would reduce cumulative hazards and hazardous materials impacts to a less than significant level.

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4.8 HYDROLOGY AND WATER QUALITY

This section evaluates the potential environmental effects related to hydrology and water quality associated with implementation of the proposed project. It discusses the regional and local watershed characteristics, including water quality, drainage and infiltration patterns, and flood hazards. Information for this section was taken from the Water Quality Control Plan for the Los Angeles Region, the National Hydrography Dataset, the Department of Water Resources' Bulletin 118, the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer, the City's draft proposed General Plan update (PlanWC) and Downtown Plan and Code, and other environmental documents prepared for the City. The analysis includes a review of surface water, groundwater, flooding, stormwater, and water quality. Water supply and wastewater conveyance and treatment are discussed in Section 4.15, *Utilities*. Issues regarding wetlands and waters of the U.S. are discussed in Section 4.3, *Biological Resources*.

4.8.1 Setting

West Covina is located in the San Gabriel Valley approximately 19 miles east of Downtown Los Angeles. The proposed project lies entirely within the Peninsular Ranges geomorphic province. This geomorphic province occupies the southwestern corner of California and contains the Laguna Mountains, the San Jacinto Mountains, the Santa Ana Mountains, and the Santa Rosa Mountains. The northern portion of the province includes the Los Angeles Basin and is bound on the east by the Colorado Desert and on the north by the transverse ranges, including the San Gabriel Mountains (CGS, 2002).

The topography of the City is characterized primarily by relatively flat alluvial plains in the northwest and steeper slopes associated with the San Jose Hills in the southeast. Elevation within the City ranges from approximately 320 feet in the lowlands to approximately 1280 feet in the hills (USGS, 2016a). Due to the relatively flat topography within the City, runoff typically forms as sheet flow that is then intercepted by stormwater conveyance systems. However, stormwater can form concentrated, channelized flows in the San Jose Hills. Major drainages in the area, such as the San Gabriel River, flow to the southwest and eventually drain to the Pacific Ocean (USGS, 2016b).

The plan area is characterized by a typical Mediterranean climate, generally dry in the summer with mild, wet winters. Average summer temperatures in degrees Fahrenheit are in the 70's, with highs in the 90's and lows in the upper 50's (Idcide.com, 2016). Average winter temperatures are in the 50's, with highs in the upper 60's to low 70's and lows in the low to mid 40's (Idcide.com, 2016). Most rainfall occurs between December and March, with an average annual rainfall of 19 inches. The wettest months of the year are January and February, with an average rainfall of 4.33 and 4.37 inches, respectively (Idcide.com, 2016).

a. Surface Water. The California Department of Water Resources (DWR) divides surface watersheds in California into 10 hydrologic regions. The City of West Covina lies within the South Coast Hydrologic Region (HR), a large coastal watershed in southern California (CDF, 2004). The South Coast HR spans approximately seven million acres and is bounded on the west by the Pacific Ocean, on the north by the Transverse Ranges, on the east by the Colorado River HR, and on the south by the international boundary with Mexico (DWR, 2003). The DWR

subdivides Hydrologic Regions into Hydrologic Units (HUs), and further into Hydrologic Areas (HAs) and Hydrologic Subareas (HSAs). Within the South Coast HR, the City of West Covina is located within the San Gabriel River HU (CDF, 2004). The Los Angeles Regional Water Quality Control Board (LARWQCB) governs basin planning and water quality within the San Gabriel River HU (LARWQCB, 1994). Within the San Gabriel River HU, the City is located entirely within the Upper San Gabriel HA (CDF, 2004).

West Covina includes both undeveloped open space with natural drainage features and urban development with highly altered drainage systems, such as concrete lined washes and underground stormwater systems. The five National Hydrography Dataset named streams that flow within the City's boundaries include Big Dalton Wash, Charter Oak Creek, Puente Creek, Vine Creek, and Walnut Creek (USGS, 2016). These streams are shown in Figure 4.8-1, Major Drainages. Puente Creek and Vine Creek descend from the San Jose Hills in the southern and eastern portions of the City, respectively. Walnut Creek runs east to west through the middle of the City, south of and roughly parallel to Interstate 10. Big Dalton Wash and Charter Oak Creek join Walnut Creek as tributaries from the north. San Jose Creek runs roughly east to west, just south of the City. The San Gabriel River, which begins in the San Gabriel Mountains to the north and flows south across the coastal plain before entering the Pacific Ocean near Seal Beach, is located approximately two miles west of the City (USGS, 2016). Walnut Creek joins the San Gabriel River at this point. Runoff that occurs as overland flow in the City is intercepted by the stormwater drainage system and is routed via one of the drainages described above towards the San Gabriel and Rio Hondo rivers and eventually to the Pacific Ocean. For a description of jurisdictional features, including wetlands, that are located within the City, see Section 4.3, *Biological Resources*.

Areas that are subject to flood risk are identified by the Federal Emergency Management Agency (FEMA) on the National Flood Hazard Layer. As shown in Figure 4.8-3, most of the City is subject to flooding from a 500-year storm, and a few small areas that are associated with drainage channels are subject to flooding from a 100-year storm (FEMA, 2016). Flood risk within the City is discussed in more detail below.

b. Groundwater. West Covina is underlain by the San Gabriel Valley Groundwater Basin (DWR, 2004). The extent of the underlying groundwater basin within the City is shown in Figure 4.8-2, Groundwater Basins. The basin includes water-bearing sediments that underlie most of the San Gabriel Valley and a portion of the upper Santa Ana Valley (DWR, 2004). The northern boundary for the basin includes the Raymond fault and the San Gabriel Mountains. The basin is bound on the south and the west by the Repetto, Merced, and Puente Hills (DWR, 2004). The Chino and San Jose faults form the eastern boundary of the basin (DWR, 2004).

The San Gabriel Valley Groundwater Basin covers a surface area of 255 square miles and has an estimated storage capacity of approximately 10.7 million acre-feet (DWR, 2004). Groundwater levels in the basin have fluctuated historically more than 95 feet in elevation. In 1999, groundwater levels were within approximately 10 feet of their 200-year mean (DWR, 2004). Concerns about the sustainability of groundwater supply in the basin led to the adjudication of water rights and the establishment of a Main San Gabriel Basin Watermaster in 1973. At that time, the Watermaster estimated that the basin contained approximately 7.85 million acre-feet of

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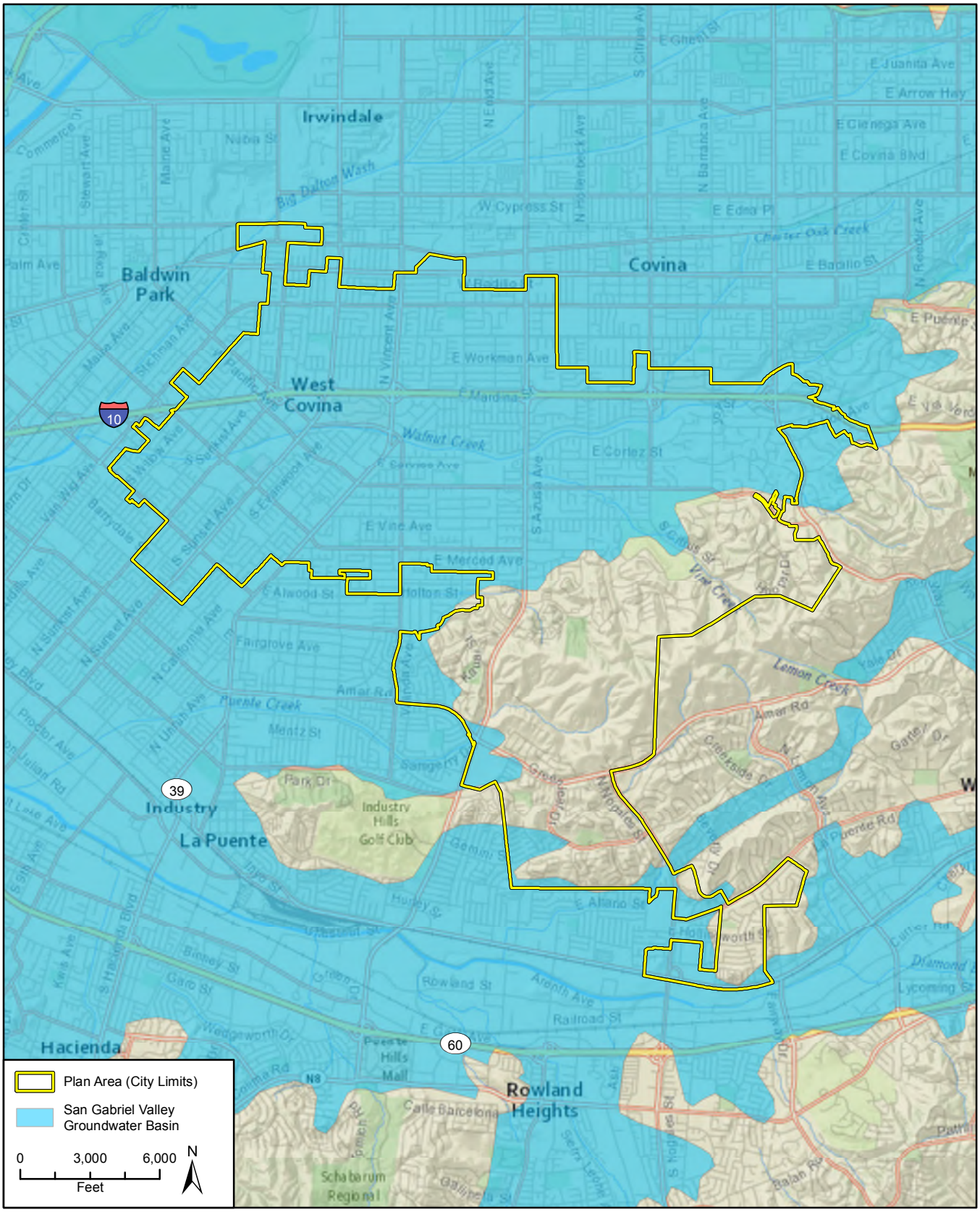
Additional data provided by US Geological Survey, 2016.

Major Drainages

Figure 4.8-1



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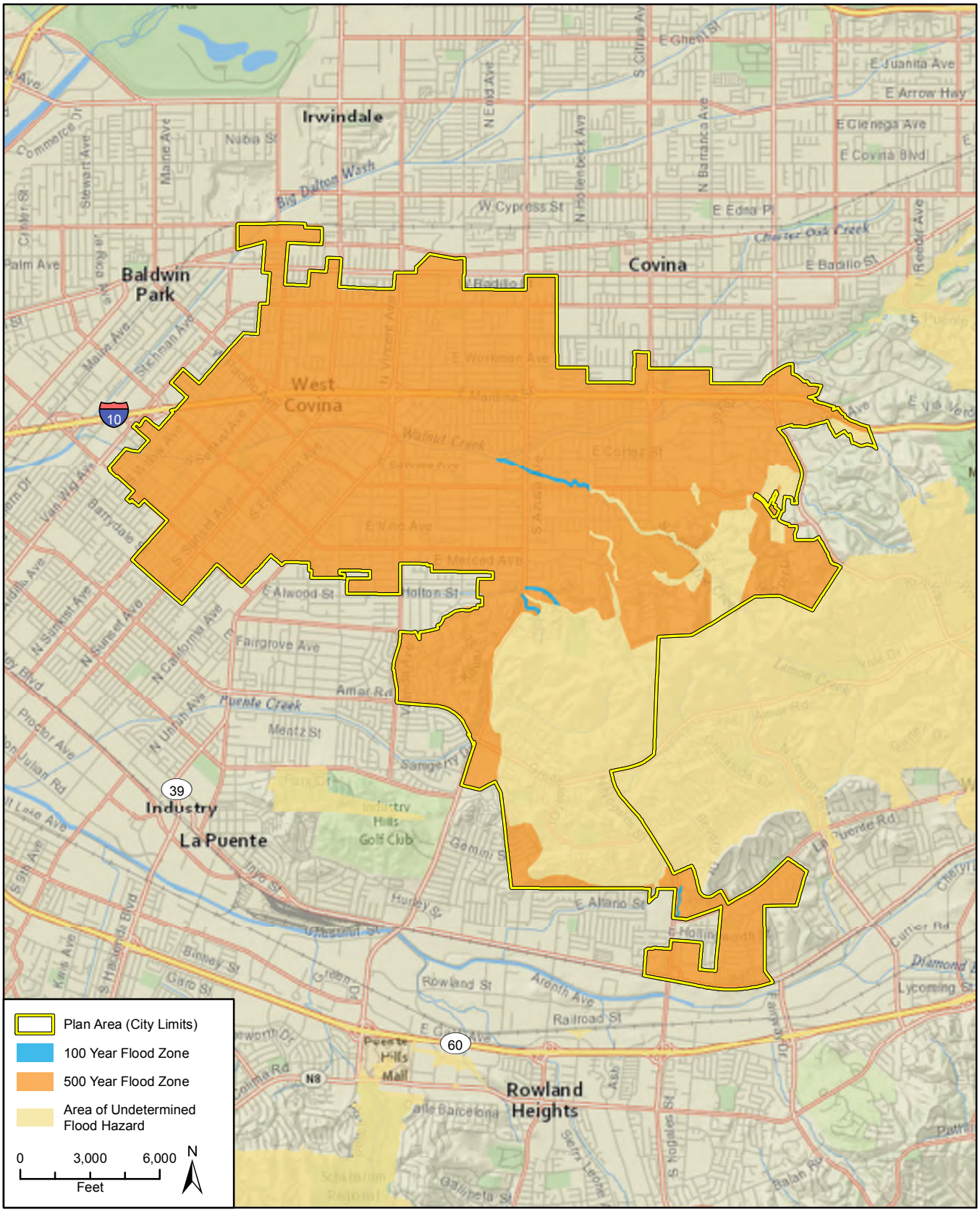
Additional data provided by California Department of Water Resources, 2016.

Groundwater Basins

Figure 4.8-2



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Additional data provided by FEMA, 2016.

Flood Hazard Zones

Figure 4.8-3

water in storage (MSGBW, 2015). The Watermaster estimated the amount of water in storage in 2015 at 7.45 million acre-feet, and attributed the decline compared to historic levels to the effects of the current drought (MSGBW, 2015). Groundwater contamination is widespread throughout the basin. Volatile organic compounds (VOCs) are the most prevalent form of contamination (EPA, 2014). Groundwater quality in the basin is discussed in more detail below.

c. Water Supply. Approximately 80% of West Covina's potable water is from the local groundwater basin. This groundwater is supplied by several water agencies, the largest of which is Suburban Water Systems. Additional sources of potable water include local surface water from the San Gabriel River, imported water from the Colorado River and the State Water Project, and recycled water purchased from the Los Angeles County Sanitation District. See Section 4.15, *Utilities*, for additional details about water supply and demand for the City.

d. Water Quality

Stormwater and Urban Runoff. Water quality in the City is governed by the Los Angeles Regional Water Quality Control Board (LARWQCB), which sets water quality standards in the Water Quality Control Plan for the Los Angeles Region (Basin Plan). The Basin Plan identifies beneficial uses for surface water and groundwater and establishes water quality objectives to attain those beneficial uses. The identified beneficial uses and the water quality objectives to maintain or achieve those uses are together known as water quality standards. Within West Covina, the LARWQCB Basin Plan identifies beneficial uses for Big Dalton Wash, Puente Creek, and Walnut Creek Wash (LARWQCB, 1994). Table 4.8-1 presents the beneficial uses for surface waters within the City.

Table 4.8-1
Basin Plan Beneficial Uses

Waterbody	Beneficial Uses
Big Dalton Wash	Municipal and Domestic Supply (MUN)[b], Ground Water Recharge (GWR)[c], Warm Freshwater Habitat (WARM)[b], Wildlife Habitat (WILD)[b]
Puente Creek	MUN[b], GWR[c], WARM[b], WILD[b]
Walnut Creek Wash	MUN[b], GWR[c], WARM[c], WILD[a], Wetland Habitat (WET)[a]

Source: LARWQCB Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, 1994
[a] *Existing beneficial use.*
[b] *Potential beneficial use.*
[c] *Intermittent beneficial use.*

The Clean Water Act (CWA) 303(d) list is a register of impaired and threatened waters which the CWA requires all states to submit for Environmental Protection Agency approval. The list identifies all waters where the required pollution control measures have so far been unsuccessful in reaching or maintaining the required water quality standards. Waters that are listed are known as "impaired." CWA Section 303(d) lists two water bodies within the City. Puente Creek, identified above, is listed as impaired by pathogens and metals (SWRCB, 2010). A Total Maximum Daily Load (TMDL) for each of these impairments is required but none has been established yet. Walnut Creek Wash is listed as impaired by pathogens and is also listed for failure to achieve water quality standards for pH and benthic-macroinvertebrate community

health (SWRCB, 2010). A TMDL is required for each of these impairments but none has been prepared.

Stormwater runoff may play a role in the water quality impairments described above. Runoff that occurs as overland flow across yards, driveways, and public streets is intercepted by the stormwater drainage system and conveyed to local drainages before eventually being routed to the Pacific Ocean via the San Gabriel and Rio Hondo rivers. This stormwater can carry pollutants that can enter the local waterways and result in the types of water quality impairments described above. Common sources of stormwater pollution in the City include litter, trash, pet waste, paint residue, organic material (yard waste), fertilizers, pesticides, sediments, construction debris, metals from automobile brake pad dust, air pollutants that settle on the ground or attach to rainwater, cooking grease, illegally dumped motor oil, and other harmful fluids.

Drinking Water. The majority of drinking water in West Covina is supplied by Suburban Water Systems, an investor-owned water utility that sources approximately 80% of its water from local groundwater. Several contaminant plumes, including nitrates, VOCs, and perchlorate, are present in the San Gabriel Valley Groundwater Basin. Four areas of groundwater contamination have been listed in the National Priorities List. These sites are commonly known as Superfund sites. Cleanup projects in the basin began in 1992, and cleanup efforts at each of the four Superfund areas remain in progress today. Despite the longstanding and widespread contamination of the San Gabriel Valley Groundwater Basin, the quality of the drinking water sourced from that basin is high. Water suppliers strategically avoid contaminant plumes and implement a rigorous water quality testing program to ensure that drinking water supplies are clean. Based on information provided in the latest water quality report for the largest water purveyor in the City, the water supply meets or exceeds all current drinking water regulations and standards (Suburban Water Systems, 2014).

e. Flood Hazards.

Flood hazards can occur when the amount of rainfall exceeds the infiltration capacity of the surrounding landscape or the conveyance capacity of the stormwater drainage system. West Covina historically has experienced flooding following large rainstorms. Walnut Creek, which bisects the northern portion of the City, would in the past overflow its banks and flood surrounding agricultural land (City of West Covina, 2004). In 1913, a major flood wiped out the year's wheat crop and threatened much of the City. A series of dams and flood control channels throughout the San Gabriel River watershed were constructed in the 1920s and 1930s. These flood control structures substantially reduced the threat of flooding in the City of West Covina. However, despite the presence of extensive floodplain protection in the San Gabriel Valley, rainstorms in 1978 resulted in approximately $300,000 of damage in the City (City of West Covina, 2004). Rainstorms in 1992 also resulted in damage to residences and businesses throughout the City.

Flood risk is defined as an annual percent-chance of flooding, or the probability that flooding would occur in any given year. Although a 100-year flood will, on average, occur once every 100 years, the probability of a 100-year flood is 1% for any particular year. Two 100-year floods could occur in the same year or even in the same month, but the likelihood that two 100-year

flood events would occur consecutively is very small. FEMA designates most of the City as Zone X (shaded), which is an area subject to flooding from the 500-year flood (0.2% annual chance of flooding). Flood insurance is not mandatory for structures in Zone X. Much of the southern portion of the City is designated as Zone D, which is an area of undetermined flood risk (FEMA, 2016). This area of the City generally coincides with the presence of the San Jose Hills. The purchase of flood insurance in this area is not mandatory. Three small areas within the City are designated as Zone A, which are areas that are subject to flooding from a 100-year flood event (FEMA, 2016). One of these areas is associated with Vine Creek near its terminus south of Walnut Creek Wash (FEMA, 2016). The other two areas are associated with unnamed intermittent creeks that flow from the northern slopes of the San Jose Hills, near the South Hills Plaza Shopping Center (FEMA, 2016). Flood insurance is mandatory for structures within Zone A. FEMA-designated flood zones within the City are shown on Figure 4.8-3, Flood Hazard Zones.

Dam Inundation. A series of dams provides flood control throughout the San Gabriel River watershed. Three large impoundments occupy the coastal floodplain of the San Gabriel River: the Puddingstone Dam, the Santa Fe Dam, and the Whittier Narrows Dam. Several dams are sited throughout the upper watershed, including: the Big Dalton Dam, the Cogswell Dam, the Morris Dam, the San Dimas Dam, and the San Gabriel Dam. Inundation of portions of the City could occur following the failure of the Puddingstone Dam, the San Dimas Dam, or the Santa Fe Dam (LA County, 2016).

Of the dams listed above, the Santa Fe Dam is located closest to the City, approximately one mile to the north. The Santa Fe Reservoir serves primarily as a flood protection structure and is dry most of the time. The reservoir and spreading grounds also serve to enhance groundwater infiltration in the area. Failure of the Morris or San Gabriel dams would result in floodwater filling the Santa Fe Reservoir. Failure of the Santa Fe Dam during a time when the reservoir was full would result in flooding of downstream communities, including the northwestern portion of West Covina (LA County, 2016).

Failure of the San Dimas Dam would result in floodwater flowing to the Puddingstone Diversion Reservoir. From the diversion reservoir, water is routed to either Puddingstone Reservoir or San Dimas Wash. All flows over the dam spillway enter San Dimas Wash, which eventually joins Big Dalton Wash. The northwest corner of the City is crossed by Big Dalton Wash. San Dimas Reservoir is operated primarily for flood control purposes and the reservoir is periodically drained. Failure of the San Dimas Dam at a time when the reservoir was full would result in flooding of most of the northern portion of the City (LA County, 2016).

Puddingstone Dam and Reservoir is located approximately three miles to the east of the city, in the Frank G. Bonelli Regional Park. This manmade reservoir is utilized for flood control purposes and is owned and maintained by the Los Angeles County Department of Public Works. Failure of the Puddingstone Dam would result in floodwater entering Walnut Creek Wash. Failure of the dam at a time when the reservoir was full would result in the flooding of much of the central portion the City, northwest of the San Jose Hills and adjacent to Walnut Creek Wash (LA County, 2016).

f. Regulatory Framework.

Federal

Clean Water Act. Congress enacted the Clean Water Act (CWA), formerly the Federal Water Pollution Control Act of 1972, with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is administered by the California State Water Resources Control Board (SWRCB) and its' nine Regional Water Quality Control Boards (RWQCB). The City is within a watershed administered by the LARWQCB.

Individual projects within the City that disturb more than one acre would be required to obtain NPDES coverage under the California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit). The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing Best Management Practices (BMPs) the discharger would use to prevent and retain stormwater runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

Section 401 of the CWA requires that any activity that would result in a discharge into waters of the U.S. be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. Section 404 of the CWA authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. Discharges to waters of the U.S. must be avoided where possible, and minimized and mitigated where avoidance is not possible. See Section 4.3, *Biological Resources*, for a description of jurisdictional waters within the City. Section 303(d) of the CWA requires states to establish TMDL programs for streams, lakes and coastal waters that do not meet certain water quality standards.

National Flood Insurance Act/Flood Disaster Protection Act. The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws are relevant because they led to mapping of regulatory floodplains and to local management of floodplain areas according to guidelines that include prohibiting or restricting development in flood hazard zones.

State

California Porter Cologne Water Quality Control Act. The Porter Cologne Water Quality Control Act of 1967 requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for State waters within the City are contained in the Water Quality Control Plan for the Los Angeles

Region (LARWQCB, 1994). The Water Quality Control Plan, or Basin Plan, protects designated beneficial uses of State waters through the issuance of Waste Discharge Requirements (WDRs) and through the development of Total Maximum Daily Loads (TMDLs). Anyone proposing to discharge waste that could affect the quality of the waters of the State must make a report of the waste discharge to the RWQCB or SWRCB as appropriate, in compliance with Porter-Cologne.

California Streambed Alteration Agreement. Sections 1600–1616 of the California Fish and Game Code require that any entity that proposes an activity that would substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or, deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, must notify the California Department of Fish and Wildlife (CDFW). The CDFW would require a Lake or Streambed Alteration Agreement if the Department determines that the alteration may adversely affect fish and wildlife resources. The Agreement includes conditions necessary to protect those resources. The Agreement applies to any stream, including ephemeral streams and desert washes.

Local. The WCMC contains several ordinances that pertain to hydrology and water quality. Chapter 9 of the WCMC relates to drainage and grading. That chapter contains regulations and permit requirements that implement BMPs and project design standards for erosion control, stormwater damage protection, illicit discharges of pollutants and polluted runoff, and development within floodways and flood hazard areas. Section 9-36 contains requirements for new development and redevelopment projects in the City. New development and redevelopment projects are required to comply with standard urban stormwater mitigation plan (SUSMP) conditions, including low impact development (LID) structural and non-structural BMPs and source control BMPs. The SUSMP was developed in order to meet the requirements of the Los Angeles County Municipal Separate Storm Sewer System (MS4) permit (LARWQCB, 2012).

4.8.2 Impact Analysis

a. Methodology and Significance Thresholds

Methodology. This section describes the potential environmental impacts of the proposed project relevant to hydrology and water quality. The impact analysis is based on an assessment of baseline conditions for the proposed project area, including climate, topography, watersheds and surface waters, groundwater, and floodplains, as described in Section 4.8.1, *Setting*. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to the predicted development that would occur under the proposed project. This section describes impacts in terms of location, context, duration, and intensity, and recommends mitigation measures, when necessary, to avoid or minimize impacts.

Significance Thresholds. The following thresholds of significance are based on Appendix G to the CEQA Statute and Guidelines. For the purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would:

- *Violate any water quality standards or waste discharge requirements*

- *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)*
- *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site*
- *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site*
- *Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff*
- *Otherwise substantially degrade water quality*
- *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map*
- *Place within a 100-year flood hazard area structures which would impede or redirect flood flows*
- *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam*
- *Expose people or structures to significant risk or loss, injury or death involving inundation by seiche, tsunami, or mudflow*

b. Project Impacts and Mitigation Measures.

Threshold:	*Would the proposed project violate any water quality standards or waste discharge requirements?*

Impact HYD-1 **Development facilitated by the proposed project could potentially result in an increase in pollutant discharges to waters of the State, but compliance with PlanWC policies and actions, as well as existing regulatory requirements, would help avoid such impacts. The proposed project would therefore not violate water quality standards or waste discharge requirements, and this impact would be *less than significant*.**

Construction. Construction activities facilitated by the proposed project could include road improvements and realignments, installation and realignment of utilities, demolition of existing structures for replacement, new development, and the potential replacement and/or improvement of drainage facilities. Water quality degradation from construction would be specific to each construction site. The topography of the site, the amount of soil disturbance, the duration that disturbed soil would be exposed, the amount of rainfall and wind that would occur during construction, and the proximity of the nearest waterbody all affect the potential for water quality degradation during construction. Generally, new development facilitated by the proposed project would be focused around the Downtown area and several other districts, corridors, and neighborhood centers. Figures 2-2 and 2-3 in Section 2.0, *Project Description*, show the proposed citywide and Downtown land uses, respectively. PlanWC and Downtown Plan

and Code encourage development in the Downtown and Eastland districts; the Azusa, Glendora, and Sunset corridors; and the Puente Avenue, Aroma Drive, Amar Road, and Nogales Street neighborhood centers.

Construction of future developments could result in soil erosion due to earth-moving activities such as excavation and trenching for foundations and utilities, soil compaction and moving, cut and fill activities, and grading. If not managed properly, disturbed soils would be susceptible to high rates of erosion from wind and rain, resulting in sediment transport via stormwater runoff from the construction sites. The types of pollutants contained in runoff from construction sites would be typical of urban areas, and may include sediments and contaminants such as oils, fuels, paints, and solvents. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages and ultimately into collecting waterways, contributing to degradation of water quality.

Individual construction activities that disturb one or more acres of land surface are subject to the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) adopted by the SWRCB. Compliance with the permit requires each qualifying development project to file a Notice of Intent with the SWRCB. Permit conditions require development of a SWPPP, which must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and non-stormwater management controls. Inspection of construction sites before and after storms is also required to identify stormwater discharge from the construction activity and to identify and implement erosion controls, where necessary.

For construction activities that would be subject to a Construction General Permit, Section 9-34 of the WCMC requires proof of application for the NPDES permit prior to issuance of a grading permit from the City and prior to commencement of any construction activities. The grading permit includes requirements for protective measures, such as desilting basins or other temporary drainage or control measures, for any work performed between October 1 of any year and April 15 of the following calendar year.

For new developments and redevelopment projects, Section 9-36 of the WCMC requires implementation of a standard urban stormwater mitigation plan (SUSMP) that the City would review and approve prior to construction and operation of a new development. The SUSMP shall include conditions that consist of LID structural and non-structural BMPs, source control BMPs, and structural and non-structural BMPs for specific types of uses. LID controls reduce the amount of impervious area of a completed project site and promote the use of infiltration and other controls that reduce runoff. Source control BMPs prevent runoff contact with pollutants that would otherwise be discharged to the municipal stormwater conveyance system. Specific structural controls are required to address pollutant discharges from certain uses including housing developments, retail gasoline outlets, automotive-related facilities, restaurants, and industrial and commercial facilities where pollutants are disposed, stored, or handled. The City's stormwater management program or watershed management program contains specific conditions and procedures for meeting development and SUSMP

requirements. The program contains an updated SUSMP guidance manual, a LID impact design manual, and USEPA's Green Street guidance manual.

City officers have the authority to inspect facilities when a reasonable belief exists that there may be a violation of stormwater or other pollutant discharge conditions. The city attorney is authorized to file in a court of competent jurisdiction a civil action seeking an injunction against any violation of the City's stormwater and pollutant discharge requirements.

Erosion from new construction projects or redevelopment projects in the City would be controlled through implementation of the requirements and BMPs contained in existing regulations, including the NPDES Construction General Permit, the SUSMP, and the City's grading permit. PlanWC also includes policies and actions designed to minimize stormwater runoff and support groundwater recharge. Policy P1.4 is to continue to protect areas of beneficial natural groundwater recharge by preventing uses that could contaminate soil or groundwater. Policy P1.5 requires that, where possible, new development shall minimize impervious area, minimize runoff and pollution, and incorporate best management practices for new development.

Compliance with the regulations and policies discussed above would reduce the risk of water degradation within the City from soil erosion and other pollutants related to construction activities. Because violations of water quality standards would be minimized, impacts to water quality from construction activities facilitated by the proposed project would be less than significant.

Operation. West Covina is largely built out with urban development. Parks and open space represent approximately 6% of the total land area in the City. Vacant land represents a very minor amount of the City's total land area, and is primarily found interspersed with industrial land uses. The BKK District, a former landfill, represents the largest amount of vacant land in the City and occupies approximately 6% of the total land area. Future development envisioned by PlanWC and Downtown Plan and Code is based on the improvement of existing patterns of development. Due to the general lack of vacant land in the City, most development would occur as streetscape improvement, redevelopment, and infill development within designated districts, corridors, and neighborhood centers. Development within the Downtown district is given the highest priority. Because PlanWC and the Downtown Plan and Code focus on redevelopment of existing urbanized areas, and because both plans contain policies to minimize impervious area (see Policy P1.5, described above), development facilitated by the proposed project would not result in a net increase of impervious surfaces.

Because the proposed project would not result in a net increase of impervious surfaces, volumes or rates of discharge and associated pollutants in runoff would remain unchanged compared to current conditions. However, operation of future development facilitated by the proposed PlanWC and Downtown Plan and Code could potentially result in the addition of contaminants into both the stormwater runoff entering the City's stormwater drainage system and the wastewater stream entering the local wastewater collection and treatment system. If stormwater controls are not designed or managed properly, runoff from urban development could contain contaminants such as oil, grease, metals, and landscaping chemicals (pesticides, herbicides,

fertilizers, etc.) that could enter the City's stormwater drainage system and ultimately degrade surface water and groundwater quality.

Illicit discharges to the municipal stormwater system are prohibited by the WCMC, and any entity found to be engaging in illicit discharges may be held liable for the cost of clean-up and remediation. Despite the WCMC prohibition related to illicit discharges, the possibility of illicit discharges to the municipal stormwater system cannot be eliminated completely. The WCMC also contains requirements for new development and redevelopment projects to minimize pollutants in stormwater runoff. These requirements are described above and are detailed in the City's stormwater management program and watershed management program. The WCMC's stormwater discharge requirements are designed to achieve compliance with the LARWQCB's NPDES permit for MS4 Discharges within the Coastal Watersheds of Los Angeles County (Order No. R4-2012-0175). Discharges to the City's stormwater conveyance system that would not be covered by the MS4 general NPDES permit would be required to obtain coverage under an individual NPDES permit or comply with individual Waste Discharge Requirements, as approved by the LARWQCB.

The required SUSMP for new development would reduce runoff and increase infiltration over the operational lifespan of that new development. Compliance with the WCMC and adherence to PlanWC policies would maximize permeable surface for new development and would reduce or eliminate polluted runoff from operational activities. Disposal of waste to the sanitary sewer is regulated by the WCMC. Pre-treatment of industrial waste is required. Any waste discharges would be intercepted by the Los Angeles County Sanitation District wastewater treatment system and processed appropriately prior to discharge to a water of the State. See Section 4.15, *Utilities*, for a more detailed discussion of wastewater treatment.

Compliance with PlanWC policies and actions and the requirements of the WCMC would maximize infiltration of stormwater, minimize stormwater runoff, and prevent or remediate illicit discharges of pollutants to the municipal stormwater conveyance system. Compliance with NPDES permits requirements, the WCMC, and PlanWC policies would reduce the risk of water contamination within the City from operation of new developments to the maximum extent practicable. Therefore, this impact would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?*

Impact HYD-2 With implementation of policies included in PlanWC and the Downtown Plan and Code, impacts related to the depletion of groundwater supplies or interference with groundwater recharge would be *less than significant.*

Construction activities carried out under the proposed project could lower the local groundwater level during dewatering activities, if required. This potential impact would be temporary, local, and minor. Water supply wells within the City would be unaffected by any construction-related dewatering activities. Water use during construction, such as for dust suppression or concrete mixing, would be temporary and minimal and would not substantially lower the groundwater level in the San Gabriel Valley Groundwater Basin.

Development facilitated by the proposed project could potentially interfere with groundwater recharge through the creation of new impervious surfaces. For new developments and redevelopment projects, Section 9-36 of the WCMC requires implementation of an SUSMP that the City would review and approve prior to construction and operation of a new development. The SUSMP shall include conditions that consist of LID structural and non-structural BMPs, source control BMPs, and structural and non-structural BMPs for specific types of uses. LID controls reduce the amount of impervious area of a completed project site and promote the use of infiltration and other controls that reduce runoff. PlanWC and the Downtown Plan and Code also include policies and actions designed to minimize stormwater runoff and support groundwater recharge. Plan WC Policy P1.5 requires that, where possible, new development shall minimize impervious area, minimize runoff and pollution, and incorporate best management practices for new development. Downtown Plan Policy 11.2 directs the City to promote best practices for water conservation, re-use, and retention as part of new construction, renovations, site improvements, and landscaping. Downtown Plan Policy 11.3 encourages the implementation of "green" streetscape elements for the purposes of, among other things, stormwater runoff management. Therefore, development carried out under the proposed project would not substantially interfere with groundwater recharge.

Implementation of the proposed project could potentially increase the demand for water resources. As described in Section 4.15, *Utilities*, approximately 54% of the water produced from West Covina's main water supplier (Suburban Water Systems) is currently sourced from the local groundwater basin. That percentage is projected to increase to 55% by 2035 (Suburban Water Systems, 2011). The level of growth anticipated under the proposed project is within the forecasts that are the basis of Suburban's projections. Therefore, the proposed project would not result in a substantial lowering of groundwater levels due to an increase in the demand for water. PlanWC encourages the use of recycled water where appropriate in order to further reduce the demand for potable water. Policy P5.7 directs the City to manage and develop a safe, reliable, and economical water supply for existing and planned new customers. Action A5.7a is to reduce demand for potable water through water conservation techniques. As described in the *Our Resilient Community* chapter of PlanWC, the City is studying the costs and benefits of extending recycled water use to additional parks and paseos in the southern part of the City.

Policies and actions within PlanWC and the Downtown Plan and Code, in conjunction with the requirements of the West Covina Municipal Code (WCMC), would minimize new net impermeable surfaces, maximize infiltration, prevent stormwater runoff, and encourage the use of recycled water. Implementation of these policies and actions and adherence to these requirements would ensure that impacts related to depletion of groundwater supplies or interference with groundwater recharge would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?*

Impact HYD-3 Development facilitated by the proposed project could alter existing drainage patterns within the City and potentially result in erosion and siltation. However, implementation of policies and actions included in PlanWC and the Downtown Plan and Code and adherence to the requirements of the WCMC would minimize impacts related to drainage pattern alteration. Impacts would be *less than significant*.

Construction. Construction activities associated with development facilitated by the proposed project would involve stockpiling, grading, excavation, dredging, paving, and other earth-disturbing activities resulting in the alteration of existing drainage patterns. Existing drainage patterns within West Covina are already highly altered and generally consist of stormwater collection and conveyance systems that route overland flow to a nearby flood control channel, such as the Walnut Creek Wash. Construction activities that would be facilitated by the proposed project would primarily occur in districts, corridors, and neighborhood centers that already possess extensive urban development. The existing drainage patterns in these developed areas would remain largely unchanged by infill construction and redevelopment activities. On-site drainage during construction activities would be regulated by the City through the discretionary issuance of a grading permit and by the LARWQCB through the enforcement of NPDES permit requirements. Compliance with existing regulations would ensure that impacts associated with alteration of existing drainage patterns would be less than significant.

Operation. Development facilitated by the proposed project would result in alterations to drainage patterns through structural changes to ground surface permeability and changes in topography from grading and excavation. As described under Impacts HYD-1 and HYD-2, Section 9-36 of the WCMC requires implementation of a SUSMP that the City would review and approve prior to construction and operation of a new development. The SUSMP shall include conditions that consist of LID structural and non-structural BMPs that reduce the amount of impervious area of a completed project site and promote the use of infiltration and other controls that reduce runoff. PlanWC also includes policies and actions designed to minimize stormwater runoff. Policy P1.5 requires that, where possible, new development shall minimize impervious area, minimize runoff and pollution, and incorporate best management practices for new development. Although the long-term presence of new developments or redeveloped structures would alter existing drainage patterns in the City, the drainage alterations would occur in areas that are already heavily urbanized and that are characterized primarily by municipal stormwater conveyance systems and flood control channels. Drainage alterations

would likely be limited to the disturbance footprint of each development. Any long-term drainage alterations would incorporate the policies and actions discussed above and would adhere to the requirements of the WCMC. Implementation of PlanWC policies and actions and adherence to WCMC requirements would maximize the amount of on-site infiltration and minimize the amount of off-site runoff. Operational impacts related to erosion and siltation due to alteration of drainage patterns would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*
Threshold:	*Would the proposed project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff*

Impact HYD-4 **Development facilitated by the proposed project would result in new impervious surfaces at various locations throughout the City. However, the overall flood potential is considered low and the implementation of proposed policies and actions included in the plans would minimize new impervious surfaces and reduce impacts related to flooding, stormwater drainage exceedances or increases in polluted runoff. Impacts would be *less than significant*.**

Development facilitated by the proposed project would be focused within several key areas, including designated districts, corridors, and neighborhood centers. Redevelopment would be focused primarily towards the Downtown area of the City and along major transportation corridors. These areas are highly urbanized and much of the land is covered with impervious surfaces, such as rooftops, pavement, and asphalt. New development or redevelopment that would be facilitated by the proposed project could incrementally increase the total impervious area within the City. However, as described above, implementation of PlanWC policies and actions and adherence to the requirements of the WCMC would maximize the on-site infiltration capacity for new development and redevelopment projects and would minimize the off-site runoff that would leave those project sites. In accordance with Section 9-62 of the WCMC, new development that would occur within flood-related erosion-prone areas known to the community shall be reviewed to determine whether the proposed site alterations and improvements would be reasonably safe from flood-related erosion and would not cause flood-related erosion hazards or otherwise aggravate the existing hazard. If a proposed development would be in the path of flood-related erosion or would increase the erosion hazard, the development shall be relocated or adequate protective measures shall be taken to avoid aggravating the existing erosion hazard. Potential impacts related to polluted runoff would be less than significant.

Flooding from a 500-year storm would affect most of the City. The flood risk for some areas in the southern and eastern portions of the City, within the San Jose Hills, is undetermined. Also, failure of any one of three nearby dams (Puddingstone, San Dimas, and Santa Fe) would result in inundation of most of the northern half of the City. Development carried out under the proposed project would not substantially alter the existing flood risk associated with a 500-year storm or failure of a nearby dam. As described in Section 4.8.1, *Setting*, the three nearby dams that could result in inundation of parts of the City following a dam failure are used primarily for flood control purposes. The reservoirs behind these dams are often dry or mostly dry, which substantially reduces the potential for inundation of the City following dam failure. Potential impacts related to increased flooding would be less than significant.

Stormwater conveyance within the San Gabriel River watershed is managed by the US Army Corps of Engineers, the Los Angeles County Flood Control District, and the Los Angeles County Department of Public Works. The City of West Covina manages stormwater conveyance through implementation of a Master Drainage Plan. As described above, development carried out under the proposed project would maximize on-site infiltration and minimize off-site runoff, and would not result in the discharge of stormwater that would exceed the stormwater conveyance capacity of existing or planned stormwater drainage systems. Potential impacts related to the exceedance of existing stormwater drainage capacity would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without the implementation of mitigation measures.

Threshold:	*Would the proposed project otherwise substantially degrade water quality?*

Impact HYD-5 With implementation of PlanWC policies and actions and adherence to West Covina Municipal Code requirements, development facilitated by the proposed project would not otherwise result in the degradation of groundwater quality, and this impact would therefore be *less than significant*.

Impacts HYD-1, HYD-3, and HYD-4, analyzed above, describe potential impacts to surface water quality. This analysis found that impacts to surface water quality due to construction and operation of development projects carried out under the proposed project would be less than significant.

Construction activities, including excavation and trenching related to development, may encounter shallow groundwater. In the event that shallow groundwater is encountered, dewatering of the excavation or trenching site may be required. If improperly managed, these dewatering activities could result in discharge of contaminated groundwater. In accordance with the Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties (Order No. R4-2013-0095, General NPDES Permit No. CAG994004), contaminated groundwater would be treated prior to discharge or disposed of at an appropriate disposal facility or wastewater treatment plant. The WCMC prohibits illicit discharges to the municipal

stormwater system, including discharges of contaminated groundwater. Also, discharges of dewatered groundwater to a water of the state would require authorization under a NPDES permit from the LARWQCB. Compliance with existing regulations would ensure that impacts related to water quality degradation through the discharge of dewatered groundwater would be less than significant.

In addition to concerns about the discharge of contaminated groundwater, construction and operation of development projects carried out under the proposed project could contaminate the groundwater basin through direct introduction of pollutants or through infiltration of contaminants. Common sources of groundwater contamination include leaking underground storage tanks, septic systems, oil fields, landfills, and general industrial land uses. Implementation of the proposed project would not involve construction of oil fields or landfills. New development and redevelopment projects would be required to discharge waste to a sanitary sewer system. Illicit discharges of waste to the municipal stormwater conveyance system, which could subsequently infiltrate into the underlying aquifer, would be prohibited by WCMC. PlanWC Policy P1.4 aims to protect areas of beneficial natural groundwater recharge by preventing uses that could contaminate soil or groundwater. Implementation of this policy and adherence to existing laws and regulations would ensure that impacts related to groundwater contamination from the proposed project would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*
Threshold:	*Would the proposed project place within a 100-year flood hazard area structures which would impede or redirect flood flows?*
Threshold:	*Would the proposed project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

Impact HYD-6 Development facilitated by the proposed project would not place housing, structures, or people within a 100-year flood zone. West Covina is located within the predicted dam inundation zone of the Puddingstone Dam, the San Dimas Dam, and the Santa Fe Dam; however, with implementation of PlanWC policies and FEMA requirements, impacts related to dam inundation would be *less than significant*.

FEMA designates most of West Covina as Zone X (shaded), which is an area subject to flooding from the 500-year flood (0.2% annual chance of flooding). Much of the southern portion of the City is designated as Zone D, which is an area of undetermined flood risk (FEMA, 2016). This area of the City generally coincides with the presence of the San Jose Hills. Three small areas

within the City are designated as Zone A, which are areas that are subject to flooding from a 100-year flood event, which is equal to a 1% annual chance of flooding (FEMA, 2016). One of these areas is associated with Vine Creek near its terminus south of Walnut Creek Wash (FEMA, 2016). The other two areas are associated with unnamed intermittent creeks that flow from the northern slopes of the San Jose Hills, near the South Hills Plaza Shopping Center (FEMA, 2016). Flood insurance is mandatory for structures within Zone A. None of the PlanWC or Downtown Plan priority development zones are located within a Zone A flood hazard zone.

Stormwater conveyance within the San Gabriel River watershed is managed by the US Army Corps of Engineers, the Los Angeles County Flood Control District, and the Los Angeles County Department of Public Works. The City of West Covina manages stormwater conveyance through implementation of a Master Drainage Plan. These regional and local flood control systems minimize flood risk for structures within the City. Development projects carried out under the proposed project would not impede or redirect flood flows or place housing within a 100-year flood zone. Impacts related to diversion of or damage from a 100-year flood would be less than significant.

Failure of the Puddingstone Dam, the San Dimas Dam, or the Santa Fe Dam would result in flooding of large portions of the City. Flooding impacts from dam failure would be located mainly in the northern portion of the City, northwest of the San Jose Hills. Development carried out under the proposed project would not increase the risk of flooding in the City due to dam failure, but would result in the exposure of additional people and structures to the risk of flooding due to dam failure. Without implementation of the proposed project, development in the City would subject to current zoning and General Plan land use restrictions. As with development that would be carried out under the proposed project, development carried out under the current zoning and General Plan land use designations would likely result in the placement of structures within areas that would be inundated following failure of the Puddingstone Dam, the San Dimas Dam, or the Santa Fe Dam. Compliance with the CBC and Section 7-18.15 of the WCMC would ensure that new development or redevelopment projects would incorporate adequate flood protection measures, such as drainage facilities, protective walls, suitable fills, or elevated floors. Compliance with existing regulations would ensure that impacts related to inundation following dam failure would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

Threshold:	*Would the proposed project expose people or structures to significant risk or loss, injury or death involving inundation by seiche, tsunami, or mudflow?*

Impact HYD-7 **Development facilitated by the proposed project could result in inundation be seiche, tsunami, or mudflow. However, with implementation of PlanWC policies, impacts would be *less than significant*.**

The City of West Covina is not located within a tsunami inundation area and therefore development carried out under the proposed project would not be subject to inundation by tsunami (DOC, 2016). There is only one open reservoir in the City of West Covina. The reservoir is used for landscape irrigation at the South Hills Country Club and is also known as Lake West Covina (City of West Covina, 2004). It holds approximately 10,000 gallons of water and is located in a natural basin with no constructed dam (City of West Covina, 2004). This reservoir is not of sufficient size to result in a seiche during a seismic event. Also, the reservoir is not located near one of the proposed priority development areas and development that would be carried out under the proposed project would not likely be located near this reservoir. The majority of the City of West Covina is relatively flat and urbanized. Mudflow could occur following a rainstorm within and near the San Jose Hills in the southeastern portion of the City. Development projects in this area could be inundated by mudflow following a rainstorm. However, compliance with existing laws and regulations including the California Building Code and Section 7-18.15 of the WCMC would ensure that new development or redevelopment projects would incorporate adequate flood protection measures, such as drainage facilities, protective walls, suitable fills, or elevated floors. These flood protection measures would also minimize damage from mudflow. Compliance with existing regulations would ensure that impacts related to inundation from mudflow would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. This impact would be less than significant without mitigation.

c. Cumulative Impacts. Because the proposed project is composed of a General Plan update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. Implementation of the policies in PlanWC and the Downtown Plan, combined with compliance with existing laws and regulations, would ensure that cumulative hydrology and water quality impacts would be less than significant.

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4.9 LAND USE AND PLANNING

This section summarizes the City's land use characteristics—both the overall land use pattern as well as more detailed analysis by major land use type—and analyzes existing plans and focus areas with development potential in order to determine the potential environmental effects of the proposed project related to Land Use and Planning.

4.9.1 Setting

a. Current Land Use Pattern. Figure 2-4 in Chapter 2, *Project Description*, shows the Land Use Map from the City's current General Plan. The general distribution of land uses within the City is shown in Table 4.9-1. Although residential land uses comprise the majority of the City's land area, West Covina is characterized by a diverse range of land uses. Public and institutional space, found throughout the City, makes up the second largest portion of land area in the City. Less predominant in terms of land area are industrial, commerce, parks and open space, and the BKK district. Vacant lands comprise a minor percentage of the total land area and are located throughout the City, within industrial land uses (approximately 3 acres) and the BKK district (approximately 542 acres), totaling approximately 545 acres of vacant land.

Table 4.9-1
Existing Land Use Summary

Land Use Type	Acres	Parcels	Percent of Total
Neighborhood Low	5,385	18,557	63%
Neighborhood Medium	337	301	4%
Neighborhood High	12	18	<1%
Commerce	581	479	7%
Industry	51	45	1%
Public & Institutional	833	72	10%
Parks & Open Space	499	209	6%
Downtown District	229	173	3%
BKK District	542	9	6%

Source: PlanWC, 2016.

b. Existing Plans.

1985 General Plan. The current West Covina General Plan was adopted in 1985 and is the third General Plan since the original plan was adopted in 1962. One of the major revisions in the 1985 General Plan was ensuring consistencies between land use, zoning and the General Plan. A new land use map indicated the amendments and brought about the necessary consistencies. Some of the key goals and objectives related to land use are summarized below.

1985 General Plan Land Use Goals

1. Preserve the essential residential character of West Covina City of Beautiful Homes.

2. Provide for a range of non-residential uses that will ensure a strong economic base for the City.
3. Preserve and enhance the central business district and Eastland commercial areas through creative land use planning to avoid vacant and underutilized commercial properties.
4. Arrange land uses with regard to the health, safety, convenience and welfare of the residents of the City.
5. Provide, in conjunction with the Circulation Element, a pattern of streets that minimizes the impacts of motor vehicles on residential neighborhoods, while providing a safe and efficient means of circulation within the City.
6. Provide and maintain, in conjunction with the Open Space Element, an aesthetically pleasant environment for those who live, work, play and visit West Covina.
7. The City's land use pattern and development should reflect the needs and desires of its citizens and reinforce the City as a community of high quality, stability and good taste.

c. PlanWC and Downtown Plan and Code. PlanWC contains a description of the different land use planning designations proposed for West Covina, and the equivalent Transect zone. The Transect is a system of natural-to-urban Transect zones or 'human habitats'. The Transect zone in PlanWC is noted with its equivalent land use designation. Transect zoning provide a simple but powerful framework to allow a community to describe with precision a broad but continuous range of environments for human habitation and activity. The Transect zones reflect how intensely land is used, and how placement and scale of buildings, the type of streets, presence and width of sidewalks should reinforce the character of the area. Under PlanWC's Transect-based system, the allocation of separate land use designations evolves to a geography of places that address "form and character" of the place and informs the nature of intended change in different areas. The basic organizing place types for areas designated for growth are neighborhoods, districts and corridors. The majority of new growth would be directed to the Downtown district and the corridors identified in PlanWC, described in more detail below. The level of change ranges from reinvestment in existing buildings and minor improvements to utility infrastructure and the public realm, to the occasional infill development that completes the prevalent development pattern.

PlanWC establishes the regulatory geography and sets the stage for coding. The Downtown Plan and Code's regulatory framework seamlessly carries the logic of good design and sound planning from the scale of a building, lot and block to the scale of neighborhood, community, and city.

West Covina Transects and Land Uses. West Covina is a built out city that does not have rural areas corresponding to the Transect's T-2 zone. Special Districts (SD) are areas in West Covina that usually should not be regulated by normative Transect Zoning because of their special purpose or large size. Examples of special districts are the hospital campus and BKK. Below are the different land uses within the City proposed by PlanWC and the Downtown Plan and Code, and the Transect designation for each district. Figure 2-2 of Chapter 2, *Project Description*, shows the location of the different land uses within the City and Figure 2-3 shows the different Transect zones within the Downtown area.

1. **Neighborhood Low – T3 Sub-Urban and T4 General Urban**. This land use emphasizes detached houses with some attached units in a small mix of building types from 0 up to 8 dwelling units per acre. Predominantly residential, with opportunity for limited home occupation and neighborhood services sensitively located along corridors and at intersections.
2. **Neighborhood Medium – T3 Sub-Urban, T4 General Urban and T5 Urban Center.** This land use anticipates a mixture of detached and attached dwellings and higher building types at approximately 9 to 20 dwelling units per acre. Predominantly residential with small scale commercial at key locations, primarily next to intersections and adjacent to corridors.
3. **Neighborhood High – T4 General Urban through T6 Urban Core**. This land use accommodates a broader mix of building types, primarily attached, from 21 to 54 dwelling units per acre; a mix of residential, commercial, office, and entertainment that includes mixed-use buildings.
4. **Commerce – T4 General Urban though T6 Regional Center, Urban Core, Neighborhood Center**. This land use encourages a wide range of building types anywhere from two to six stories that house a mix of functions, including commercial, entertainment, office, and housing.
5. **Industry – T4 to T6 Urban Core**. This land use encourages intensive manufacturing, processing, warehousing and similar uses, as well as light, clean industries and support offices; also encourages workplace serving retail functions and work-live residences where such secondary functions would complement and be compatible with industrial uses. Primarily large-scale building. Also can be developed as Transit Oriented Development, employment center or working village with a mix of uses.
6. **Civic – T1 Preserve though T6 Urban Core**. This land use accommodates civic functions such as government, offices, libraries, schools, community center, and places of religious worship.
7. **Parks and Open Space – T1 Preserve though T6 Urban Core**. This land use is to designate lands to public recreation and leisure and visual resources, and can range from neighborhood tot lots and pocked parks to urban squares and plazas and playgrounds to large regional parks and natural preserves.

Focus Areas

Districts. Districts consist of streets or areas emphasizing specific types of activities and exhibiting distinct characteristics. The following four districts are identified in PlanWC and designated for growth: Downtown, Eastland, Auto Plaza, and BKK (former landfill site).

Corridors. Corridors can be natural or urban and often form boundaries, as well as connections, between neighborhoods and/or districts. Urban corridors can be transportation thoroughfares that frequently encompass major access routes, especially ones with commercial destinations, including transit routes. The following four urban corridors are identified in PlanWC as designated for growth: North Azusa Avenue, Glendora Avenue, Sunset Avenue, and Valley Boulevard. Each corridor is planned to evolve into a vibrant mixed-use City street with a distinct character borrowed from the neighborhoods that share it.

Neighborhood Centers. PlanWC would provide every neighborhood with at least one center where people can meet by chance at a local coffee shop, market, bookstore, diner, or even hardware store. Under PlanWC, West Covina's existing neighborhood centers would be transformed into such places. PlanWC identifies four neighborhood centers where the development of housing alongside commercial uses is specifically encouraged: Puente Avenue, Aroma Drive and Azusa Avenue, Amar and Azusa, and Nogales Street.

d. Regulatory Framework.

Regional.

SCAG Regional Comprehensive Plan. SCAG prepared the 2008 RCP in conjunction with its constituent members and other regional planning agencies. The 2008 RCP was intended to serve as a framework to guide decision-making with respect to the growth and changes anticipated through the year 2035. The RCP features nine chapters that focus on specific areas of planning or resource management and contain goals, policies, implementation strategies, and technical data that support four guiding principles for the region, including (1) improving mobility for all residents, (2) fostering livability in all communities, (3) enabling prosperity for all people, and (4) promoting sustainability for future generations. Local governments were required to use the RCP as the basis for their own plans and discuss the consistency of projects of "regional significance" with the RCP. The RCP's policies have been incorporated into the RTP/SCS, and are therefore not analyzed separately in Section 4.9.4, *Project Impacts*, below.

SCAG Regional Transportation Plan/Sustainable Communities Strategy. The Regional Transportation Plan (RTP) is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region. Using growth forecasts and economic trends projected out over a 20-year period, the RTP considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address the region's mobility needs. The Sustainable Communities Strategy (SCS) is a newly required element of the RTP. The SCS integrates land use and transportation strategies that will achieve ARB emissions reduction targets mandated under SB 375, a State law enacted to reduce greenhouse gas emissions from automobiles and light trucks through integrated transportation, land use, housing and environmental planning (SCAG website, November 2012). The 2016-2040 RTP/SCS contains goals and policies pertinent to the proposed project. Relevant goals and policies of the RTP/SCS are discussed in Section 4.9.4, *Project Impacts*, below.

Local.

Zoning. Zoning is the instrument that implements the land use designations of the General Plan. In addition to establishing permitted uses, zoning may also establish development standards relating to issues such as intensity, setbacks, height, and parking. Projects submitted to the City for review and approval are generally evaluated for consistency with the zoning designations.

Zoning Districts. West Covina's Zoning Ordinance controls the boundaries of the zoning districts in the City as well as the zoning regulations that are in effect in each district. Zoning districts are designed to protect citizens and their homes and businesses from activities that

may conflict in scope or purpose within the vicinity. The Zoning Code describes various types of zoning districts and land use classifications, land use regulations, development standards, and environmental performance standards. The Zoning Code's purpose is to protect and promote the public's health, safety, and general welfare, and to implement the policies of the General Plan. The City is divided into 22 zoning districts that fall under five general categories, as follows:

- Overlays
  - Outdoor Historic Overlay Zone
  - Hillside Overlay Zone
  - Civic Center Overlay Zone
  - Animal Keeping Overlay Zone

- Master Plans and Specific Plans
  - PCD-1 - Planned Community Development
  - SP - Specific Plan

- Public Use
  - P-B - Public Building
  - O-S - Open Space

- Residential
  - R-A - Residential Agriculture
  - R-1 - Residential Single Family
  - MF-8 - Residential 8 dwelling/acre
  - MF-15 - Residential 15 dwelling/acre
  - MF-20 - Residential 20 dwelling/acre
  - MF-45 - Residential 45 dwelling/acre

- Commercial and Industrial
  - N-C - Neighborhood Commercial
  - S-C - Service Commercial
  - R-C - Regional Commercial
  - C-2 - Medium Commercial
  - C-3 - Heavy Commercial
  - O-P - Office Professional
  - M-1 - Manufacturing
  - I-P - Planned Industrial

4.9.2 Impact Analysis

a. Methodology and Significance Thresholds. The analysis in this section focuses on the compatibility of land uses identified in the proposed project with existing and planned land uses within the plan area, as well as consistency with any applicable land use plans, policies, or regulations. The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- *Physically divide an established community*

- *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect*
- *Conflict with any applicable habitat conservation plan or natural community conservation plan*

b. Project Impacts and Mitigation Measures.

Threshold:	*Would the proposed project physically divide an established community?*

Impact LU-1 **Implementation of the proposed project would provide for orderly development in West Covina and would not physically divide an established community. Impacts would be *less than significant*.**

West Covina is a built-out city that does not have rural areas and only has ten vacant parcels available for new development based on the carrying capacity of land area, according to the City's latest Housing Element (City of West Covina, August 2016). The majority of land in West Covina is located within the Neighborhood Low land use designation, which would not be altered by the proposed project, and is not anticipated to change in the upcoming decades. An objective of PlanWC is to protect stable residential areas and the *Our Well Planned Community* chapter of PlanWC seeks to ensure that existing residential neighborhoods are fully shielded from potential adverse impacts of change. The following PlanWC policies and actions would maintain existing communities within West Covina:

P3.1 *Preserve the existing housing stock.*

A3.1 *Incorporate standards in the development code to preserve the existing form and character of stable residential areas and to prevent encroachment of incompatible land uses and intensity.*

P3.4 *Direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent with the character of surrounding districts and neighborhoods, to support new uses that can be more successful. Provide opportunities for healthy living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and socializing.*

A3.4 *Adopt form-based codes for the Downtown area and corridors that:*

- *Utilize clear development requirements tailored to the community's vision;*
- *Increase land use choices and encourage community vitality;*
- *Fosters a rich public realm, with engaging private frontages, complete streets, and access to a range of open spaces;*
- *Insist on the highest standards of quality in architecture, landscaping, and urban design; and*
- *Offer predictable streamlined development review process and produce predictable outcomes.*

PlanWC and the Downtown Plan and Code focus on moderate infill development that completes development patterns, redevelopment, or infrastructure improvements. PlanWC preserves and maintains stable areas, and areas where redevelopment is likely to occur are programmed for regeneration. The majority of new growth would be directed to the Downtown areas and the corridors. The urban corridors proposed for development are transportation thoroughfares that frequently encompass major access routes and do not include established communities. The Downtown area does not contain an established residential community, residential development in the Downtown is urbanized and incorporated within commercial land uses. Therefore Downtown development proposed by PlanWC and the Downtown Plan and Code would not divide an established residential community, or introduce any other barrier or obstruction that would physically divide any community, residential or otherwise.

Neighborhood centers are the third area identified by PlanWC for development within the *Our Well Planned Community* chapter. PlanWC is aimed at revitalizing existing neighborhood centers in specific neighborhoods. A total of 15,000 square feet of retail space and 50 residential units are proposed by PlanWC in neighborhood centers (see Table 4-2 of the *Our Well Planned Community* chapter of PlanWC). This development would occur within the existing boundaries of these four neighborhood centers, identified in the *Setting* and would enhance rather than divide an established community. In fact, development called for in these areas under PlanWC would improve accessibility to and within these neighborhood centers. For example, PlanWC states the following about the Amar and Azusa neighborhood center: "By adding buildings in the commercial core that accommodate office, housing, and civic space, this area can become a mixed-use, walkable neighborhood center."

Because the proposed project would direct new growth to the Downtown area and targeted corridors and neighborhood centers; preserve existing stable residential development areas through goals, policies, regulations and development standards; and propose no substantial land use or circulation changes that would physically divide an established community (for example, no major roads or other facilities would be constructed that would physically divide an established community), this impact would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

Impact LU-2 **While implementation of the proposed project would be generally consistent with applicable regional land use plans, policies, or regulations such as the 2016-2040 SCAG Regional Transportation Plan/Sustainable Communities Strategy, one policy change is recommended to address any potential inconsistencies. Impacts would be *significant but mitigable*.**

Consistency of the Downtown Plan with PlanWC is essential to avoid conflicts between the two documents, both of which would apply within the Downtown area. Both proposed plans contain similar topics and are organized into the same chapters/sections including: Our Natural Community, Our Well Planned Community, Our Accessible Community, Our Sustainable Community, Our Active Community, Our Healthy and Safe Community, and Our Creative Community. The essential theme of PlanWC is Downtown First, and this theme is expanded upon in the Downtown Plan, which provides detail for renovation of the Downtown area. The Downtown Plan contains similar policies as PlanWC, with altered detailed actions that are applicable to the Downtown area. For example, the *Our Natural Community* section of both plans contains the policy "plant to maximize the social, economic, and environmental benefits of trees." PlanWC contains an action to develop a street tree master plan for the Downtown area and the Downtown Plan contains a detailed action to increase the number of street trees by adding 100 new trees in the Downtown area annually. Therefore, the Downtown Plan is consistent with PlanWC.

Several regionally and locally adopted land use plans, policies, and regulations apply to development under PlanWC and the Downtown Plan. These include the South Coast Air Quality Management District's (SCAQMD's) 2012 Air Quality Management Plan; SCAG's Southern California Compass Growth Vision, Regional Comprehensive Plan and Guide (RCP), and Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Consistency of the proposed project with the 2012 Air Quality Management Plan is discussed under Impact 4.2-1 of Section 4.2, *Air Quality*.

The SCAG regional plans cover all of Los Angeles County, which includes West Covina, and five other counties within Southern California. The consistency of PlanWC and the Downtown Plan and Code (the proposed project) with applicable goals of the SCAG 2016 RTP/SCS is analyzed in Table 4.9-2. Goals that call for action on the part of other, higher levels of government such as SCAG or the state or federal governments alone, or on the part of developers alone, are not included because they are outside the power of the City to accomplish.

Table 4.9-2
SCAG 2016 Regional Transportation Plan/Sustainable Communities Strategy Goals

SCAG RTP/SCS Goals	Project Consistency
Goal 1: Align the plan investments and policies with improving regional economic development and competitiveness.	**Consistent**. The goals and policies contained within PlanWC and the Downtown Plan support economic development and competitiveness. The goal of the *Our Prosperous Community* chapter is to "maintain and monitor West Covina's fiscal health, reinforce the West Covina brand as a great place to Live, Work, and Play in the San Gabriel Valley, and nurture local businesses and attract non-retail jobs." The plans emphasize economic development by focusing new growth in the Downtown area to invest in key public improvements and target employment based uses to Downtown, while expanding economic development efforts.
Goal 2: Maximize mobility and accessibility for all people and goods in the region.	**Consistent**. West Covina is a built out City and the majority of new growth would occur as redevelopment and infill development. Therefore, the proposed project would maximize mobility through designing street

Table 4.9-2
SCAG 2016 Regional Transportation Plan/Sustainable Communities Strategy Goals

SCAG RTP/SCS Goals	Project Consistency
	improvements that would consider both the existing and future context of transportation and land use. The proposed project would maximize mobility by providing streets that are equitably designed for motor vehicles, transit, pedestrians, and bicycles. Policy P4.2 of PlanWC would implement transportation improvements to improve access and circulation for all users of City streets. Access for people and goods would be improved by applying transportation system performance metrics as described in the City's Thoroughfares Plan, reviewing capital improvement projects to ensure that the needs of non-motorized travelers are considered, and adopting a complete streets approach to designing new transportation improvements.
Goal 3: Ensure travel safety and reliability for all people and goods in the region.	**Consistent.** The *Our Well Planned Community* sections of PlanWC and the Downtown Plan contain guiding principles to improve circulation and ensure safe and convenient access throughout the City for both people and vehicles. The goal of the *Our Accessible Community* chapter of PlanWC is to provide safe access on the roadway systems for all users. This goal would be accomplished through design of streets that consider both the existing and future context of transportation and land use, while remaining in harmony with the adjacent area's history, environmental resources, and overall aesthetic. Specifically, Policy P4.3 would establish protection of human life and health as one of the highest transportation system priorities, and seek to improve safety through the design and maintenance of streets, sidewalks, intersections, and crosswalks. To ensure reliability for public transit, curbside general-purpose lanes would be converted to transit only lanes, allowing transit systems to operate in a timely manner.
Goal 4: Preserve and ensure a sustainable regional transportation system.	**Consistent.** The proposed project promotes a sustainable regional transportation system by encouraging non-motorized transportation and transit. Development under the plans is focused in the Downtown area and promotes mixed-use development and pedestrian oriented streets. Additionally, the *Our Natural Community* sections of PlanWC and the Downtown Plan discuss how the transportation system within the City would be environmentally sustainable, and include Policies P1.1 and P1.2, which promote alternative transportation modes and energy-efficient vehicles. For these reasons, the proposed project would result in a transportation system that would be consistent with Goal 4.
Goal 5: Maximize the productivity of our transportation system.	**Consistent.** The proposed project promotes maximizing the productivity of the transportation system by making the City more accessible to non-motorized transportation and transit, as discussed in the *Our Accessible Community* sections of PlanWC and the Downtown Plan. Several actions in these sections discuss developing parking areas to allow people easier

Table 4.9-2
SCAG 2016 Regional Transportation Plan/Sustainable Communities Strategy Goals

SCAG RTP/SCS Goals	Project Consistency
	access to transit areas. PlanWC Policy P4.7 ensures increased efficiency, cost-effectiveness, and utility of the existing parking and road supply within the City by managing demand.
Goal 6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycle and walking).	**Consistent.** The proposed project encourages active transportation through the redesign of streets, particularly in the Downtown area, to be evenly allocated for motor vehicles, pedestrians, and bicycles. The proposed project promote pedestrian oriented mixed-use development and would work to eliminate barriers to pedestrian and bicycle travel. Additionally, PlanWC Policy P1.1 promotes alternative modes of transportation such as walking, biking, and transit that reduce emissions related to vehicular travel.
Goal 7: Actively encourage and create incentives for energy efficiency, where possible.	**Consistent.** PlanWC includes goals and policies that would be consistent with Goal 7 of the SCAG RTP/SCS. For example, Policy P5.6 promotes reduction of consumption of non-renewable energy resources by requiring and encouraging conservation measures and use of alternative energy sources. The individual actions under Policy P5.6 (Actions A5.6a – A6.6e) would develop an incentive program for buildings to reduce energy, provide energy education, and explore energy efficient projects and funding. The Downtown Plan implements and is consistent with PlanWC in the Downtown area.
Goal 8: Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	**Consistent.** The proposed project encourages transit and non-motorized transportation (such as active transportation) through the redesign of streets, particularly in the Downtown area, to be evenly allocated for motor vehicles, pedestrians, and bicycles. It promotes pedestrian oriented mixed-use development, and would work to eliminate barriers to pedestrian and bicycle travel. Policy P4.5 to is work to eliminate barriers to pedestrian travel by requiring construction of pedestrian and bicycle travel facilities and amenities as a condition of approval of new development projects. The proposed project encourages transit through the development of transit-only lanes and ensure that transit vehicles have space in the right-of-way that is consistent with the streets designed mobility function and land use context. The policies within PlanWC and the Downtown Plan and Code, specifically PlanWC Policies P4.6 and P4.10, would work with transit providers in the City to develop high-quality facilities for transit users and improve mobility and accessibility for travelers of all incomes.
Goal 9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	**Inconsistent.** A commitment to maximizing the security of the transportation system in the City is not currently included in PlanWC or Downtown Plan and Code. Mitigation in the form of recommended policy language is provided at the end of this section to address this inconsistency.

As shown in Table 4.9-2, the proposed project would be generally consistent with the goals contained in the RTP/SCS. One policy recommendation has been included in Mitigation Measure LU-2 to address the one area where there is potential for inconsistency.

The Los Angeles Regional Water Quality Control Board (RWQCB) is responsible for implementing State policy through the preparation of basin plans for water quality control and the regulation of all activities affecting water quality. Other criteria may be applied from SWRCB documents (e.g. the Inland Surface Waters Plan and the Pollutant Policy Document) or from water quality criteria developed under Section 304(a) of the Clean Water Act. Development within the City would be required to comply with all applicable water quality requirements established by the Los Angeles RWQCBs and SWRCB. Therefore, implementation of the proposed project would be consistent with the relevant basin plans and the Porter-Cologne Water Quality Control Act.

The West Covina Zoning Ordinance is one of the primary means of implementing the General Plan. Adoption of PlanWC and the Downtown Plan and Code would require a review of the Zoning Ordinance and Zoning Map to make sure that it is consistent with PlanWC and the Downtown Plan and Code. Specifically, revisions to the Zoning Map would need to be consistent with the PlanWC Land Use Plan, incorporating new land use categories and other recommended design and development standards. Furthermore, PlanWC proposes new land use designations in specific areas that would need to be reflected in the Zoning Code, including Transect-based zoning that supports Downtown revitalization and improvements to existing corridors and neighborhoods. In the Downtown area, this would be accomplished through adoption of the Downtown Code, which would become part of the City's Municipal Code.

As discussed within this impact discussion, implementation of the proposed project would be generally consistent with applicable adopted plans, regulations, or policies. The proposed project is potentially inconsistent with Goal 9 of the 2016 SCAG RTP/SCS to maximize the security of the regional transportation system. A policy recommendation has been included to address this inconsistency.

Mitigation Measures. The following mitigation measure would ensure that PlanWC and the Downtown Plan and Code are consistent with the goals of SCAG's 2016 RTP/SCS.

LU-2 Add the following policy and associated action to the *Our Accessible Community* chapter of PlanWC:

- Policy: Work to develop a safer transportation system
  - Action(a): Encourage development and application of strategies and actions pertaining to response and prevention of security incidents on the local and regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.
  - Action(b): Use SCAG GIS data to develop emergency planning and response strategies for the transportation system.

Significance after Mitigation. Implementation of the policy language in Mitigation Measure LU-2 would ensure that the proposed project would be consistent with Goal 9 of the

RTP/SCS to maximize regional transportation security; land use impacts associated with the proposed project would therefore be less than significant.

Threshold:	*Conflict with any applicable habitat conservation plan or natural community conservation plan?*

Impact LU-3 Implementation of the proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan. Impacts would be *less than significant*.

West Covina does not currently have a habitat conservation or natural community conservation plan and is not part of a habitat conservation plan of natural community conservation plan. Therefore, implementation of the proposed project would not conflict with any habitat conservation plan or natural community conservation plan, and impacts associated with potential inconsistencies with such plans would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, no mitigation is required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. **Cumulative Impacts.** Because the proposed project is comprised of a General Plan and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. The policies contained in PlanWC and the Downtown Plan, combined with the Mitigation Measure LU-2, and the proposed project's consistency with related plans and policies, would reduce cumulative land use impacts to a less than significant level.

4.10 NOISE

This section analyzes impacts associated with exposure to noise related to the proposed project. Impacts related to noise from construction, building operations, traffic, and flight operations are addressed.

4.10.1 Noise

a. Overview of Sound Measurement. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time. Typically, Leq is summed over a one-hour period.

The sound pressure level is measured on a logarithmic scale, with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Decibels cannot be added arithmetically, but rather are added on a logarithmic basis. Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while those along arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range and ambient noise levels greater than that can interrupt conversations.

Noise levels typically attenuate at a rate of 6 dB per doubling of distance from point sources such as industrial machinery (Harris, 1979). For example, a person standing 25 feet from an industrial machine may experience noise levels of 75 dBA, while a person standing 50 feet from the same noise source would experience noise levels of 69 dBA, and a person standing 100 feet from the source would experience noise levels of 63 dBA. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dB per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dB per doubling of distance (Harris, 1979).

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the daytime. The Day-Night average level (Ldn, or DNL) recognizes this characteristic by weighting the hourly Leqs over a 24-hour period. The weighting involves the addition of 10 dBA to actual nighttime (10 PM to 7 AM) noise levels, accounting for the greater amount of disturbance associated with noise during that time period.

The California Office of Planning and Research developed the Land Use Compatibility for Community Noise Environments matrix (see Figure 4.10-1) as a guideline to determine whether a proposed new use would be compatible with the ambient noise environment in which it is proposed. This matrix illustrates the ranges of community noise exposure in terms of what is "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable."

b. Sensitive Receptors. Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Residences, hospitals, schools, guest lodging, libraries, and religious institutions are most sensitive to noise intrusion and therefore have more stringent noise exposure targets than commercial or recreational uses that are not subject to impacts such as sleep disturbance. Noise sensitive residential areas are located throughout West Covina. For the most part, noise sensitive uses are located in quiet areas lacking major noise sources. However, residences and hotels located in and near the Downtown may experience elevated noise levels.

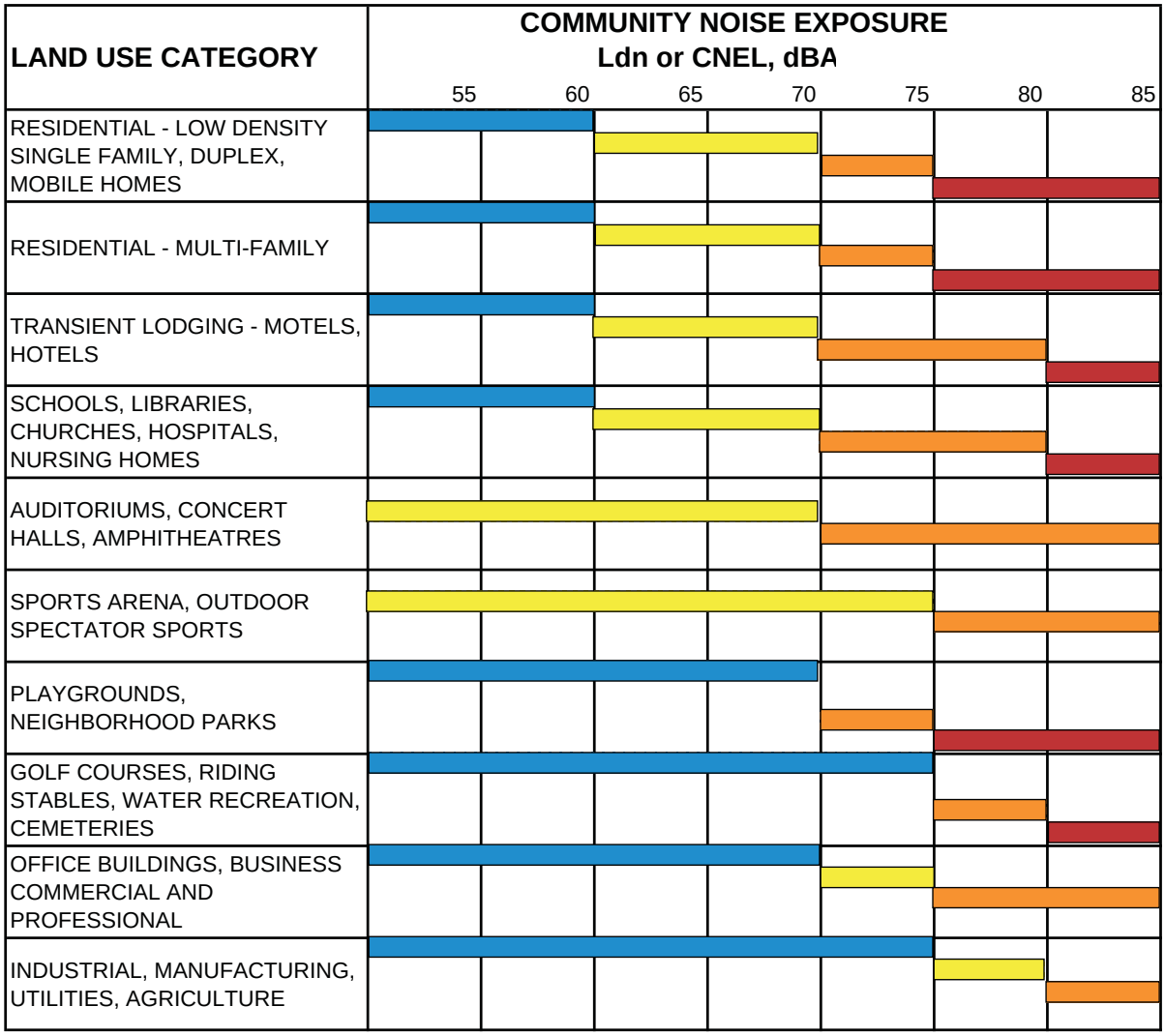
c. Current Levels in West Covina. The predominant source of noise in West Covina, as in most communities, is motor vehicles on roadways within the City. The roadways with the highest traffic volumes (such as the Interstate 10 [San Bernardino Freeway] and major arterial roadways such as Azusa Avenue, Sunset Avenue, Valinda Avenue, and Glendora Avenue) produce the highest noise levels. Current noise levels, expressed as noise contours, are shown in Figure 4.10-2. While the current widening project on the I-10 in West Covina will add two carpool lanes to this facility and may lead to increased traffic volumes on this roadway, this project also includes installation of sound walls along the roadway, which will help protect land uses in the immediate vicinity from increased noise levels.

Although two rail lines are located just outside the City (the San Bernardino Metrolink line to the north and a freight line to the south), no major rail lines are located within the City limits, and noise from these rail lines, although audible, is not a major source of noise in the community, and is isolated to those areas closest to the lines. No airports are located within or immediately adjacent to West Covina, and aircraft noise is also not a major noise source, although certain aircraft related noise (such as from low-flying helicopters) can be of concern. The nearest airport is El Monte airport, located eight miles to the west. West Covina does not have major "point sources" of noise, such as large factories.

d. Regulatory Setting. As required by Section 65302 of the Government Code of California, desirable noise levels are embodied within the noise elements of general plans. Division 28 of the California Health and Safety Code requires that the State Office of Noise Control within the Department of Health Services develop model elements and model noise ordinances for consideration by local jurisdictions in developing noise standards.

As discussed earlier, Figure 4.10-1 outlines the guidelines for noise compatible land use, based upon the California Office of Planning and Research (OPR) Noise Element Guidelines. The objective of noise compatibility guidelines is to provide the community with a means of judging the noise environment that it deems to be generally acceptable.

In general, evaluation of land uses that fall into the "normally acceptable," "conditionally acceptable," or "normally unacceptable" noise environments listed in Figure 4.10-1 should also



NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

Source: City of West Covina, 2016

Noise Compatibility Matrix

Figure 4.10-1

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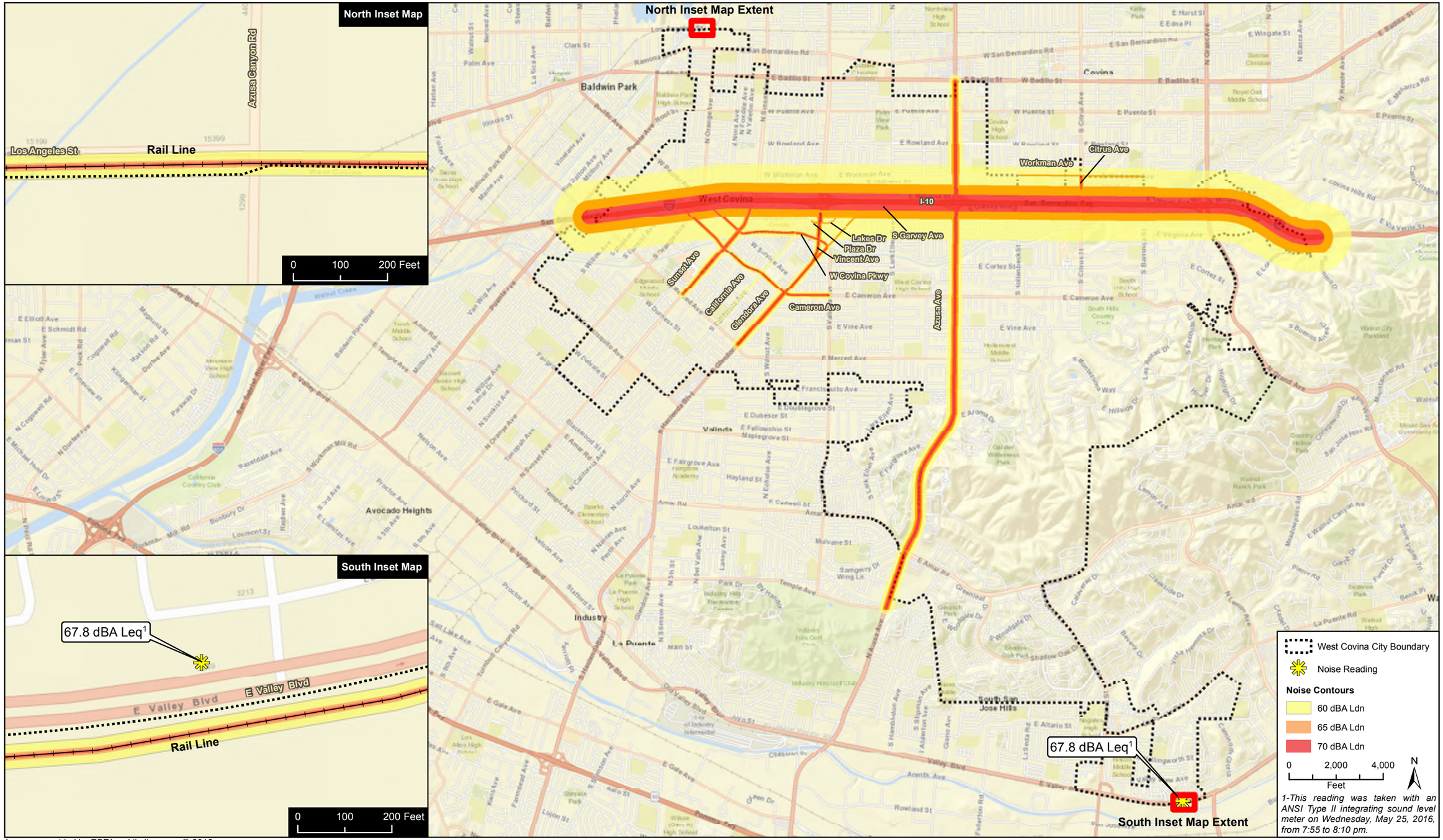

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Existing Noise Contours

Figure 4.10-2

analyze other potential factors that could affect noise in their environment. These include consideration of the type of noise source, time of day or night the noise occurs, the sensitivity of the noise receptor, noise reduction likely provided by structures, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of that land use. The City's current Noise Element contains policies aimed at maintaining an acceptable noise environment in the City.

In general, evaluation of land uses that fall into the "normally acceptable," "conditionally acceptable," or "normally unacceptable" noise environments listed in Figure 4.10-1 should also analyze other potential factors that could affect noise in their environment. These include consideration of the type of noise source, time of day or night the noise occurs, the sensitivity of the noise receptor, noise reduction likely provided by structures, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of that land use. The City's current Noise Element contains policies aimed at maintaining an acceptable noise environment in the City.

Noise Ordinance. Noise ordinances are designed to protect people from non-transportation related noise sources, and are a tool for carrying out the goals, policies, and actions of the Noise Element. Noise Ordinances do not apply to motor vehicle noise on public roadways or other transportation-related noise sources that are preempted by the State or Federal government. West Covina's Noise Ordinance (Article IV of Chapter 15 of the City's Municipal Code, the WCMC)declares that it is the City's policy to regulate and control annoying noise levels from all sources, and prohibits loud, unnecessary or unusual noise that unreasonably disturbs the peace and quiet of any residential neighborhood or that causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The Noise Ordinance also states that, if the noise is plainly audible at a distance of 50 feet from the property line of any property, unit, building, structure or vehicle in which it is located, it shall be presumed that the noise being created is in violation. The Noise Ordinance also contains provisions regulating particular nuisance noise sources, such as repairing, rebuilding, or testing of any motor vehicles on private property, and the operation of two- and four-stroke engines. Any noise from these sources that exceed ambient noise levels by five decibels or more is considered a noise violation.

The Noise Ordinance prohibits any construction activities between the hours of 8 p.m. one day and 7 a.m. the next (or 6 a.m. for unloading and loading activities) within a residential zone, or within a radius of 500 feet therefrom, that causes the noise level at the property line to exceed the ambient noise level (defined as the all-encompassing noise associated with a given environment) by more than five dB, unless a permit to do so has been obtained from the City, or in the case of emergency work as defined in the Noise Ordinance.

Based on feedback received during the General Plan Update process, West Covina's existing Noise Ordinance has worked well for the community, and no changes to these standards have been proposed in PlanWC.

4.10.2 Impact Analysis

a. Methodology and Significance Thresholds. The analysis of noise impacts in this section of the EIR focuses upon the proposed project's potential impacts on existing noise-sensitive land uses, and the impact of existing noise sources upon future sensitive uses. The proposed project

would result in potentially significant impacts if development facilitated by the proposed project would result in substantial adverse physical impacts associated with any of the following conditions:

- *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies*
- *Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels*
- *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project*
- *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project*
- *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels*
- *For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels*

West Covina is located well beyond the two–mile CEQA threshold for addressing noise from the nearest airport; as discussed above, the nearest airport is El Monte Airport eight miles to the west. Impacts related to noise produced by public and private airports and airstrips would be less than significant and are discussed in Section 4.10, *Less than Significant Environmental Factors.*

b. Project Impacts and Mitigation Measures.

Threshold:	*Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.* *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*

Impact N-1 **Construction of individual projects facilitated by the proposed project could produce noise levels ranging from about 76 to 89 dBA at 50 feet from the source, potentially affecting adjacent noise-sensitive land uses. Such noise could cause temporary disturbance to nearby noise-sensitive receptors, but policies in PlanWC and the Downtown Plan and existing regulations in the City's Noise Ordinance address potential noise impacts related to construction, including construction traffic. Therefore, this impact would be *less than significant*.**

Noise from individual construction projects carried out under the proposed project would create temporary noise level increases on and adjacent to individual construction sites, including noise from construction traffic. Since there are no specific plans or time scales for individual development projects that would be carried out under the proposed project, it is not possible to determine exact noise levels, locations, or time periods for construction of such projects. However, sites adjacent to areas where more future development/redevelopment is

anticipated to occur would be exposed to the highest levels of construction noise for the longest duration. The Downtown would undergo considerable construction activity over the life of the proposed project (the next 20 years), potentially including construction of residential, office, retail, industrial, and hotel uses. These activities, including construction traffic, demolition and reconstruction, would generate construction noise. Table 4.10-1 illustrates typical noise levels associated with construction equipment. At a distance of 50 feet from the construction site, noise levels similar to those shown in Table 4.10-1 would be expected to occur with individual development projects. Noise would typically drop off at a rate of about 6 dBA per doubling of distance; therefore, noise levels would be about 6 dBA lower than shown in the table at 100 feet from the noise source and 12 dBA lower at a distance of 200 feet from the noise source.

Table 4.10-1
Typical Noise Levels from Equipment at Construction Sites

Equipment	Typical Level (dBA) 50 Feet from the Source
Air Compressor	81
Backhoe	80
Concrete Mixer	85
Paver	89
Saw	76
Scraper	89
Truck	88

Source: FTA, May 2006.

Noise levels associated with construction activity would exceed ambient noise levels and may cause temporary disturbance at neighboring properties.

Section 15-95(a) of the City's Noise Ordinance prohibits construction activities between the hours of 8:00 p.m. and 7:00 a.m. within 500 feet of a residential zone that would cause the noise level at the property line to exceed the ambient noise level by more than five dBA unless a permit has been obtained in accordance with Section 15-95(b), *Enforcement* of the Noise Ordinance. These requirements would provide protection from construction noise and reduce temporary construction impacts to a less than significant level by setting restrictions on when construction can occur, requiring noise attenuation on equipment exceeding specified noise levels, and other types of mitigation to reduce noise levels more than five decibels above ambient noise levels. In addition, site-specific review of individual development projects would be required, which would include a review of potential noise impacts on a case-by-case basis, requiring mitigation where noise levels exceed City standards.

Mitigation Measures. Enforcement of the West Covina Noise Ordinance and site-specific review of individual development projects would reduce construction noise impacts from development carried out under the proposed project to a less than significant level. No mitigation measures beyond implementation of these regulations would be required.

Significance after Mitigation. Impacts related to temporary construction noise would be less than significant without mitigation.

Thresholds	*Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.* *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

Impact N-2 Development facilitated by the proposed project could incrementally increase traffic and associated noise levels along City roadways and railroads outside the City, thus exposing existing and future noise-sensitive land uses to increased noise levels. However, implementation of policies and actions in PlanWC and the Downtown Plan would reduce impacts to a *less than significant* level.

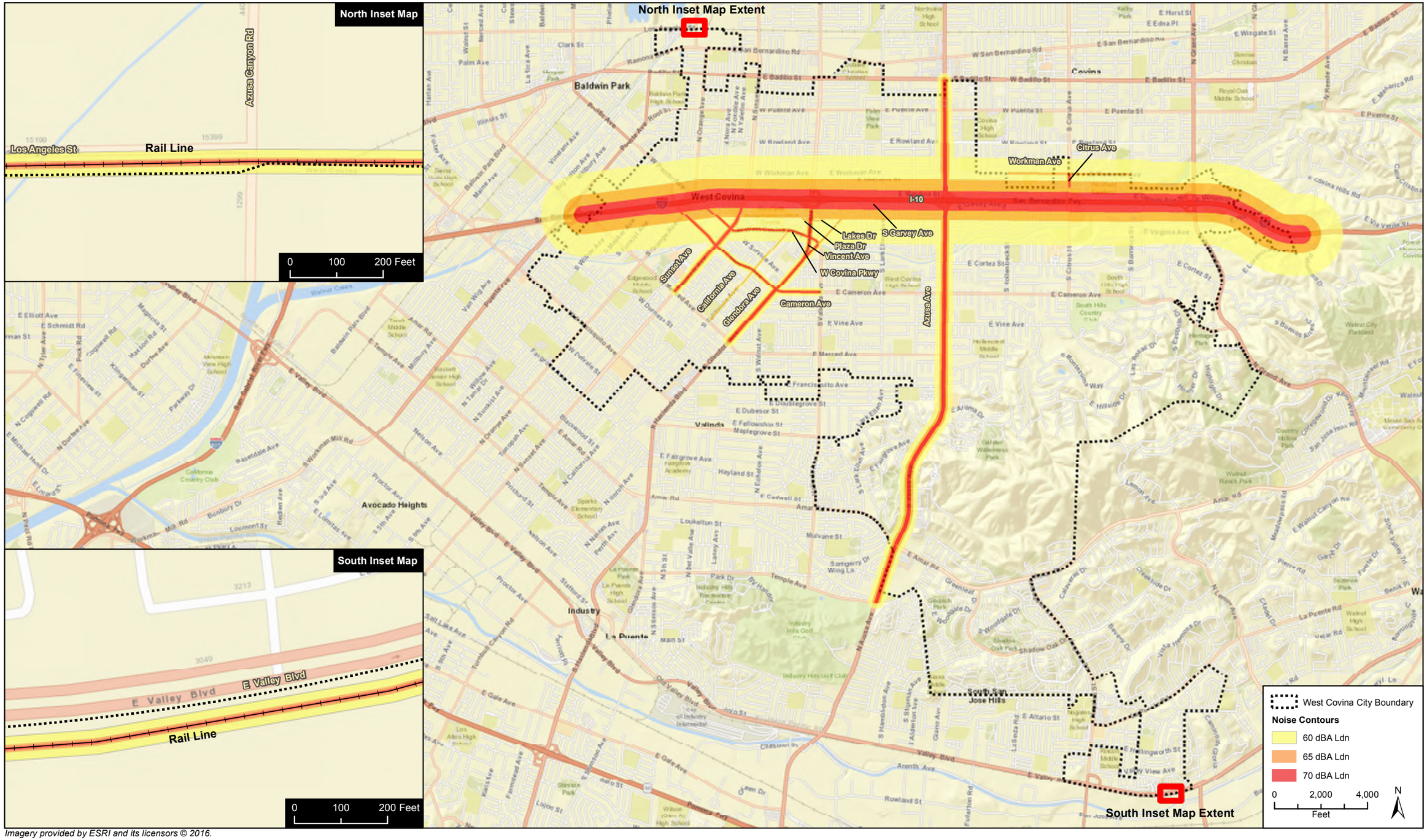
Development carried out under the proposed project may incrementally increase noise along area roadways over the life of the proposed project (20 years). PlanWC forecasts that West Covina will add approximately 2,100 new housing units; 400,000 square feet (sf) of office space; 200,000 sf of retail space; 15,000 sf of industrial space; and 600 hotel rooms by the year 2035. Such development would increase traffic in the busiest areas of the City, including the Downtown. This would lead to a slight expansion of the noise contours shown in Figure 4.10-3 outwards from major roadways, meaning that noise levels would increase along these roadways. Traffic noise would have the greatest effect on noise-sensitive uses, such as residences, West Covina Schools, and medical facilities along these corridors.

Increased ridership of passenger trains or movement of goods facilitated by the proposed project could result in increased railroad traffic volumes on Metrolink and freight rail lines to the north and south of the City, which would potentially increase ambient noise levels for sensitive receptors in the general vicinity of those railroads. While this is not expected to result in a significant outward expansion of the noise contours around these railways (see Figure 4.10-3), Mitigation Measure T-3 from Section 4.14, *Transportation and Circulation,* of this EIR requires the City to partner with adjacent cities and other jurisdictions and the private sector to seek and secure funding for railroad safety improvements, including securing rail right-of-way and developing "Quiet Zones" and/or grade separations that could potentially help to reduce noise impacts on sensitive receptors near at-grade crossings.

Additionally, PlanWC and the Downtown Plan include the following policies specifically directed at addressing potential future traffic noise issues:

P6.27 *Minimize the noise impacts of transportation facilities and improvements.*

A6.27a *Continue to encourage the enforcement of regulations such as the State Vehicle Code noise standards for automobiles, trucks, and motorcycles operating within the City.*



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Future (2040) Noise Contours

Figure 4.10-3

A6.27b *Maintain liaison with transportation agencies such as Caltrans regarding reduction of noise from existing transportation facilities.*

A6.27c *Consider, wherever necessary and appropriate, tools for mitigating noise impacts of transportation facilities on new and existing development. Such tools may include noise insulation for interior spaces, site design solutions such as setbacks, and noise barriers such as sound walls and berms for exterior spaces. Site design solutions such as setbacks are frequently preferable to barriers, and berms are frequently preferable to sound walls, reasons of aesthetics and potential noise reflection effects.*

A6.27d *Consider, wherever necessary and appropriate, the diversion of through traffic from purely residential areas***.**

Implementation of the above policies would ensure that noise impacts are considered as individual development projects are proposed and that transportation improvements incorporate appropriate noise attenuation techniques. In addition, as an overall goal of the proposed project, the City will continue to emphasize vehicle trip reduction techniques to address traffic issues, with the added benefit that the use of such techniques would also reduce vehicular noise. With implementation of policies in PlanWC and the Downtown Plan, increases in roadway noise would be reduced to a less than significant level.

Mitigation Measures. Goals, policies, and actions in PlanWC and the Downtown Plan address the prevention and reduction of unwanted noise from transportation sources. Mitigation beyond these goals, policies, and actions is not necessary.

Significance after Mitigation. Transportation noise impacts of the proposed project would be less than significant without mitigation.

Threshold	*Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.*

Impact N-3 **New development facilitated by the proposed project could result in exposure of future residences and other noise-sensitive land uses to noise levels exceeding the "normally acceptable" range. However, implementation of policies in PlanWC and the Downtown Plan would reduce impacts to a *less than significant* level.**

The proposed project would facilitate the development of new noise generating land uses and new residential and other noise-sensitive uses that could be exposed to long-term noise exceeding the normally acceptable range based on the matrix shown on Figure 4.10-1. New noise sensitive uses would include residential development, a large majority of which would be directed in the Downtown. Potential sources of noise exposure include: traffic on City roadways, traffic from railroads to the north and south of the city limit, intensification or development of new commercial activity in the Downtown, and new or intensified industrial activity on sites that are adjacent to or near noise-sensitive uses.

For most sites, the primary generator of noise that could affect sensitive receptors would be roadway traffic, both from construction and operation of individual projects. The proposed project's potential construction traffic noise impacts are addressed under Impact N-1, and its operational traffic noise impacts are addressed under Impact N-2. New residences could also be exposed to noise generated by new or existing uses, such as commercial or industrial activity, that exceeds the normally acceptable range. Most new development facilitated by the proposed project would occur in the Downtown. PlanWC and the Downtown Plan include a number of policies to reduce noise impacts. PlanWC includes the following policies:

P6.23 *Ensure that new development is not exposed to excessive noise.*

A6.23a *Require new developments to reduce exterior noise levels for any usable outdoor area to the "normally acceptable" range in the City's land use/noise compatibility matrix, shown in Figure 6.5 of the Noise Element.*

A6.23b *Require mixed-use structures and areas to be designed to prevent transfer or noise from commercial to residential uses, and to ensure a 45 CNEL level or lower for all interior living spaces.*

A6.23c *Require any residential component of all new buildings to comply with the requirements of the residential noise insulations standards of the most recent edition of California's building code.*

P6.24 *Ensure that new development does not expose surrounding land uses to excessive noise.*

A6.24a *Through the environmental review process, require applicants for new development proposals to analyze potential noise impacts on nearby noise-sensitive receivers before project approval. As feasible, require appropriate noise mitigation to address any identified significant noise impacts.*

P6.27 *Minimize the noise impacts of transportation facilities and improvements.*

A6.27a *Continue to encourage the enforcement of regulations such as the State Vehicle Code noise standards for automobiles, trucks, and motorcycles operating within the City.*

A6.27b *Maintain liaison with transportation agencies such as Caltrans regarding reduction of noise from existing transportation facilities.*

A6.27c *Consider, wherever necessary and appropriate, tools for mitigating noise impacts of transportation facilities on new and existing development. Such tools may include noise insulation for interior spaces, site design solutions such as setbacks, and noise barriers such as sound walls and berms for exterior spaces. Site design solutions such as setbacks are frequently preferable to barriers, and berms are frequently preferable to sound walls, reasons of aesthetics and potential noise reflection effects.*

A6.27d *Consider, wherever necessary and appropriate, the diversion of traffic from purely residential areas.*

Implementation of these policies and actions would help ensure that noise sensitive projects proposed in noisy environments, and potential noise generating projects that potentially exceed acceptable standards, would be evaluated, and that appropriate sound attenuation techniques would be implemented on a case-by-case basis. Depending on the specific development project proposed and the location and source of noise, sound attenuation techniques may include site design to shield noise-sensitive uses from operational noise, special building standards to reduce interior noise or reduce noise attenuation from the building, or the use of barriers to reduce exterior noise. Implementation of existing and proposed policies, as well as existing regulatory requirements such as those in the WCMC, would reduce potential impacts to a less than significant level.

Mitigation Measures. The goals and policies discussed above address the prevention and reduction of unwanted noise, and additional mitigation measures are not necessary.

Significance after Mitigation. Impacts related to the placement of new uses in noise environments exceeding the normally acceptable range, and allowing development of noise generating projects that could potentially exceed acceptable standards due to operation of the use, would be less than significant without mitigation.

c. Cumulative Impacts. Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the State CEQA Guidelines provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. This is especially true of noise impacts, since they are experienced by the listener at a particular location, and are therefore localized in nature. Noise impacts from regional traffic increases may be affected by projects outside the scope of this analysis (i.e., projects outside the City), but such traffic increases are accounted for in the traffic analysis contained in this EIR through the application of growth factors that account for regional growth. As shown in the impact analysis above, the proposed project does not result in any significant impacts related to noise, and its cumulative noise impacts would therefore also be less than significant.

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4.11 POPULATION AND HOUSING

This section evaluates the potential impacts of the proposed project in terms of population and housing. Data used to prepare this section were taken from the United States Bureau of the Census, the California Department of Finance (DOF), and the Southern California Association of Governments (SCAG).

4.11.1 Setting

Population, housing, and employment data are available on a city, county, regional, and state level. This EIR uses data collected and provided at the city and county level in an effort to focus the analysis specifically on the city of West Covina.

a. Population. From 1950 to 1962, West Covina grew 1,500%, from a population of 4,499 to 54,688. Since 1962, its population has roughly doubled. As shown in Table 4.11-1, the City's estimated 2016 population is approximately 107,873 persons, a 0.7% percent increase from its 2015 population of 107,081 (California Department of Finance, 2016).

Table 4.11-1 shows population growth in the City since 2000. Based on California Department of Finance (DOF) data, the City's population increased from 2000 to 2004, then declined from 2005 to 2010, and then increased again from 2011 to 2016. In 2016, the City's population of 107,873 represented approximately 1% percent of Los Angeles County's total population of 10,241,335 persons. West Covina is the thirteenth most populated city of the 88 cities in Los Angeles County.

b. Households. A household is defined by the DOF and the Census as a group of people who occupy a housing unit. A household differs from a dwelling unit because the number of dwelling units includes both occupied and vacant dwelling units. Not all of the population lives in households. A portion lives in group quarters, such as board and care facilities; others are homeless.

Household Size. Small households (1 to 2 persons per household [pph]) traditionally reside in units with 0 to 2 bedrooms; family households (3 to 4 pph) normally reside in units with 3 to 4 bedrooms. Large households (5 or more pph) typically reside in units with 4 or more bedrooms. However, the number of units in relation to the household size may also reflect preference and economics; many small households obtain larger units, and some large families live in small units for economic reasons.

Table 4.11-2 compares the number and size of households in West Covina and Los Angeles County as a whole for every five years from the period 2000-2015. As shown, the total number of households in the City has increased every five years. There has also been an overall increase in the number of households in the County over the past 15 years. The average household size in the City increased slightly from 3.32 pph in 2000 to 3.41 pph in 2016. The average household size in the County as a whole did not increase from 2000 to 2010, but increased from 2.98 pph in 2010 to 3.04 pph in 2016.

Table 4.11-1
Population Growth in West Covina (2000 – 2016)

Year	Population	Percent Change
2000	105,080	--
2001	106,676	1.5
2002	107,508	0.8
2003	108,109	0.6
2004	108,184	<.01
2005	107,955	-0.2
2006	107,651	-0.3
2007	106,985	-0.9
2008	106,426	-0.5
2009	106,231	-0.2
2010	106,189	-0.0
2011	106,499	0.3
2012	106,934	0.4
2013	106,642	-0.3
2014	106,897	0.2
2015	107,081	0.2
2016	107,873	0.7

Source: California Department of Finance, Report E-8, Population Estimates for California Counties and Cities: January 1, 2000 through January 1, 2010. CA Dept of Finance, E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2011-2015, with 2010 Benchmark

Table 4.11-2
Households in West Covina and Los Angeles County

Area	2000	2010	2016
Total Households			
West Covina	31,411	31,596	32,930
Los Angeles County	3,133,774	3,241,204	3,504,061
Average Household Size			
West Covina	3.32	3.34	3.41
Los Angeles County	2.98	2.98	3.04

Source: US Census Bureau, American Fact Finder, Census 2000 Demographic Profile Highlights*. US Census Bureau, American Fact Finder,* Census 2010 Demographic Profile Highlight. *CA Dept of Finance, E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2011-2015, with 2010 Benchmark*

Housing. Table 4.11-3 shows housing growth in West Covina since 2000. Between 2000 and 2010, approximately 652 housing units were added to the City's housing inventory, an average yearly increase in the housing stock of approximately 65 housing units. Between 2010 and 2016,

approximately 220 housing units were added to the City's housing inventory, an average yearly increase of approximately 31 units, reflecting a decrease in housing unit growth in the City in the latter half of the last decade following the economic downturn. Of the 32,930 housing units in the City in 2016, an estimated 1,522 units (approximately 4.6 percent) were vacant.

Table 4.11-3
Total Housing Units in West Covina Defined by Units per Structure

Year	Single Family Home	Multifamily Home (2-4 units)	Multifamily Home (5+ units)	Mobile Home/ Other	Total Number of Units	Occupied Units
2000	23,819	--	7,891*	348	32,058	31,411
2010	24,278	--	8,087*	345	32,710	31,612
2014	24,285	1,235	6,912	345	32,777	31,667
2015	24,307	1,235	6,912	345	32,799	31,689
2016	24,390	1,235	6,960	345	32,930	31,408

*Source: CA Dept of Finance, E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2011-2016, with 2010 Benchmark. * Includes 2-4 units in count.*

c. Jobs-Household Ratio. The jobs-household ratio in a jurisdiction is an overall indicator of jobs availability within the area. A balance of jobs and housing can give residents an opportunity to work locally and avoid employment commutes to other places in the region. As shown in Table 4.11-4, employment in West Covina was estimated at 29,500 in 2012 (SCAG, 2012). Based on this employment estimate and the City's estimated 2012 population of 107,000, the City's jobs-household ratio in 2012 was 0.93 jobs per household. The County's 2012 jobs-household ratio was 1.30 jobs per household.

d. Projections. Table 4.11-4 presents population, households, and employment projections through 2040 for West Covina and Table 4.11-5 presents population, households, and employment projections through 2040 for Los Angeles County. The projections are based on the SCAG Regional Transportation Plan (RTP) 2016-2040 projections.

The projections suggest that the City's population will grow approximately eight percent over the next 24years, from 107,873 in 2016 to 116,700 in 2040, an estimated increase of 8, 827 new residents by 2040. New households are expected to increase 6.7 percent over the next 24 years for a total of increase of 2,201 units from 2015 levels. Employment is projected to increase approximately 16 percent from 2012 levels, for a total of approximately 4,800 new jobs by 2040. This would increase the City's jobs-housing ratio from 0.93 jobs per household in 2012 to 0.98 jobs per household in 2040. By comparison, the countywide jobs/housing ratio is forecast to be 1.32:1 in 2040.

Table 4.11-4
West Covina Population, Households, and Employment

City of West Covina	2012	2016	2040
Population	107,000	107,873	116,700
Households	31,700	32,799	35,000
Employment	29,500	--	34,300
Jobs/Household Ratio	0.93	--	0.98

Source: Southern California Association of Governments, Regional Transportation Plan 2016-2040, and CA Dept of Finance, E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2011-2016, with 2010 Benchmark.

Table 4.11-5
Los Angeles County Population, Households, and Employment

County of Los Angeles	2012	2016	2020	2040
Population	9,923,000	10,241,335	10,326,000	11,514,000
Households	3,257,000	3,504,061	3,494,000	3,946,000
Employment	4,246,000	--	4,662,000	5,226,000
Jobs/Household Ratio	1.30	--	1.33	1.32

Source: Southern California Association of Governments, Regional Transportation Plan 2016-2040, and CA Dept. of Finance, E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2011-2016, with 2010 Benchmark.

e. Regulatory Framework.

Regional Housing Needs Assessment. California's Housing Element law requires that each county and city develop local housing programs to meet their "fair share" of future housing growth needs for all income groups, as determined by the DOF. The regional councils of government (COGs), including SCAG, are then tasked with distributing the State-projected housing growth need for their region among their city and county jurisdictions by income category. This fair share allocation is referred to as the Regional Housing Needs Assessment (RHNA) process. The RHNA represents the minimum number of housing units each community is required to plan for through a combination of: 1) zoning "adequate sites" at suitable densities to provide affordability; and 2) housing programs to support production of below-market rate units. West Covina's allocation from the 2014-2021 RHNA, distributed among the four income categories, is shown in Table 4.11-6.

Southern California Association of Governments. As discussed in Section 4.8, *Land Use and Planning*, West Covina is located within the SCAG planning area. SCAG functions as the Metropolitan Planning Organization (MPO) for Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial Counties, and is responsible for implementing the Regional Comprehensive Plan (RCP), Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and the Growth Visioning Report (GVR), each of which addresses regional issues associated with population growth, housing, and employment.

Table 4.11-6
Regional Housing Needs Assessment

Income Group	RHNA Allocation (units)	Percent of Total
Very Low	217	26%
Low	129	15.8%
Moderate	138	16.7%
Above Moderate	347	41.5%
Total	831	100%

Source: SCAG, 2014 - 5th Cycle Regional Housing Needs Assessment Final Allocation Plan, 1/1/2014 - 10/1/2021

State Housing Element Statutes. State housing element statutes (Government Code Sections 65580-65589.9) mandate that local governments adequately plan to meet the existing and projected housing needs of all economic segments of the community. The law recognizes that in order for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development. As a result, State housing policy rests largely upon the effective implementation of local general plans and in particular, housing elements. Additionally, Government Code §65588 dictates that housing elements must be updated at least once every five years. West Covina's most recent housing element, (*West Covina Housing Element 2014 – 2021*) was adopted in October 2013, with minor revisions to ensure consistency with the proposed project in August 2016.

4.11.2 Impact Analysis

a. Methodology and Significance Thresholds.

Methodology. Population and housing trends in the City were evaluated by reviewing the most current data available from the U.S. Census Bureau, the California DOF, the current West Covina General Plan, SCAG, and the 2014 RHNA. Impacts related to population are generally social or economic in nature. Under CEQA, a social or economic change generally is not considered a significant effect on the environment unless the changes are directly linked to a physical change.

Significance Thresholds. The following thresholds of significance are based on Appendix G to the *State CEQA Guidelines*. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- *Induce substantial population growth either directly or indirectly*
- *Displace substantial number of existing housing, necessitating the construction of replacement housing elsewhere*
- *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere*

For purposes of this analysis, "substantial" population growth is defined as growth exceeding SCAG or South Coast AQMD population forecasts for the City of West Covina. "Substantial" displacement would occur if allowed land uses would displace more residences than would be accommodated through growth accommodated by the proposed project.

b. Project Impacts and Mitigation Measures.

Threshold:	*Induce substantial population growth either directly or indirectly*

Impact PH-1 Implementation of the proposed project would facilitate the construction of new housing in West Covina, which would increase the City's population over time. However, exceedance of the SCAG population forecasts is not anticipated and impacts would be *less than significant*.

SCAG's Regional Comprehensive Plan (RCP) serves as a framework for addressing problems and creating a path to correct issues on a regional level through 2035. The RCP is broken up into nine chapters that include key areas where resource management is necessary due to the urban growth the area experiences. Population projections are made through SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and are the basis for growth for the RCP.

Development facilitated by the proposed project is projected to result in approximately 2,100 additional residential units in the City over the next 20 years (see Section 2.6, *Characteristics of the Proposed General Plan Update*, of this EIR). Based on West Covina's estimated average household size of 3.41 persons (DOF, 2016), this would lead to an increase of approximately 7,161 residents in the City. Additional residential development/ redevelopment would be concentrated in corridors and districts and, given the built out nature of the City, development would occur primarily in areas identified in PlanWC and the Downtown Plan and Code as having the greatest potential for change. Adding the 7,161 new residents cited above to the City's 2016 population of 107,873, future residential growth facilitated by the proposed project is predicted to increase the City's total population to 115,034, which is below SCAG's 2040 population forecasts of 116,700 from the 2016 RTP/SCS (SCAG, 2016). The addition of approximately 7,161 residents would lead to an approximately 6.6% increase in population over the next 19 years.

SCAG forecasts are based on historic growth trends and projected statewide and regional population growth. Average annual population growth in West Covina was 0.7% between 2000 and 2004. From 2005-2010, the City experienced a population decline that averaged -0.4% annually. From 2010-2015, the City experienced a population growth of 0.8% annually. From 2015 through 2040 SCAG forecasts region-wide population growth of 0.5% annually and forecasts an annual population growth rate of 0.3% for West Covina. As shown in Table 4.11-4, SCAG estimates that West Covina's population will increase by 8,827 people from 2016 to 2040. The addition of approximately 7,161 residents by 2036 from implementation of the proposed project would be within this projection.

As discussed in Chapter 2, *Project Description*, the built out nature of the City, the proposed project's focus on redevelopment and infill development, and state and regional demographic trends are anticipated to limit citywide growth to within the forecast amounts. Because no exceedance of the population forecast is anticipated, the proposed project would not induce substantial population growth.

It should also be noted that one of the fundamental purposes of the proposed project is to direct future development in such a way as to minimize the impacts of growth by emphasizing the intensification and reuse of already developed areas, thus minimizing pressure to develop on the remaining open space in the City and directing growth to the Downtown district and corridors. Specifically, Policy P3.4 of PlanWC's *Our Well Planned Community* Chapter is to "direct new growth to Downtown area and the corridors. Adapt economically underused and blighted buildings, consistent with the character of the surrounding districts and neighborhoods, to support new uses that can be more successful." Additionally, policy P2.3 of PlanWC's *Our Prosperous Community* Chapter is to focus new growth in the Downtown Area and action A2.6a is to support higher-intensity and high-quality multi-family residential development.

Mitigation Measures. None required beyond adherence to the proposed PlanWC and Downtown Plan and Code policies and actions identified above that would address possible impacts from population growth.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Displace substantial number of existing housing, necessitating the construction of replacement housing elsewhere* *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere*

Impact PH-2 Implementation of the proposed project would not result in the displacement of substantial numbers of housing or people. To the contrary, the proposed project would facilitate the development of new housing in accordance with State and local housing requirements, while preserving existing residential neighborhoods. Impacts would be *less than significant*.

The proposed project directs new growth to the Downtown area where development pressures are the greatest and change is desired, while protecting stable residential areas and targeting housing growth in strategic areas along key transportation corridors. Given the fact that West Covina is mostly built out and vacant land is limited, the proposed project focuses future development in the Downtown district and the corridors. Most of the proposed "infill" development is anticipated to occur primarily within the area covered by the Downtown Plan.

Focusing development in the Downtown area over the life of the Plans would not result in displacement of existing residences in order to accommodate the planned increase in development intensity. As stated in the Key Concepts of the Downtown Plan, strategic infill development would focus development in underperforming and vacant sites. Figure 2-8 of the

Downtown Plan shows the areas that would be targeted for redevelopment. The majority of these parcels are currently designated, zoned for, and occupied by commercial uses. The only parcel in the Downtown currently designated for residential uses is located on the north side of Glendora Avenue between Lakes Drive and Walnut Creek Parkway. This parcel is designated MU – Mixed Use (75+ du/a) on the City's current General Plan Land Use Map. This property is the site of a recently-developed project called "The Colony at the Lakes Apartments." This high-density, mixed use development is consistent with the proposed project, and its implementation would not lead to the displacement of the housing units or people currently occupying the site.

PlanWC projects that development in West Covina over the next 20 years would add 2,100 residential units to the City, with a majority of this growth directed to the Downtown area. Although no residential development that would be displaced by implementation of the proposed project have been identified, if any such displacement did occur, the 2,100 new residential units would more than replace any existing displaced residences. Impacts related to displacement of existing residences would be less than significant.

Mitigation Measures. None required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. **Cumulative Impacts.** Because the proposed project is comprised of a General Plan and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. The policies contained in PlanWC and the Downtown Plan would reduce cumulative population and housing impacts to a less than significant level.

4.12 PUBLIC SERVICES

This section assesses potential impacts to public services, including fire and police protection, public schools, and libraries from PlanWC and the Downtown Plan and Code (the proposed project). Impacts to water and wastewater infrastructure and solid waste collection and disposal are discussed in Section 4.13, *Utilities and Service Systems*. Impacts to parks and recreation are discussed in Section 4.12, *Recreation*.

4.12.1 Existing Public Services

a. Fire Protection.

Personnel, Facilities and Equipment. The West Covina Fire Department provides fire protection services and emergency response services to medical emergencies and hazardous materials spills within the City of West Covina. The Fire Department currently has 77 professionals, and six community volunteer members. Each day, there are 25 highly trained and qualified personnel on duty to provide 24 hour protection. In 2015, average response times were 5:17 for medical emergencies and 5:56 for fire related emergencies. Factors in determining response time goals and necessary resources revolve around the standards set forth in National Fire Protection Association (NFPA) Standard 1710, "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments," increased population, density of population, call volume and unique geographical boundaries that effect response times within the City (Assistant Chief Mike Fountain 2016).

The Fire Department serves the City of West Covina through five strategically located stations throughout the City. Station No.1 is located at 819 S. Sunset Avenue, Station No. 2 is located at 2441 E. Cortez Street, Station No. 3 is located at 1433 Puente Avenue, Station No. 4 is located at 1815 S. Azusa Avenue, and Station No. 5 is located at 2650 E. Shadow Oak Drive. Fire station locations are shown in Figure 4.12-1. From these five stations, firefighters staff five engine companies, one truck company, three paramedic rescue ambulances, and one command unit. Each station is staffed with trained paramedics, and the five engine companies, the truck company, and the three ambulances are staffed by California-licensed paramedics and certified Emergency Medical Technicians. Since October 2004, the Fire Department has provided ambulance transportation services for ill or injured patients. Firefighter/Paramedics staff three Advanced Life Support ambulances and respond to all reported medical emergencies along with personnel assigned to engine companies.

As of 2016, the Fire Department has additionally been approved by the City Council to purchase two new Fire Engines and one new Quint Aerial Ladder Truck. The new Fire Engines and Quint Aerial Ladder Truck will be placed into frontline service and allow current reliable apparatus to be used in a reserve capacity. Reserve apparatus are vital to maintaining the Fire Department's ability to respond and provide service when frontline fire apparatus are taken out of service for maintenance. The Fire Department expects to place the new units into service in early 2017.

In addition to responding to fires, medical emergencies, hazardous materials spills, and public assistance calls, West Covina firefighters also perform critically important fire and life safety

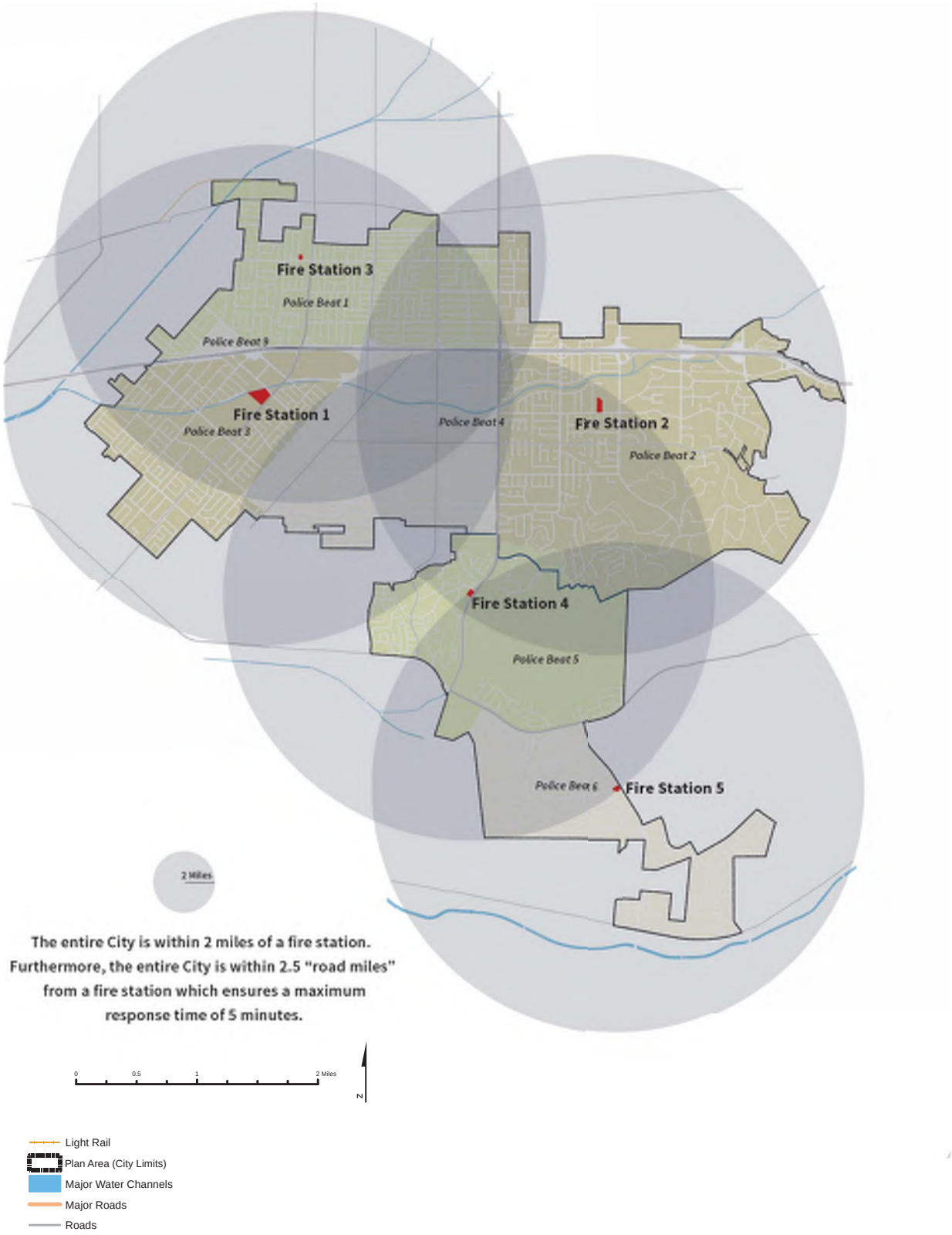
inspections on each commercial occupancy building at least annually. While conducting fire and life safety inspections, firefighters have the authority to issue "notice to correct" to building owners or managers to ensure that violations of the Uniform Building Code are corrected in a timely manner. Additionally, the Fire Department also provides technical fire prevention activities. Members of the Fire Department's Fire Prevention Bureau, under the direction of the Fire Marshal, check building construction plans to make sure all proposed buildings are in compliance with the 2013 California Fire Code, 2013 California Building Code, California Health & Safety Code and West Covina Municipal Code (WCMC) prior to construction. Fire inspectors perform plan review on all proposed fire sprinkler systems, fire alarm systems, and restaurant hood extinguishing system installation. At least annually, personnel assigned to the Fire Prevention Bureau inspect all hazardous occupancies and state-licensed facilities, including board and care facilities, schools, and daycare facilities. The Fire Marshal also oversees the City's Fire Investigation Unit. Three members of the Department are trained to conduct fire cause investigation, interview arson suspects, conduct surveillance, and testify in court.

Wildland Fire Hazards. The portion of the City between South Azusa Avenue and East Cameron Avenue in the South Hills area is designated as a Very High Fire Hazard Severity Zone (VHFHSZ) by the California Department of Forestry and Fire Protection. This area includes Galster Park and single family residences. The VHFHSZ areas within the City of West Covina are under the responsibility of the West Covina Fire Department.

b. Police. The West Covina Police Department (WCPD) provides law enforcement services to the City of West Covina. The WCPD provides a full range of police services within two Divisions: the Patrol Division and the Investigative & Support Services Division (ISSD). The Police Department headquarters are located in the West Covina City Hall at 1444 West Garvey Avenue. The City of West Covina is organized into four service areas, Service Area 1 (North), Service Area 2 (East), Service Area 3, (Central), and Service Area 4 (South). Each Service Area is assigned a Lieutenant and residents in each area can contact Lieutenants directly regarding non-emergency public safety needs or neighborhood concerns.

The WCPD currently has an authorized strength of 100 sworn staff. About two-thirds of all sworn officers work in the Patrol Division, which focuses on patrolling city streets, answering calls for service, and identifying potential crime problems. There are seven officers on patrol during the day and night shifts, and an additional four to five officers on patrol during the mid-day overlap shift. The response time goal for Priority 1 calls, or emergency calls, within the City is 5 minutes or lower. Priority 2 and 3 (Lower Priority), which are non-emergency calls, are responded to as quickly as possible with Priority 2 calls having a goal of 20 minutes or lower, and Priority 3 having no set response time goal (Lieutenant David Lee, March 31, 2016). Police patrols within the City are organized in a beat system, which provides deployment across the City(see Figure 4.12-1).

The WCPD maintains a Type I jail facility, which is managed through the Patrol Division. The facility has enough beds to accommodate four females and 12 males, with six additional beds. Because the facility is a Type I jail, it is authorized to hold inmates for a maximum of 96 hours, precluding any emergencies. The WCPD's ISSD carries out the City's Code Enforcement/Community Enhancement program. The focus of Code Enforcement/Community Enhancement is to investigate violations of laws or ordinances relating to public health, safety



Fire Stations and Police Beats Figure 4.12-1

and welfare, the operation of businesses, consumer protection, building standards, land-use regulations, and other municipal interests. Community Enhancement works in conjunction with the Planning Division, Building Division, Public Works Department, the Police Department, Community Services Department, the County Health Department, Vector Control, and any other public agency as needed.

The ISSD work specialized assignments such as automotive thefts, financial crimes, burglaries, court coordination, homicide, domestic violence, victim advocacy, robbery, sex crimes, and forensics. The detectives conduct intense follow-up investigations and prepare cases for court prosecutors to deliver justice to crime victims. The Special Enforcement Team (SET), which focuses on inter-agency operations and narcotics surveillance, is also under Investigations umbrella. Three school resource officers (SROs) were authorized in the 2015/16 Budget. One SRO is assigned to West Covina High School, with two more to follow later in 2016 or early in 2017 at South Hills High School and Edgewood High School.

c. Public Schools. Public educational services within the City of West Covina are provided by the West Covina Unified School District (WCUSD), Covina-Valley Unified School District (CVUSD), and Rowland Unified School District (RUSD), as well as other districts at least partially within West Covina, including Hacienda La Puente School District (HLPSD), Walnut Valley School District (WVSD), and Baldwin Park School District (BPSD). Locations of schools throughout the City of West Covina are shown in Figure 2-2 *PlanWC Land Use Map* in Section 2-2, *Project Description*.

West Covina Unified School District (WCUSD). The majority of West Covina is within the WCUSD, which currently serves over 14,000 students in fifteen local area schools, two charter schools, and one Pre-School. Local area schools include eight Elementary Schools, three Middle and Intermediate School, three High Schools and one Kindergarten through Grade 12 School. The two charter schools include one Kindergarten through Grade 8 School and one Kindergarten through Grade 12 School. WCUSD has an intra-district open enrollment policy, which means that parents/guardians who have established residency within the district boundaries are able to select the district school that their children will attend regardless of their address.

Enrollment at WCUSD schools totaled 14,213 students during the 2014-2015 school year. Table 4.12-1 shows enrollment at WCUSD schools in 2014-15. Elementary schools in WCUSD range in size from 324 students to 580 students, Middle and Intermediate schools range in size from 383 students to 774 students, and High Schools ranged in size from 191 to 2,426 students. The WCUSD charter schools range from 1,228 students to 3,634 students (California Department of Education, 2015).

Table 4.12-1
WCUSD Enrollment

School Name	Enrollment (2014/15)
California Elementary	408
California Virtual Academy @ Los Angeles	3,634
Cameron Elementary	481
Coronado High (Continuation)	191
Edgewood High	831
Edgewood Middle	593
Hollencrest Middle	774
Insight @ Los Angeles	122
Merced Elementary	543
Merlinda Elementary	580
Monte Vista Elementary	563
Orangewood Elementary	478
Rio Verde Elementary	95
San Jose Charter Academy	1,228
Vine Elementary	549
Walnut Grove Intermediate	383
Wescove Elementary	324
West Covina High	2,426

Source: California Department Of Education, March 2016.

Covina-Valley Unified School District (CVUSD). The northeast portion of the City is within the boundaries of the CVUSD. CVUSD schools that are within West Covina include four Elementary Schools, one Middle School and one High School. CVUSD has an intra-district open enrollment policy, allowing residents within the district to send their children to the school of their choosing within the district as long as there is available space.

Enrollment at CVUSD schools totaled 12,274 students during the 2014-2015 school year. Table 4.12-2 shows enrollment at CVUSD schools in 2014-15. Elementary schools in CVUSD range in size from 256 students to 659 students, Middle and Intermediate schools range in size from 849 students to 870 students, and High Schools ranged in size from 125 to 1,835 students (California Department of Education, 2015).

Rowland Unified School District (RUSD). The southern portion of the City is within the boundaries of RUSD. RUSD schools within the City of West Covina include one Elementary School, one Kindergarten through Grade 8 School and one Intermediate School. However, RUSD has an intra-district open enrollment policy, so West Covina residents within these districts can send their children to any school within the district that they live in, as long as there is available space.

Enrollment at RUSD schools totaled 15,055 students during the 2014-2015 school year. Table 4.12-3 shows enrollment at RUSD schools in 2014-15. Elementary schools in RUSD range in size from 432 students to 702 students, Middle and Intermediate schools range in size from 688

students to 750 students, and High Schools ranged in size from 199 to 2,329 students (California Department of Education, 2015).

a. Library. Public library services within the City of West Covina are provided by the4 Los Angeles County Public Library system. The West Covina Public Library is located at 1601 West Covina Parkway and provides study rooms, a meeting room, public computers and access to the Los Angeles County book collection and online resources. The Library also provides children's and teen services, such as homework help and a Family Center. The facility is 42,345 square feet.

Members of the West Covina Public Library have access to the resources of the entire Los Angeles County Public Library system. If a book is not available at the West Covina Library, it can be ordered from another library in the system to be accessible in West Covina. Library members are also be able to access other nearby Los Angeles County Public Libraries, such as the Baldwin Park Library, Covina Library, Sunkist Library, El Monte Library, Norwood Library and Charter Oaks Library, all of which are within eight miles of the West Covina Public Library.

Table 4.12-2
CVUSD Enrollment

School Name	Enrollment (2014/15)
Barranca Elementary	659
Ben Lomond Elementary	467
Covina High	1,337
Cypress Elementary	644
Fairview High (continuation)	125
Grovecenter Elementary	489
Lark Ellen Elementary	411
Las Palmas Middle	870
Manzanita Elementary	256
Merwin Elementary	417
Northview High	1,346
Rowland Avenue Elementary	525
Sierra Vista Middle	888
South Hills High	1,835
Traweek Middle	849
Workman Avenue Elementary	522

Source: Department Of Education, March 2016

Table 4.12-3
RUSD Enrollment

School Name	Enrollment (2014/15)
Alvarado Intermediate	750
Blandford Elementary	702
Giano Intermediate	688
Hollingworth Elementary	432
Hurley Elementary	623
Iq Academy California – Los Angeles	550
Jellick Elementary	440
John A. Rowland High	2,329
Killian Elementary	629
Nogales High	1,959
Northram Elementary	520
Rorimer Elementary	582
Rowland Assistive Technology Academy	27
Rowland Elementary	528
Rowland Heights Charter Academy	114
Rowland Unified Community Day	46
Santana High (Continuation)	199
Shelyn Elementary	437
Stanly G Oswalt Academy	993
Telesis Academy of Science and Math	814
Villacorta Elementary	500
Ybarra Academy for the Arts and Technology	635
Yorbita Elementary	539

Source: Department Of Education, March 2016.

4.12.2 Regulatory Setting

a. Fire.

California Fire Code. State fire regulations are set forth in Sections 13000 et seq. of the *California Health and Safety Code*, which include regulations concerning building standards (as also set forth in the *California Building Code*), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

b. Police. There are no federal, state, or local regulations that are directly applicable to police services within the City.

c. Schools.

California State Assembly Bill 2926 (AB 2926)—School Facilities Act of 1986. In 1986, AB 2926, entitled the School Facilities Act of 1986, was enacted by the state of California and added to the California Government Code (Section 65995). It authorizes school districts to collect development fees, based on demonstrated need, and generate revenue for school districts for capital acquisitions and improvements. It also established that the maximum fees (adjustable for inflation) which may be collected under this and any other school fee authorization are $1.50 per square foot ($1.50/sf) of residential development and $0.25/sf of commercial and industrial space.

AB 2926 was expanded and revised in 1987 through the passage of AB 1600, which added Section 66000 et seq. of the Government Code. Under this statute, payment of statutory fees by developers serve as total CEQA mitigation to satisfy the impact of development on school facilities. However, subsequent legislative actions have alternatively expanded and contracted the limits placed on school fees by AB 2926.

California Senate Bill 50 (SB 50). As part of the further refinement of the legislation enacted under AB 2926, the passage of SB 50 in 1998 defined the Needs Analysis process in Government Code Sections 65995.5–65998. Under the provisions of SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development. The fees (referred to as Level One fees) are assessed based upon the proposed square footage of residential, commercial/industrial, and/or parking structure uses. Level Two fees require the developer to provide one-half of the costs of accommodating students in new schools, while the state would provide the other half. Level Three fees require the developer to pay the full cost of accommodating the students in new schools and would be implemented at the time the funds available from Proposition 1A (approved by the voters in 1998) are expended. School districts must demonstrate to the state their long-term facilities needs and costs based on long-term population growth in order to qualify for this source of funding. However, voter approval of Proposition 55 on March 2, 2004, precludes the imposition of the Level Three fees for the foreseeable future. Therefore, once qualified, districts may impose only Level Two fees, as calculated according to SB 50.

4.12.3 Impact Analysis

a. Methodology and Significance Thresholds.

Methodology. Available information pertaining to public services used in this analysis includes, but is not limited to: West Covina Fire Department website (City of West Covina, 2016); personal communication with the West Covina Fire Department (2016); West Covina Police Department website (City of West Covina, 2016); personal communications with the West Covina Police Department (2016), WCUSD, CVUSD and RUSD websites; personal communications with WCUSD, CVUSD and RUSD administrators (2016); and the California Department of Education's DataQuest website (California Department of Education, 2015).

Impacts to parks are discussed in detail in section 4.13 *Recreation* and will not be analyzed further in this section.

Significance Thresholds. According to the adopted *State CEQA Guidelines*, impacts related to public services from the proposed project would be significant if it would:

- *Result in substantial adverse physical impacts associated with the need for or provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives for:*
- *Fire protection*
- *Police protection*
- *Schools*
- *Other public facilities*

b. Project Impacts and Mitigation Measures.

Threshold:	*Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives.*

Impact P-1 **Development facilitated by the proposed project would increase the City's population. This would increase demand for fire and emergency medical services and potentially create the need for new fire service facilities. However, compliance with policies in PlanWC and the Downtown Plan and Code, as well as other City programs, would reduce impacts related to fire protection services to a *less than significant* level.**

The proposed project would not expand City limits or development into undeveloped areas, but development within already-developed parts of the City would be intensified, and the City's population would increase. While fire and emergency medical service capacity is primarily based on service area, an increase in population could incrementally increase the number of service calls and could eventually necessitate the need for additional staff and possibly facilities.

As discussed above, the WCFD utilizes the NFPA Standard 1710 to determine their response time goals and effectiveness. It is the goal of the WCFD to meet or exceed the standards identified in NFPA 1710, which recommends that the first unit to arrive and begin treatment at an EMS incident should be in fewer than 4 minutes, 90 percent of the time. Secondary ALS units should arrive at scene in no more than 8 minutes, 90 percent of the time. The City does not currently meet this standard, with first in units arriving on average within 5:17, and only responding within the recommend 4 minute time frame on approximately 44.8 percent of EMS calls for service. Secondary ALS units, typically Rescue Ambulances arrive within the recommended 8 minute standard, approximately 81 percent of the time. For typical residential fire incidents, NFPA 1710 recommends that the first in unit arrive in four minutes or less, with all remaining units arriving and being assigned in less than 8 minutes. It is the goal of the West Covina Fire Department to meet or exceed the response time standards to fire incidents as outlined in NFPA 1710. The department does not currently meet this standard, with first in

units arriving to working structure fires, on average, within 6 minutes and 5 seconds (Assistant Chief Mike Fountain, 2016).

Any new development that would occur under the proposed project would be required to comply with all applicable federal, state, and local regulations governing the provision of fire protection services, including adequate fire access, fire flows, and number of hydrants. For example, the City has adopted the 2013 California Fire Code, and all applicable requirements of this Code would apply to future development. These project-specific requirements include construction standards in new structures and remodels, road widths and configurations designed to accommodate the passage of fire trucks and engines, and requirements for minimum fire flow rates for water mains.

Section D.2 of PlanWC identifies three key issues relating to fire service within West Covina:

- *The need to continue providing the same level of service with fewer resources while calls for service continue to increase*
- *Service time to the southern areas of West Covina*
- *An aging fleet that needs to be decommissioned*

Policies and Actions within PlanWC aim to address these key issues. Policy P6.13 is to optimize firefighting and emergency response capabilities with actions such as increasing fire staffing to coincide with increasing population, development, and calls for service, as well as requiring the funding of new services from fees or assessments from new development. Action A6.13b is to co-habit with the Police Department a future public service center to improve the service times in the Downtown area. The new Police and Fire Public Safety Center would serve as the headquarters for the Police and Fire departments, and would be located at the western corner of the intersection of Sunset Avenue and Cameron Avenue, on a site currently occupied by West Covina Fire Station 1, a vacant Chamber of Commerce office and the West Covina Maintenance Yard. The new headquarters facility would house the West Covina Police Administration, West Covina Fire Administration, West Covina Fire Station 1, and the City of West Covina Emergency Operations Center.

Policies and Actions contained in PlanWC require fire prevention and fire risk reduction to be a key component of all new development. For example, Policy P6.14 requires the City to address fire-prevention during the development review process. The associated Action A6.14 calls for a dedicated person for fire prevention review during design, construction, inspection, and operation of development projects to ensure adequacy of fire protection, access for firefighting, water supply, and vegetation clearance. In addition, Action A6.15a requires all new construction to comply with the provisions of the latest California Building Code. Policy P6.17 is to take actions to reduce potential for loss of life or property in high fire hazard areas.

The Downtown Plan and Code further address fire services in the Downtown area. Policy 12.3 makes fire prevention and fire risk reduction a key component of all new development by requiring the adoption and enforcement of appropriate building standards, land use controls and environmental review. Building standard 5.1B requires that each building shall be designed in compliance with the applicable general requirements in Section 5.2 and all applicable requirements of the California Building and Fire Codes as amended and adopted by the City.

New development facilitated by the proposed project would be within the existing city limits. Further, implementation of PlanWC policies, and compliance with existing building and fire codes, would reduce potential fire hazards associated with new development. However, the increase in population and intensification of development within the City facilitated by the proposed project could result in the need for new or expanded fire facilities. If new or expanded facilities are required, these would likely be located within existing urban areas of the city, which is served throughout by existing infrastructure and utilities. Adherence to policies in PlanWC and the Downtown Plan and Code would reduce potential land use conflicts between new or expanded fire facilities and surrounding uses. Therefore, impacts would be less than significant.

Proposed General Plan Update Goals and Policies

PlanWC and the Downtown Plan and Code set fire protection goals, and outline policies and actions that would address issues related to fire protection. The goals and policies from these documents that are applicable to the proposed project are included below.

Plan WC

Our Healthy and Safe Community

Our goal is to create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity. Well-designed public and semi-public realm foster social interaction, and good programming can draw people out of their homes and into their community.

P6.13 *Optimize firefighting and emergency response capabilities.*

A6.13a *Resolve extended response time problems by:*

- *Increasing fire staffing to coincide with increasing population, development, and call for services;*
- *Require the funding of new services from fees or assessments from new development.*

A6.13b *Co-habit with the Police Department a future public service center to improve the service times in the Downtown area.*

P6.14 *Address fire-prevention during **development** review process.*

A6.14 *Dedicated person for fire prevention review during design, construction, inspection, and operation of development projects to ensure adequacy of fire protection, access for firefighting, water supply, and vegetation clearance.*

P6.15 *Limit the exposure to **potential** natural hazards through adoption and enforcement of appropriate building standards, land use controls, and environmental review.*

A6.15a *Require all development to comply with the provisions of the latest California Building Code, including provisions related to proper design and engineering to mitigate potential impacts from seismic events, fires, and other hazards.*

A6.15b *Review Zoning Ordinance and subdivision requirements, make recommendations to the City Council and Planning Commission on the implications of the Safety Element, and make any necessary changes.*

A6.15c *Require CEQA environmental reviews to analyze and as necessary mitigate potential natural hazards on a site-specific basis.*

A6.15d *Require Specific Plans to recognize the findings of this Safety Element as critical land use guidelines are developed within specific areas.*

P6.17 *Take actions to reduce **the** potential for loss of life or property in high fire hazard areas.*

A6.17a *Review and evaluate proposed land uses in extreme and high fire hazard areas for their vulnerability to fire and potential ignition sources.*

A6.17b *Prohibit the use of untreated shake roofs in areas of high and extreme fire hazard.*

A6.17c *Adopt special inspection criteria in those areas of extreme, high, and medium fire risk during critical fire season when the sustained wind velocity exceeds 25 miles per hour.*

A6.17d *Study the adoption of rigid inspection standards for off-road vehicles (such as muffler and spark arrestor controls) and closely control the usage of off-road vehicles during periods of high fire risk (such as "Santa Ana" wind events with low humidity and strong winds).*

A6.17e *Investigate water re-use programs in the hillside areas to aid in fire prevention.*

A6.17f *Work with homeowners and builders constructing homes in or adjacent to high and extreme fire risk areas to make all water in privately owned swimming pools in these areas accessible to fire trucks for use in onsite fire protection. This could be accomplished through the inclusion of suitable gates and driveways in both existing and proposed homes.*

A6.17g *Continue to support programs to reduce fire hazards from vegetation in areas of extreme to high fire risk. Such programs may take a variety of forms and would include current City weed and brush removal programs, as well as control and use of fire retardant plantings.*

P6.20 *Engage in **and** support inter-agency coordination regarding emergency services and response, and critical facilities.*

A6.20a *Encourage and participate in mutual aid agreements between the fire departments of local cities and Los Angeles County.*

A6.20b *Improve power and gas line inspections and new installations through a coordinated effort between providers of electricity and natural gas and the West Covina Fire Department.*

Downtown Plan and Code

Our Healthy and Safe Community

P12.2 *Provide community safety through enhanced police and fire services.*

A12.2b *Locate a future Police and Fire Department public service center to increase the presence and services in the Downtown area.*

P12.3 *Limit the exposure to potential natural hazards through adoption and enforcement of appropriate building standards, land use controls, and environmental review.*

A12.3 *Require all development to comply with the provisions of the latest California Building Code, including provisions related to proper design and engineering to mitigate potential impacts from seismic events, fires, and other hazards.*

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. Impacts associated with fire protection would be less than significant with implementation of policies in PlanWC and the Downtown Plan and Code.

Threshold:	*Result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives.*

Impact P-2 **Development facilitated by the proposed project would increase the City's population. This would increase demand for police services and potentially create the need for new police service facilities. However, compliance with policies in PlanWC and the Downtown Plan and Code, as well as other City programs, would reduce impacts related to police protection services to a *less than significant* level.**

Police protection services are not necessarily "facility-driven" because police officers do not primarily rely on facilities in order to effectively patrol a beat. An expansion, or intensification, of development within a beat does not necessarily result in the need for additional facilities if police officers and patrol vehicles are equipped with adequate telecommunications equipment in order to communicate with police headquarters. However, if the geographical area of a beat is expanded, its population increases, or intensification/redevelopment of an existing beat results in the need for new police officers, new or expanded facilities could be needed.

Implementation of the proposed project would result in intensification of development and an increase in population. According to the Bureau of Justice, in 2013, police departments serving a population of 100,000 to 249,999 residents had an average of 1.7 officers per 1,000 residents (Bureau of Justice, 2015). The WCPD currently has 100 sworn officers. With a current population of 107,600 residents, the WCPD currently operates with .92 officers per 1,000 residents. The WCPD would need to provide an additional 85 officers to reach the national average of 1.7 officers per 1,000 residents at the City's current population. Growth projected by

PlanWC would increase the number of officers that would be needed to reach the national average with projected population growth. The Southern California Association of Governments (SCAG) projects that West Covina's population will grow to 120,200 by 2035.

PlanWC identifies five key issues relating to police service within the City of West Covina:

- *The need to continue providing the same level of service with fewer resources*
- *Traffic safety*
- *Property crimes*
- *Liquor stores close together increase incidence of violence and other alcohol-related problems*
- *Illegal activities associated with the homeless population*

PlanWC Policy P6.11 is to provide community safety through enhanced police services. This would involve actions such as increasing public access to police services by increasing police staffing and requiring funding of new services through fees or assessments from new development. Further, to provide enhanced police services, PlanWC calls for the WCPD to co-habit with the Fire Department in a future public service center to increase its presence and service in the Downtown area. The new Police and Fire Public Safety Center would serve as the headquarters for the Police and Fire departments, and would be located at the western corner of the intersection of Sunset Avenue and Cameron Avenue, on a site currently occupied by West Covina Fire Station 1, a vacant building, and the West Covina Maintenance Yard. The new headquarters facility would house the West Covina Police Administration, West Covina Fire Administration, West Covina Fire Station 1, and the City of West Covina Emergency Operations Center. If and when an application for development of such a facility is brought forward, its potential environmental impacts would be analyzed on a project-level basis.

PlanWC also includes Policy P6.12 to address safety during the development review process. Actions included in PlanWC include the incorporation of Crime Prevention Through Environmental Design principles and best practices into zoning ordinances and development review processes. Additionally, PlanWC calls for the development of an ordinance that would restrict the location and concentration of liquor stores within 500 feet of schools and parks, as well as an incentive program to facilitate the transition of liquor stores to food markets and local grocery stores.

The Downtown Plan and Code further address police services in the Downtown area. Policy 12.2 calls for enhanced police services in the Downtown area. Actions in the Downtown Plan and Code call for added bike patrols in the Downtown area to provide enhanced services as well as allow increased personalized police contacts to enhance personal relationships between the police department and residents. The Downtown Plan and Code further emphasizes the need for the future Police and Fire Department public services center as well as the incorporation of Crime Prevention through Environmental Design principles and best practices into new development processes.

With adherence to the proposed goals, policies and actions, , impacts related to police services would be less than significant.

Proposed General Plan Update Goals and Policies

PlanWC and the Downtown Plan and Code set police services goals and outline policies and actions that would address issues related to fire protection. These goals, policies, and actions are listed below.

Plan WC

Our Healthy and Safe Community

Our goal is to create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity. Well-designed public and semi-public realm foster social interaction, and good programming can draw people out of their homes and into their community.

P6.11 *Provide community safety **through** enhanced police services.*

A6.11a *Increase public access to police services by:*

- *Increasing police staffing to coincide with increasing population, development, and call for services;*
- *Require the funding of new services from fees or assessments from new development.*

A6.11b *Add bike patrol in Downtown area to prevent, intervene, and enforce activities while allowing personalized police contacts that enhance the relationship between the police department and the people it serves.*

A6.11c *Continue to support and expand the Neighborhood Watch program.*

A6.11d *Co-habit with the Fire Department a future public service center to increase the presence and services in the Downtown area.*

A6.11e *Provide education about specific safety concerns such as property crimes and auto-theft.*

P6.12 *Address safety during development **review** process.*

A6.12a *Incorporate Crime Prevention Through Environmental Design (CPTED) principles and best practices into zoning ordinances and development review processes for new development and major rehabilitation.*

A6.12b *Develop an ordinance that restricts the location and concentration of liquor stores within 500 feet of schools and parks. Include an incentive program to facilitate the transition of liquor stores to food markets and local grocery stores.*

Our Active Community

Our goal is to enhance the value of fitness and celebrate healthy living; improve the existing condition of public open spaces and facilities to encourage use; and acquire, develop, and maintain quality of public open spaces and trails.

P8.8 *Increase safety in public parks.*

A8.8a *Provide adequate lighting; maintaining landscaping to maximize visibility; remove graffiti as soon as possible; remove trash, debris, weeds, etc. from public areas with ongoing maintenance of those public areas; and conduct regular police patrols and provide public safety information.*

Downtown Plan and Code

Goal 12 *Create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity. Well-designed public and semi-public realm foster social interaction, and good programming can draw people out of their homes and into their community.*

P12.2 *Provide community safety through enhanced police and fire services.*

A12.2a *Add bike patrol in Downtown area to prevent, intervene, and enforce activities while allowing personalized police contacts that enhance the relationship between the police department and the people it serves.*

A12.2b *Locate a future Police and Fire Department public service center to increase the presence and services in the Downtown area.*

A12.2c *Incorporate Crime Prevention Through Environmental Design (CPTED) principles and best practices into zoning ordinances and development review processes for new development and major rehabilitation.*

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. Impacts associated with police services would be less than significant with implementation of the goals, policies, and actions in PlanWC and the Downtown Plan and Code.

Threshold:	*Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives.*

Impact P-3 **Development facilitated by the proposed project would increase the City's population. This would increase enrollment in schools and potentially create the need for new school facilities. However, compliance with policies in PlanWC and the Downtown Plan and Code, and other City programs, would reduce impacts related to schools to a *less than significant* level.**

Impacts to schools are determined by analyzing the projected increase in the demand for schools as a result of the proposed project and comparing the projected increase with the schools' remaining capacities to determine whether new or altered facilities would be required. Impacts on schools are considered to be less than significant with payment of the State

Department of Education Development Fee in conformance with AB 2926, which was enacted to provide for school facilities construction, improvements, and expansion.

Table 4.12-4 shows generation rates for residential land uses within the WCUSD. These generation rates are assumed to apply through the CVUSD and RUSD. The size and cost of the individual units are the major factors in determining where each unit falls in the range of students generated.

Table 4.12-4
Student Generation Rates

Land Use Category	Generation Rates (per unit)			
	Elementary	Middle School	High School	Total
Single Family Detached	0.197	0.114	0.185	.50
Multi-Family	0.164	0.086	0.125	.36

Source: West Covina School District 2015

As discussed in Section 4.11, *Population and Housing,* of this EIR, growth allowed by the proposed project is consistent with the growth forecasted by the Southern California Association of Governments (SCAG), which would add an estimated 2,201 households to West Covina by 2040, for a total of 35,000 households (SCAG 2016). The increase in dwelling units would increase enrollment in local schools serving West Covina. Table 4.12-5 shows the number of students that would be generated by development facilitated by PlanWC and the Downtown Plan and Code using the WCUSD generation rates shown in Table 4.12-4. If all students generated by the proposed growth in the number of households were to attend schools within the WCUSD, the 1,100 new students would represent an approximately eight percent increase from the total 14,203 students that were enrolled in the 2014/2015 school year. Further, the 1,100 students would account for an approximately three percent increase in the 40,471 total students enrolled in school districts serving West Covina, including WCUSD, CVUSD, and RUSD, in 2014/2015.

Table 4.12-5
Students Generated

Housing Units	Elementary	Middle School	High School	Total Students Generated
2,201*	434	251	407	1,100

See Table 4.12-4 for Student Generation Rates
**Source: SCAG growth forecasts (SCAG 2016)*

Pursuant to Section 65995 (3) (h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998), the payment of statutory fees "...is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." With payment of mandatory school impact fees by developers in the city, impacts would be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. The payment of statutorily required fees would ensure that impacts to schools would remain less than significant.

c. Cumulative Impacts. Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. Implementation of the proposed project would incrementally increase demands on public services within the City of West Covina; however, this increased demand would be addressed by policies and actions in PlanWC and the Downtown Plan and Code, as well as existing regulations. Additionally, growth would be within SCAG projections. Therefore, cumulative impacts to public services would be less than significant.

4.13 RECREATION

This section analyzes the potential impacts on and from recreational resources resulting from implementation of the proposed project, using information from the proposed project itself, as well as other documents such as West Covina's current General Plan and Municipal Code (the WCMC).

4.13.1 Setting

a. Definitions. There are a range of private and public open space types of varying character and function. Table 4.13-1 below (from PlanWC, Table 8-1, *Typology of Open Spaces*) explains the types and their character and function.

Table 4.13–1
Typology of Open Spaces

Scale		Open Space Typology	Character and Function
Public	Regional	Wilderness	Natural environments rich in wildlife that are left in the natural state.
		Greenway	A network of spaces that includes pathways for walking and biking while also allowing wildlife to move through urban areas. Typically found along creek corridors.
	City	Community Park	A large area for active recreation that includes sports fields and community facilities such as swimming pools.
	Neighborhood	Neighborhood Park	A mid-sized informal public space, often the focal point of the neighborhood. The green is enclosed by buildings, used for unstructured recreation, and planted with grass and trees.
		Square	A formal public space, no larger than a block, located at the focal point of civic significance, enclosed by key buildings, typically hard paved and allows passive recreation.
		Plaza	A public space circumscribed by civic or commercial frontages, with formal landscaping.
		Community Garden	A semi-private grouping of garden plots available for small-scale cultivation by residents of apartments and other dwelling types without private gardens. Community gardens strengthen community bonds, provide food, create recreational and therapeutic opportunities and promote environmental awareness and education.
		Quadrangle	A private open space enclosed by buildings accessible by a small opening to the street
		Pocket Park	A fenced area for child's play within walking distance to nearby homes, closely overlooked by residents. The play areas contain soft and hard surfaces, play equipment, and benches with ample shade provided by tree cover.
	On the Block	Courtyard	A public or private open space surrounded by walls or buildings. The court is paved or landscaped.
		Terrace	A private outdoor extension of a building above ground level that is used for gardening, entertaining, outdoor cooking, or relaxation.

Table 4.13–1
Typology of Open Spaces

Scale		Open Space Typology	Character and Function
Private	On the Lot	Yard	A private landscaped area of a lot. Typically, the area is free of buildings and structures. Exceptions include permitted encroachments such as porches, patios, and terraces. Portions of the private yard may be used as a kitchen-garden for small-scale cultivation of food.
		Patio	A private outdoor space that adjoins a residence and is typically paved.
		Roof garden	Roof gardens are useful in urban situations where yards may not be available. Roofs are also useful for small-scale cultivation.
	Within the Building	Patio	A private outdoor space that adjoins a residence and is typically paved.

b. Existing Conditions. West Covina is located in the greater Los Angeles metropolitan region in eastern Los Angeles County. The City is located at the eastern end of the San Gabriel Valley, which is framed by the San Gabriel Mountains on the north, the San Rafael Hills on the west, the Puente Hills on the south, and the Chino Hills and San Jose Hills on the east. Parks within West Covina are generally well distributed and well used throughout the City. There are a few areas where access to service is beyond a 5 to 10 minute walk. In 2013, West Covina earned national Playful City USA recognition that honors cities taking bold steps that make it easy for all kids to get the balanced and active play they need to thrive.

The City currently has a density transfer allowance for residential development in the Hillside Overlay Zone. The Hillside Overlay Zone is located in the southeasterly portion of the City in the San Jose Hills. The majority of the land that is designated as Hillside Overlay Zone has been developed, so it is unlikely that density transfer will be widely used in the future. Density transfer can only occur when it will preserve portions of hillside for natural areas, scenic beauty and wildlife habitat. This has resulted in placement 207 acres of land into City-owned Landscape Maintenance Districts (LMDs) in the San Jose Hills. The LMDs are generally steep slopes or valleys, so they provide mainly passive recreational opportunities providing scenic natural views.

West Covina offers a range of park types that include two small pocket parkettes, eight neighborhood parks, three community parks, two wilderness areas, specialized sports facilities, paseos, and conservation areas. The standards in the *Recreation, Park, and Open Space Standards and Guidelines* document published by National Recreation and Park Association indicate 10 acres per 1,000 residents as a good ratio. With 499 acres of parks and open space, and a 2016 population of 107,873, West Covina has 4.63 acres of park space per 1,000 residents spread across the City.

West Covina is largely built out. Therefore, the greatest opportunity to increase open space located within easy walking distance to neighborhoods is to expand current joint use agreements with public schools. Public schools account for 287 acres of additional open space in the City. Public schools with ease of access, proximity to parks, and viability to secure campus buildings are best suited for joint use agreements.

Walnut Creek Wash is one of the most significant and underutilized natural amenities in West Covina. Opportunities may exist to create public park space along this amenity.

c. Regulatory Setting. The City's current General Plan (adopted in 1985) and the WCMC provide the framework for evaluating potential recreational impacts and preserving open space. From a policy perspective, the 1985 General Plan contains goals and policies to protect and enhance recreational resources.

State. The primary instrument for protecting and preserving parkland is the State Public Park Preservation Act. Under the Public Resource Code, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

The Quimby Act. This act was established by the California legislature in 1965 to provide parks for growing communities in California. The Act authorizes cities to adopt ordinances addressing park land and/or fees for residential subdivisions for the purpose of providing and preserving open space and recreational facilities and improvements. The Act requires the provision of three acres of park area per 1,000 persons residing within a subdivision, unless the amount of existing neighborhood and community park area exceeds that limit, in which case the City may adopt a higher standard not to exceed five acres per 1,000 residents. The Act also specifies acceptable uses and expenditures of such funds.

1985 General Plan. The *Design Element* and the *Current Environmental Quality Element* of the 1985 General Plan has several objectives, policies, and actions relating to recreational open space as listed below.

1. Preserve the scenic backdrop of the San Gabriel Mountains and the hillside areas.
    a. Utilize the development standards of the Hillside Overlay Zone to regulate development of the hillside areas.
2. Maximize the quality and use of open space areas in and between developments.
    a. Maintain the aesthetic quality of City parks and parkways.
    b. Develop a network of open space through the design and integration of City parks, landscaped parkways, and open space land.
3. Provide attractive, inviting, and safe pedestrian environments.
4. Provide a system of visual and spatial linkages throughout the City and within specified developments.
    a. Promote the development of bike paths, horse trails, and pedestrian walks as linkages between parks to develop a network of useable open space throughout the City.
5. Provide adequate recreational facilities and programs for the citizens of West Covina.
6. Provide the citizens of West Covina the opportunity to utilize to the maximum extent the city's active open space facilities.
7. Provide a system of interrelated recreation corridors linking major recreational and open space reservations.
8. Provide one neighborhood park with a one-half mile service radius containing six to ten acres for every 6,500 to 7,000 persons in the city, and one 20-acre community park for every 20,000 persons in the city. These community parks shall be dispersed to obtain effective citywide community park coverage. (shall not apply to pcd districts).

9. Provide one City or regional park, a minimum of 100 acres in size, to serve the entire city.

West Covina Municipal Code. Under WCMC Section 20-40, most residential development projects requesting a subdivision or a zone change are required to either dedicate land for recreation and park purposes or pay an in lieu fee (Quimby Fees). Those fees need to be spent on land to serve the development that paid the fee (generally within one to two miles of the project).

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds.

Methodology. According to the 1985 General Plan, the City's desired ratio for park space is six to ten acres for every 6,500 to 7,000 persons in the City for neighborhood parks and one community park per 20,000 residents (see Section 4.1.1e, *Regulatory Setting*). PlanWC, on the other hand, does not have any specific ratios, stating "It's the quality, rather than the quantity of open space that matters (see PlanWC Section 8.I.1)." PlanWC also calls for providing a variety of park types as shown in Table 8-1 of Plan WC (Table 4.13-1). Therefore, while the ratio of parks space to population is analyzed in this section for informational purposes, the significance of impacts is analyzed in terms of the thresholds of significance below, not on the basis of any numerical threshold.

Significance Thresholds. The following thresholds of significance are based on Appendix G to the State *CEQA Guidelines*. For the purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*
- *Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.*

b. Project Impacts and Mitigation Measures.

Threshold:	*Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

Impact REC-1 Development facilitated by the proposed project may increase the use of existing parks and open space, but policies in PlanWC and the Downtown Plan for providing additional recreational facilities, as well as City park dedication fees and development impact fees, would help offset these impacts, and substantial physical deterioration of recreational facilities would not occur. This impact would be *less than significant*.

PlanWC projects that an additional 2,100 residential units would be added to the City over the next 20 years. Without additional parks, this could reduce the current ratio of parks and open space per 1,000 residents from 4.6 to 4.42, thus increasing use of existing parks. However, WCMC requirements to pay Quimby park fees and development impact fees, as well as policies in PlanWC

and the Downtown Plan to include additional open space with new developments and to pursue additional joint use agreements with the locals schools to add up to 287 acres of additional open space in West Covina, would apply. The addition of 287 acres of open space to the City's existing 499 acres of parks and open space, would result in a total of 786 acres of parks and open space. This would increase the City's ratio of park and open space per 1,000 residents to 6.8, using a buildout population of 115,583 based on an additional 2,100 units and using West Covina's average household size of 3.42 persons per house. This higher ratio of open space per 1,000 residents would minimize the increase in use of existing parks from new development authorized under the proposed project.

Action 13.4b of the Downtown Plan is to update the City's impact fee schedule to ensure Downtown developments provide their fair share of parks facilities, since this is the area where the majority of new development is being directed. The West Covina Downtown Plan and Code also envisions the revitalization of Walnut Creek Wash into a linear open space promenade along the water course with a paved bike lane, benches, and places for passive activity. The redevelopment of vacant and underperforming parcels in the Downtown district and along major corridors like Azusa Avenue, Sunset Avenue, and Glendora Avenue will also provide opportunities to add new open space areas. These policies and the other policies and actions of the two plans (listed in Table 4.13-2 and 4.13-3) are all directed toward the development of additional recreational facilities throughout the City, with an emphasis on providing additional recreational opportunities to the Downtown. Therefore, impacts from the increased use of recreational facilities would be less than significant.

Mitigation Measures. No mitigation measures would be required, as implementation of policies in PlanWC and the Downtown Plan, and existing WCMC regulations, would reduce potential impacts to existing recreational facilities to a less than significant level.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?*

Impact REC-2 **Development facilitated by the proposed project may require the construction or expansion of additional parks and open space, but implementation of the policies contained in PlanWC and the Downtown Plan, as well as existing City programs and review processes, would avoid or adequately mitigate adverse physical effect on the environment. This impact would be *less than significant*.**

The proposed project promotes the addition of parks and open spaces to the community. This includes new park types of different sizes to be built in new developments, including dedication of land for linear parks as part of new developments and the development of a linear park public trail system along Walnut Creek. The Plan also calls for pursuing additional joint use agreements with local schools for use of their recreational facilities. Pursuing new joint use agreements would not create new adverse physical impacts since those facilities are already developed. Listed in Table 4.13-2 below are the *Our Active Community* chapter of PlanWC policies and actions directing park planning in the City.

Table 4.13–2
PlanWC Our Active Community Policies and Actions on Park Space

Number	Policy/Action Description
P8.1	Encourage the distribution of a variety of park types and sizes throughout the City.
A8.1	Develop variety of new park types of different sizes and require them in new development.
P8.2	Encourage the development of non-traditional park types, including green belts, linear parks, urban trails, and pocket parks.
A8.2a	Require dedication of land identified as linear park in conjunction with new development.
A8.2b	Work with the County to initiate efforts to create a linear park public trail system along the Walnut Creek.
A8.2C	Update and create new agreements for joint use of school and City recreational and park facilities.
P8.3	Reinforce existing joint use agreements with schools to fill in service gaps.
A8.3	Pursue joint use agreement with California Elementary School, Cortez Elementary School, Hollencrest Middle School, Orangewood Elementary School, Merced Elementary School, South Hills High School, and Traweek Middle School.
P8.4	Small and frequent open spaces should be dispersed throughout the neighborhood.
A8.4	Develop new neighborhood parks, pocket parks, and community gardens as feasible and appropriate to meet citizen needs and require them in new development.
P8.5	Develop and improve access to parks.
A 8.5	Identify and eliminate the number of barriers, safety issues along walkways, and gaps in pedestrian and bike networks, as well as improve bike facilities that will encourage access to parks.
P8.6	Develop a network of open spaces.
A8.6a	Connect the open spaces to neighborhoods through a series of landscaped streets that provide green links to the Walnut Creek as well as stormwater drainage.
A8.6b	Revise zoning ordinance to require new development to connect their open spaces to the open space network.
A8.6c	Educate property owners, political leaders and the community about the economic, social and environmental benefits of having a network of open spaces.

Source: PlanWC, pgs. 143-145.

The West Covina Downtown Plan and Code, Section 7, *Our Active Community* also has several policies and actions directing park planning in the City, as listed in Table 4.13-3 below.

Because the exact location and nature of future parks are not known at this time any identification of specific impacts associated with future park development would be speculative. The actual impacts of new recreational facilities would depend upon the precise type and location of such facilities. Therefore, any park or open space developed as a separate project, or in conjunction with a new development proposal, would require a separate, project-specific CEQA review that would address any project-specific impacts that may have an adverse physical effect on the environment. For example, development of the Walnut Creek trail system would require separate CEQA project level environmental review to address any environmental impacts that may result from such development, such as potential water quality or safety impacts. However, since this project is planned to consist of enhancements to this existing facility to improve its aesthetic quality and to make it more usable for the public, and would not require major new construction, it is not anticipated that significant environmental impacts would result.

Table 4.13–3
Downtown Plan and Code Our Active Community Policies and Actions on Park Space

Number	Goal/Policy/Action Description
Goal 13	Enhance the value of fitness and celebrate healthy living, and acquire, develop, and maintain quality of public open spaces and trails.
P13.1	Encourage the distribution of a variety of park types and sizes throughout the City.
A13.1	Develop new neighborhood parks, and pocket parks as feasible and appropriate to meet Downtown needs.
P13.2	Encourage the development of non-traditional park types, including urban trails and linear parks.
A13.2	Work with the County to initiate efforts to create a linear park public trail system along the Walnut Creek.
P13.3	Develop a network of open spaces.
A13.3	Connect parks, sidewalks, and streets with the Walnut Creek trail.
P13.4	Investigate and evaluate opportunities and incentives for other agencies, non-profits, private businesses, and business improvement district (BID) to participate in the maintenance and replacement costs of parks, and open space in the Downtown area.
A13.4A	Develop an initiative to encourage "Friends of Parks" service organizations like West Covina Beautiful or Community Service Group for short term clean-up projects.
A13.4B	Update the impact fee schedule as necessary to ensure that Downtown development provides its fair share of parks facilities in the Downtown area.

Source: West Covina Downtown Plan & Code, pgs. 30-31.

As discussed above, implementation of the policies contained in PlanWC and the Downtown Plan, as well as existing City programs and review processes, including project level CEQA review, would avoid or require adequate mitigation of potential environmental impacts relating to the development of new parks. Therefore, physical impacts from additional recreational facilities would be less than significant.

Mitigation Measures. No mitigation measures would be required, as implementation of the policies contained in PlanWC and the Downtown Plan, as well as existing City programs and review processes, would avoid or adequately mitigate potential environmental impacts relating to the development of new parks.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. **Cumulative Impacts.** Because the proposed project is comprised of a General Plan Update and Downtown Plan, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the *State CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. Since the proposed project's impacts related to recreation would not be significant, they are also not cumulatively considerable.

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4.14 TRANSPORTATION AND CIRCULATION

This section evaluates the potential for implementation of the proposed 2016 General Plan Update (PlanWC), and Downtown Plan and Code to result in impacts to traffic, circulation, parking, access, and other transportation modes. This includes an analysis of the potential for the proposed PlanWC and Downtown Plan and Code to increase local and regional traffic volumes, measure the performance effectiveness of the circulation system, increase hazards due to a design feature, interfere with emergency access, result in an inadequate parking supply, or conflict with applicable alternative transportation programs.

4.14.1 Setting

a. Traffic. Like many Southern California cities, West Covina's existing transportation network is geared toward fast and frequent auto travel as the only way for most people to travel around the City. The Interstate 10 Freeway runs east-west through the northern end of the City providing its major access to greater Los Angeles and exposure to thousands of travelers every day. Local streets are designed primarily for driving, with limited, unsafe, or missing pedestrian, bicycling, or transit facilities. Chapter 19, Article VIII of the City of West Covina Municipal Code (WCMC) defines standards for the design of streets within the City. The standards are based on the United State Department of Transportation (USDOT) Federal Highway Administration (FHWA) Highway Functional Classification System. The Code identifies a total of eight functional classifications, of which three have particular relevance to this exercise: Principal Arterial, Minor Arterial, and Collector. Major design standards for each of these classifications are shown in Table 4.14-1.

Table 4.14-1
Major Standards for Road Classifications

Classification	Major Standards
Principal Arterial	▪ Total right-of-way (ROW): 110 feet ▪ Minimum between exterior curbs: 90' ▪ Other elements: "full parkway width sidewalks with tree wells, raised median island using portland cement concrete curbs and traffic signals at intersections with all other streets except minor and cul-de-sac streets."
Minor Arterial	▪ ROW: 100' ▪ Minimum between exterior curbs: 80' ▪ Other elements: same as Principal Arterial
Collector	▪ Minimum between exterior curbs: 40'

Many Downtown roadways are not currently built to the design standards for their classifications (less than the total ROW listed in the table above), especially in the Downtown. Yet, most street segments in the Downtown area have Average Daily Trip counts (ADT) well below their maximum capacity. Outside the Downtown some roads appear to have excess capacity (six-lane segments of Azusa south of Francisquito) while most roads are close to capacity. A sampling of roadways and intersections were selected to provide a snapshot of the existing traffic conditions in Downtown, where growth is being focused, and other major roads in West Covina. These roadways are listed in Table 4.14-2, along with current level of service (LOS) on each roadway, based on modeling and traffic counts taken in June 2015.

Table 4.14-2
Existing Level of Service (LOS) for Major Intersections Downtown

Intersection	Peak Hour	Existing Conditions	
		LOS	V/C Ratio
1. Vincent Ave & WB Interstate 10 Ramps	AM	A	0.468
	PM	A	0.530
2. Vincent Ave & at EB Interstate 10 Ramps	AM	A	0.520
	PM	B	0.674
3. Vincent Ave & Plaza Dr / Lakes Dr	AM	A	0.566
	PM	C	0.759
4. Vincent Ave & West Covina Pkwy	AM	C	0.784
	PM	D	0.839
5. Vincent Ave & Glendora Ave	AM	A	0.384
	PM	B	0.607
6. Glendora Ave & Lakes Dr	AM	A	0.413
	PM	B	0.551
7. Glendora Ave & Walnut Creek Ave	AM	A*	0.399*
	PM	A*	0.392*
8. Glendora & West Covina Pkwy	AM	A*	0.580
	PM	A*	0.600
9. Sunset & West Covina Pkwy	AM	C	0.752
	PM	C	0.748
10. West Covina Pkwy & EB Interstate 10 Ramps	AM	B	0.673
	PM	A	0.570
11. West Covina Pkwy & WB Interstate 10 Ramps	AM	D	0.860
	PM	D	0.803
12. Sunset Ave & Merced Ave	AM	C	0.767
	PM	D	0.813
13. Azusa Ave & Rowland Ave	AM	C	0.759
	PM	E	0.911
14. Azusa Ave & Workman Ave	AM	D	0.883
	PM	E	0.921
15. Azusa Ave & Cameron Ave	AM	D	0.826
	PM	D	0.889
16. Azusa Ave & Amar Rd	AM	C	0.759
	PM	E	0.930
17. Citrus Ave & Garvey Ave N / Eastland Center	AM	A	0.561
	PM	D	0.866
18. Citrus Ave & Garvey Ave S	AM	B	0.686
	PM	D	0.891
19. Lake Ellen Ave & Cameron Ave	AM	D	0.837
	PM	D	0.857

* indicates worst lane approach V/C for all-way stop control intersection

b. Rail Crossings. There are three rail crossings in West Covina. One is at the northern City Limit line at the intersection of Azusa Canyon Road and Los Angeles Street with the second at-grade crossing at the southern end of the City on Fairway Drive at Valley Boulevard. The third rail crossing is grade-separated and located on Nogales Street at Valley Boulevard. The California Public Utilities Commission (PUC) commented during scoping for this EIR that the City should consider mitigation to plan for rail grade separations on major thoroughfares, improve existing grade crossings, and plan for continuous vandal resistant fencing or other types of barriers to prevent trespassers onto the railroad right-of-ways. There were also public comments concerned about train noise at the at-grade crossings (See Section 4.10, *Noise*).

c. Transit and Rail Service. Existing public transit service in West Covina is provided by Foothill Transit and by the City of West Covina, operating as Go West through a contract with a third party. Foothill Transit is the regional bus service provider for the eastern San Gabriel Valley. The Go West system, meanwhile, consists of three shuttle routes, labeled Red, Blue and Green. Transit service is concentrated in the Downtown area, where Foothill Transit operates a total of eight routes, including one Bus Rapid Transit or BRT service (Silver Streak), six local routes (178, 185, 272, 281, 480, 488) and an express service (498). Go West's Red and Blue routes also serve the area. Outside of Downtown, Foothill operates routes on Azusa Avenue (280), Amar Road (486) and La Puente Road and Nogales Street (289), as well as two additional routes connecting to the Eastland Center retail area in the eastern end of the city (284, 851). Go West's Green route operates in this area, as does Metro Route 190. Notably, both Silver Streak and Route 498 provide frequent service during peak periods to Downtown Los Angeles. Each also operates on Interstate 10 (I-10) and makes a limited number of stops. Additionally, Silver Streak operates relatively frequently during off-peak periods, and operates at all times. Metrolink's San Bernardino commuter rail line runs just north of the City with stops in Baldwin Park and Covina, and Metrolink's Riverside line runs south of the City with a stop in the City of Industry (Metrolink, March 2016).

d. Bicycles. The City of West Covina has no adopted bicycle plan. Chapter 22, Article III of the WCMC defines standards for Class I Bike Paths, Class II Bike Lanes, and Class III Shared Routes. A Bike Path is an exclusive facility, while a Shared Route is a street designated as a bicycle route, with no special markings. Bike Lanes, meanwhile, are divided into Class IIa (no parking) and Class IIb (parking permitted) categories. Class IIa lanes must be a minimum of five feet wide, while Class IIb lanes must be at least 13 feet wide.

e. Pedestrians. Pedestrian conditions in the Downtown area are typical of commercial areas in postwar suburban communities, while elsewhere in the City conditions are typical of residential areas in postwar suburban communities. These conditions are described below (reproduced from Section 4, *Pedestrians* of the *Our Accessible Community* chapter of PlanWC).

Downtown:

- A "superblock" structure consisting of a limited number of streets with relatively few intersections, limited network connectivity and resulting indirect pathways
- Arterial streets designed for high-speed traffic, with multiple wide lanes (generally 12 to 13 feet), and wide curb radii (a minimum of 35 feet on Arterials and Collector streets under the Municipal Code)

- A general lack of curbside parking to serve as a buffer between traffic and the sidewalk
- Long crossings of arterial streets (generally 60 feet or more) compounded by long waits to cross at signalized intersections (due to signal cycles and phases optimized for traffic flow rather than pedestrian movement)
- Continuous sidewalks on most blocks with a limited number of curb cuts, and pedestrian through zones generally wide enough to comfortably accommodate existing pedestrian volumes
- Sidewalk trees on some blocks
- Varying conditions on private property adjacent to the sidewalk, typically consisting of landscaping, surface parking, or building frontages with limited transparency

Outside Downtown:

- A street network made up primarily of a grid of arterials and collectors, with semi-gridded feeder streets within neighborhoods resulting in smaller blocks and somewhat greater network connectivity than in the Downtown area (in hillside areas, the street network is non-gridded and highly discontinuous)
- Arterial streets built to similar standards as in the Downtown area, designed for free flow of traffic and challenging to pedestrians in a number of ways, including long crossings, long wait times to cross, and long distances between crossings
- Curbside parking on most blocks (although based on aerial photos, it appears to be lightly used in most locations)
- A lack of sidewalks in many locations
- A mixture of strip commercial and residential frontages, primarily single-family, with high-quality landscaping in neighborhood areas

f. Regulatory Setting. While analysis of potential traffic-related impacts under CEQA has traditionally focused on vehicle delay using metrics based on the concept of level of service (LOS), and has applied this concept largely without regard to the availability of other transportation options in a given location, guidelines for traffic analysis are in the process of revision.

California Senate Bill 375 (SB 375, Steinberg, 2008) creates an exemption from CEQA traffic analysis for Transit Priority Projects (TPPs) in regions with an adopted Sustainable Communities Strategy (SCS). TPPs are defined as projects with at least a 50 percent residential component (25 percent if floor area ratio (FAR) is greater than 0.75) and at least 20 net dwelling units per acre located within one-half mile of a High Quality Transit Corridor, defined as a corridor with fixed route bus service with intervals no longer than 15 minutes during peak commute hours. Foothill Transit Routes Silver Streak, 488, and 498 all meet this standard, and make stops in the Downtown area including along West Covina Parkway.

SB 743 (Steinberg, 2013) requires a new process to be developed for analyzing transportation impacts under CEQA by amending the State *CEQA Guidelines*. The goal, according to the Office of Planning Research (OPR) is to have the revised *Guidelines* result in a better, more transparent evaluation of project impacts and better environmental outcomes. The proposed changes identify Vehicle Miles Traveled (VMT) as the most appropriate metric to evaluate a project's

transportation impacts. Those proposed changes also provide that the analysis of certain transportation projects must address the potential for induced travel. Once the Natural Resources Agency adopts these changes to the *CEQA Guidelines,* automobile delay, as measured by LOS and other similar metrics, will no longer constitute a significant environmental effect under CEQA. As of July 1, 2016, these changes have not been adopted. Recommendations from OPR includes the presumption of a less than significant impact for smaller projects generating fewer than 100 trips per day and mitigation strategies designed to reduce VMT rather than auto delay. These include a range of transportation demand management (TDM) measures as well as looking at changes to the location and design of a project.

4.14.2 Impact Analysis

a. Methodology and Significance Thresholds. Based on Appendix G of the State *CEQA Guidelines*, impacts relating to transportation and circulation would be considered potentially significant if development facilitated by the proposed project would:

- *Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system or conflict with an applicable congestion management program*
- *Result in a change of air traffic patterns*
- *Substantially increase traffic-related hazards due to a design feature or incompatible uses*
- *Result in inadequate emergency access*
- *Conflict with adopted policies relating to alternative transportation modes, including transit, walking, and bicycling*

b. Project Impacts and Mitigation Measures.

Threshold:	*Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, or conflict with an applicable congestion management program.*

Impact T-1 **New development facilitated by the proposed project may increase traffic at certain locations in West Covina. This traffic may have the potential to conflict with policies and thresholds for the performance of the circulation system and applicable congestion management programs. While mitigation measures would reduce this impact to a less than significant level at City-controlled intersections, potential impacts at Caltrans'-controlled intersections would remain *significant and unavoidable*.**

Future projected traffic conditions for intersections in Downtown West Covina are shown in Table 4.14-3. These projections show an LOS of E and F at several intersections with implementation of the proposed project at the project planning horizon of 2036. The City of West Covina does not currently have an adopted LOS threshold to determine if a traffic impact is significant, but typically has used LOS E as a threshold in assessing projects in the past, meaning that LOS E would be considered acceptable, but LOS F would be considered

unacceptable. LOS F conditions under "Year 2036 with Project" conditions are shown in bold in Table 4.14-3.

Table 4.14-3
Future Level of Service for Major Intersections Downtown

Intersection	Peak Hour	Existing Conditions		Y2036 Planning Horizon without Project		Y2036 Planning Horizon with Project	
		LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio
1. Vincent Ave & WB Interstate 10 Ramps	AM	A	0.468	A	0.545	A	0.532
	PM	A	0.530	B	0.603	B	0.666
2. Vincent Ave & at EB Interstate 10 Ramps	AM	A	0.520	A	0.573	B	0.670
	PM	B	0.674	C	0.752	D	0.845
3. Vincent Ave & Plaza Dr / Lakes Dr	AM	A	0.566	B	0.634	C	0.723
	PM	C	0.759	E	0.955	**F**	**1.023**
4. Vincent Ave & West Covina Pkwy	AM	C	0.784	D	0.860	**F**	**1.005**
	PM	D	0.839	E	0.956	**F**	**1.105**
5. Vincent Ave & Glendora Ave	AM	A	0.384	A	0.426	A	0.513
	PM	B	0.607	B	0.672	C	0.764
6. Glendora Ave & Lakes Dr	AM	A	0.413	A	0.444	B	0.618
	PM	A	0.551	A	0.616	D	0.878
7. Glendora Ave & Walnut Creek Ave	AM	A*	0.399*	A*	0.435*	A*	0.533*
	PM	A*	0.392*	A*	0.469*	B*	0.655*
8. Glendora & West Covina Pkwy	AM	A	0.580	B	0.644	D	0.865
	PM	A	0.600	B	0.661	C	0.795
9. Sunset & West Covina Pkwy	AM	C	0.752	D	0.855	**F**	**1.122**
	PM	C	0.748	E	0.910	**F**	**1.083**
10. West Covina Pkwy & EB Interstate 10 Ramps	AM	B	0.673	C	0.723	D	0.805
	PM	A	0.570	B	0.636	C	0.721
11. West Covina Pkwy & WB Interstate 10 Ramps	AM	D	0.860	**F**	**1.084**	**F**	**1.335**
	PM	D	0.803	**F**	**1.038**	**F**	**1.277**
12. Sunset Ave & Merced Ave	AM	C	0.767	D	0.871	**F**	**1.020**
	PM	D	0.813	**F**	**1.041**	**F**	**1.208**
13. Azusa Ave & Rowland Ave	AM	C	0.759	D	0.865	E	0.987
	PM	E	0.911	E	0.929	E	0.954
14. Azusa Ave & Workman Ave	AM	D	0.883	**F**	**1.011**	**F**	**1.028**
	PM	E	0.921	**F**	**1.056**	**F**	**1.081**
15. Azusa Ave & Cameron Ave	AM	D	0.826	E	0.938	E	0.962
	PM	D	0.889	**F**	**1.020**	**F**	**1.053**
16. Azusa Ave & Amar Rd	AM	C	0.759	D	0.862	D	0.862
	PM	E	0.930	**F**	**1.062**	**F**	**1.062**
17. Citrus Ave & Garvey Ave N / Eastland Center	AM	A	0.561	B	0.617	B	0.633
	PM	D	0.866	E	0.977	E	0.993
18. Citrus Ave & Garvey Ave S	AM	B	0.686	D	0.825	D	0.841
	PM	D	0.891	**F**	1.023	**F**	**1.039**
19. Lake Ellen Ave & Cameron Ave	AM	D	0.837	E	0.942	E	0.968
	PM	D	0.857	E	0.969	**F**	**1.004**

Note: **BOLD** indicates unacceptable LOS conditions (i.e., LOS F) and signifies a "significant traffic impact".
* indicates worst lane approach V/C for all-way stop control intersection

West Covina is a built out city and the majority of new growth under the proposed project would occur as redevelopment and infill development, specifically focused on Downtown. Therefore, the proposed project would maximize mobility by designing street improvements that would consider both the existing and future context of transportation and land use. The proposed project would maximize mobility by providing streets that are equitably designed for motor vehicles, transit, pedestrians, and bicycles. PlanWC Policy P4.2 is to implement transportation improvements to improve access and circulation for all users of City streets. Access for people and goods would be improved through applying transportation system performance metrics as described in the City's *Thoroughfares Plan*, reviewing capital improvement projects to ensure the needs of non-motorized travelers are considered, and adopting a complete streets approach to designing new transportation improvements.

Improving pedestrian and bicycle travel in the Downtown area through the Complete Streets approach would decrease internal trips within this area, at least partially offsetting increased traffic from future development. Proposed mixed-use developments would generate fewer VMT than single family residential units because they would create opportunities to walk, rather than drive, to nearby commercial and entertainment areas and to transit and regional commuter services. The proposed project is meant to be self-mitigating in terms of the effects of increased traffic through adherence to the goals, policies, and actions within the both PlanWC and the Downtown Plan. Goal 8 from the Downtown Plan and its associated policies and actions to reduce traffic impacts are listed in Table 4.14-4.

Table 4.14-4
Integrated Transportation Goal, Policies, and Action from the *Our Accessible Community* Section of the Downtown Plan

Goal 8	Create an integrated transportation system that effectively serves the Downtown area, making Downtown a place where people prefer to walk, bike, or ride public transit rather than drive a car.
Policy 8.1	Accommodate multimodal mobility, accessibility and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of Downtown streets.
Action 8.1a	Adopt and apply transportation system performance metrics that measure each mode's contribution towards the efficiency of transportation network.
Action 8.1b	Review capital improvement projects to ensure that needs of non-motorized travelers are considered in planning, programming, design, reconstruction, retrofit, maintenance, construction, operations, and project development of Downtown streets.
Action 8.1c	Accommodate the needs of all travelers through a Complete Streets approach to designing new transportation improvements. Complete streets are roadways designed to facilitate safe, comfortable, and efficient travel for all roadway users.
Action 8.1d	Create and implement a Transition Plan that responds to the needs of people with disability by retrofitting street corners, crossings, and transit stops that do not meet current accessibility standards.
Policy 8.2	Establish protection of human life and health as the highest transportation system priorities, and seek to improve safety through the design and maintenance of streets, sidewalks, intersections and crosswalks.
Action 8.2	Actively identify, on an ongoing basis, opportunities to reduce pedestrian and bicyclist risk by reducing street crossing distances and providing protected facilities such as median refuges and buffered bicycle lanes.
Policy 8.3	Allocate street space equitably among all modes.
Action 8.3	Ensure that pedestrians, bicyclists, transit vehicles and automobiles each have space in the right-

Table 4.14-4
Integrated Transportation Goal, Policies, and Action from the *Our Accessible Community* Section of the Downtown Plan

	of-way that is consistent with the street's designated mobility function and land use context per street typologies and modal-priority overlays as defined in the 2016 Thoroughfares Plan.
Policy 8.4	Adopt the NACTO Urban Street Design Guide and Urban Bikeway Design Guide as a supplement to the California Manual for Uniform Traffic Control Devices. Eliminate barriers to pedestrian and bicycle travel.
Action 8.4a	Develop Pedestrian and Bicycle Master Plans identifying community priorities, designing improvements at a conceptual level, and identifying potential funding sources.
Action 8.4b	Identify gaps in the pedestrian and bicycle facilities networks and define priorities for eliminating these gaps by making needed improvements.
Action 8.4c	Require the construction of pedestrian and bicycle facilities and amenities, where warranted, as a condition of approval of new development projects.
Action 8.4d	Develop a pedestrian and bicycle path along Walnut Creek Wash between Glendora and Sunset. A pedestrian and bicycle path is recommended to take the place of the existing service vehicle access road on the north side of the Wash in the Downtown area, connecting to the existing segment to the east, between Glendora Avenue and Azusa Avenue. The existing segment might also be improved using new signs and other way-finding strategies and enhanced lighting for greater security.
Action 8.4e	Explore opportunities for a "shared street" on Toluca Avenue (abbreviated).

Source: West Covina Downtown Plan & Code, pg. 24.

As demonstrated in Table 4.9-2 of Section 4.9, *Land Use* of this EIR, the proposed project is consistent with the goals of SCAG's Regional Transportation Plan/Sustainable Communities Strategy (SCAG RTP/SCS). Specifically, in regards to congestion management, the proposed project focuses on improving mobility for all modes of travel, motorized and non-motorized, consistent with SCAG RTP/SCS Goal 2: *Maximize mobility and accessibility for all people and goods in the region*. It is also consistent with Goal 4: *Preserve and ensure a sustainable regional transportation system,* and Goal 5: *Maximize the productivity of our transportation system* by encouraging non-motorized transportation and transit and residential development within walking distance to transit in the Downtown.

The Downtown Code's proposed street standards have been developed to increase pedestrian and bicycle use and safety by taking advantage of excess capacity provided by the current street designs. Upon adoption of the proposed project, future proposed projects, including street improvements, would be evaluated for conformance with Goal 8 and its associated policies and actions for improving mobility for all modes of travel. Mitigation Measure T-1(a) requires that, as part of any project to re-design streets consistent with the Downtown Plan and Code, a transportation performance study shall be performed to assess the multi-modal improvements to be achieved and their potential impact on traffic, transit, bicycle, and pedestrian movements, based on the performance metrics as developed under Action 8.1a of the *Our Accessible Community* section of the Downtown Plan and Code.

Implementation of Goal 8 and its associated policies and actions may require additional capital funding beyond what is generally available in the General Fund and annual transportation funding. State, Federal, and other transportation grants for Complete Streets designs and congestion relief should be sought to assist with achieving these policies and goal for creating an integrated transportation system and reducing overall VMT in West Covina consistent with

SCAG's RTP/SCS. Additional funding may also be needed to carry out improvements at interchanges with the I-10 freeway, which is not a City facility. Towards this end, Mitigation Measure T-1(b) requires the City to seek congestion management and other available grant funding opportunities to synchronize traffic signals and develop operational enhancements at the I-10 Freeway interchanges to reduce traffic congestion. Such improvements may require a maintenance agreement between the City and CalTrans.

Under the specific development scenario analyzed in the Traffic Study for the proposed project (Nelson Nygaard, August 2016, Appendix C) and as listed in Table 4.14-3, five intersections are projected to operate at LOS F under the "Year 2036 Planning Horizon without Project" scenario, and ten intersections are projected to operate at LOS F under the "Year 2036 Planning Horizon with Project" scenario. LOS F is an unacceptable LOS under current City standards. As noted in the Traffic Study, an annual growth rate of 0.82 percent in traffic volumes was assumed for the future-year "without project" scenario, consistent with the Los Angeles County Congestion Management Program (CMP). Traffic generated by the additional development included in the "with project" scenario is assumed to be in addition to, rather than part of this baseline amount. Additionally, where new development is assumed, it is assumed that it would be in addition to existing development, rather than replacing existing development, and trips from existing development were not subtracted from totals. For these reasons, the approach used should be considered a conservative one, representing "worst case" conditions.

Historically, mitigation measures to reduce significant traffic impacts to a less-than-significant level have typically consisted of physical changes to roadways to increase vehicular throughput and reduce delay, with these changes frequently expanding the total size of the roadway and/or the portion of the roadway dedicated solely to motor vehicles. Such changes would be inconsistent with the goals and objectives of the proposed project to encourage pedestrian-oriented mixed-use development in the Downtown and to design streets that provide safe access for all users (see Section 2.8, *Project Objectives* of this EIR). Options other than physical expansion of the roadway are available, however, to address this impact. Such options include adjusting signal timings to increase throughput and requiring additional transportation demand management (TDM) measures. Capacity may also be expanded not by providing additional turn lanes or other typical capacity-expanding measures that increase the size of the roadway and/or the area dedicated solely to motor vehicles, but by implementing other physical improvements designed to maintain throughput while improving safety and reducing impacts on pedestrians and other users, such as modern roundabouts. Impacts may also be mitigated by payment of fees by project developers into a traffic impact fee program, as long as these fees are dedicated to specific improvements that have been demonstrated to reduce the impact to a less than significant level. Towards this end, Mitigation Measure T-1(c) requires projects that would generate more than 100 vehicle trips per day to conduct a traffic study as part of their application process to identify impacted intersections and roadways, and implement measures consistent with PlanWC and the Downtown Plan and Code to reduce the proposed project's potential impacts on the performance of the circulation system to acceptable levels.

Mitigation Measures. The following mitigation measures are required to reduce the proposed project's potential impacts related to the performance of the circulation system.

T-1(a) As part of any project to re-design streets consistent with the Downtown Plan and Code, a transportation performance study shall be performed to assess the multi-modal improvements to be achieved and their potential impact on traffic, transit, bicycle, and pedestrian movements, based on the performance metrics as developed under Action 8.1a of the *Our Accessible Community* section of the Downtown Plan and Code.

T-1(b) The following policy and action shall be added to PlanWC and the Downtown Plan:

Policy: Synchronize traffic signals and develop operational enhancements at the I-10 Freeway interchanges to reduce traffic congestion.

Action: The City of West Covina shall seek congestion management and other available grant funding opportunities to synchronize traffic signals and develop operational enhancements at the I-10 Freeway interchanges.

T-1(c) Proposed projects generating more than 100 vehicle trips per day, as determined by the City Traffic Engineer or their designee, shall require submittal of a Traffic Impact Study (TIS) to determine if that project may have a significant impact that would exceed the City's traffic-related thresholds of significance existing at the time of the project application. The TIS shall also identify any potential secondary safety or localized air quality impacts (such as carbon monoxide (CO) hotspots) potentially resulting from that project. The TIS shall identify mitigation measures that would reduce any identified impacts to a less than significant level according to the City's adopted thresholds of significance at that time, in a manner consistent with PlanWC and the Downtown Plan and Code. Such measures may include:

- Project design modifications
- Transportation demand management (TDM) measures, such as transit and active transportation improvements or funding
- Implementing other physical improvements, such as modern roundabouts, designed to maintain throughput while improving safety and reducing impacts on pedestrians and other users

In order to maintain consistency with PlanWC and the Downtown Plan and Code, mitigation measures shall not include expansion of the total size of the roadway or the portion of the roadway dedicated solely to motor vehicles, unless the TIS demonstrates that alternative modes of transportation will not be negatively impacted and/or potentially benefit from such an expansion.

Significance After Mitigation. Adherence to the goals and polices of PlanWC and the Downtown Plan and Code, in combination with mitigation measures T-1(a), T-1(b) and T-1(c), would reduce traffic congestion impacts at all intersections except the intersection of West Covina Parkway and the westbound Interstate 10 ramps to a less than significant level. Because

the I-10 ramps are a State facility controlled by Caltrans, the City cannot guarantee that improvements, if necessary, would be carried out at this intersection, and this impact would remain significant and unavoidable, and require the City to adopt a Statement of Overriding Considerations for this impact.

Threshold:	*Result in a change of air traffic patterns.*

Impact T-2 **Because there are no airports in the immediate vicinity of West Covina, the proposed project potential to change air traffic patterns would be *less than significant*.**

There are no airports within the City of West Covina. The nearest airports are the El Monte Airport approximately four miles to the west in El Monte, and Brackett Field Airport just over four miles to the east in La Verne. The proposed project is not close enough to either of these airports to interfere with or alter air traffic patterns. This impact would be **less than significant**.

Mitigation Measures. None required because implementation of the proposed project would not impact air traffic patterns.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Substantially increase traffic-related hazards due to a design feature or incompatible uses.*

Impact T-3 **Due to the programmatic nature of the proposed project, it would not substantially increase hazards due to a design feature or incompatible uses; however, existing conditions related to at-grade rail crossings, combined with increased traffic from potential growth in the City and region, could result in increased traffic related hazards at these crossings. Impacts would be *significant but mitigable*.**

PlanWC and the Downtown Plan and Code, because they are planning documents, do not include specific design features. The plans have been developed with policies and actions to avoid incompatible uses and to develop Complete Streets that accommodate safety needs for all mobility modes (See Downtown Plan Policy 8.1, Action 8.1c, d; Policy 8.2, Action 8.2). There are two at-grade rail crossings adjacent to West Covina's corporate boundary. One is at the northern City Limit line at the intersection of Azusa Canyon Road and Los Angeles Street. The second is at the southern end of the City on Fairway Drive at Valley Boulevard. The California Public Utilities Commission submitted a comment in response to the Notice of Preparation for the proposed project, requesting that the City consider safety improvements for at-grade crossings due to an increase in traffic volumes at these crossings. Because these crossings are shared with adjacent jurisdictions, and because of the high cost of railroad grade separations, the City should seek to partner with adjacent jurisdictions to identify and apply for grant funding for the construction of railroad safety improvements such as grade separations, "Quiet Zones", and funding to secure rail rights-of-way. An added benefit of grade separations and "Quiet Zones" is reduced noise from trains, since they would no longer need to blow their horns four times before crossing these roads, and from the bells on crossing arms.

Mitigation Measures. Mitigation Measure T-3 is required in order to improve safety at railroad crossings immediately adjacent to the City.

T-3 The following shall be added to PlanWC as a policy or action:

> The City shall partner with adjacent cities and other jurisdictions and the private sector to seek and secure funding for railroad safety improvements, including securing rail right-of-way, and developing "Quiet Zones", grade separations, and/or other safety projects for at-grade rail crossings at the intersection of Azusa Canyon Road and Los Angeles Street and on Fairway Drive at Valley Boulevard.

Significance After Mitigation. After mitigation, impacts will be reduced to a less than significant level.

Threshold:	*Result in inadequate emergency access.*

Impact T-4 **Due to the programmatic nature of the proposed project, and goals and policies in PlanWC and the Downtown Plan and Code to create an integrated, multi-modal transportation system, the proposed project would not result in inadequate emergency access. Impacts would be *less than significant*.**

The purpose of the proposed project in terms of transportation is to improve the overall performance of the transportation network for all modes of transportation. Specifically, Downtown PlanWC Policy 4.2 includes language requiring the City to accommodate safety needs when planning, designing, and implementing transportation improvements. This would include assessing future projects to ensure they result in adequate emergency access. Mandatory City development processes also require project review by emergency services, including police and fire, to ensure projects maintain adequate emergency access. This impact would be less than significant.

Mitigation Measures. None required, as implementation of PlanWC and Downtown Plan policies and mandatory City development processes would ensure that the proposed project would not result in inadequate emergency access.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Conflict with adopted policies relating to alternative transportation modes, including transit, walking, and bicycling.*

Impact T-5 **The focus of the proposed project in terms of transportation is to create an integrated, multi-modal transportation system prioritizing improving transit, walking, and bicycling modes. The proposed project would not conflict with adopted policies relating to alternative transportation modes, including transit, walking, and bicycling. Impacts would be *less than significant*.**

PlanWC and the Downtown Plan contain many policies and actions that would help create an integrated, multi-modal transportation system prioritizing improving transit, walking, and bicycling modes. Some of these policies and actions, from the *Our Accessible Community* chapter of PlanWC, are listed in Table 4.14-5.

Table 4.14-5
Policies, and Action from the
***Our Accessible Community* Chapter of PlanWC**

Policy 4.2	Accommodate multimodal mobility, accessibility and safety needs when planning, designing, and implementing transportation improvements, improving access and circulation for all users of City streets.
Action 4.2c	Accommodate the needs of all travelers through a Complete Streets approach to designing new transportation improvements. Complete streets are roadways designed to facilitate safe, comfortable, and efficient travel for all roadway users.
Policy 4.4	Allocate street space equitably among all modes.
Action 4.4a	Ensure that pedestrians, bicyclists, transit vehicles and automobiles each have space in the right-of-way that is consistent with the street's designated mobility function and land use context per street typologies and modal-priority overlays as defined in the Thoroughfares Plan.
Policy 4.5	Work to eliminate barriers to pedestrian and bicycle travel.

Several actions would reinforce Policy 4.5. Some of those include identifying gaps and developing priorities for eliminating those gaps in the current bike and pedestrian network, requiring construction of bike and pedestrian facilities as a condition of approval on new projects, and to develop Pedestrian and Bicycle Master Plans.

The policies and actions listed above reinforce and direct the City to develop a city-wide multi-modal transportation system. This impact would be less than significant.

Mitigation Measures. None required, as implementation of the proposed project would not result in any conflicts with adopted policies relating to alternative transportation modes, including transit, walking, and bicycling.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Because the proposed project is comprised of a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. Section 15130 of the State *CEQA Guidelines* provides the following direction relative to cumulative impact analysis:

> *Impacts should be based on a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact…*

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis. Additionally, the traffic modeling used to

determine traffic impacts from the project takes into account regional traffic growth and future-year traffic, making the analysis cumulative by design. Potential impacts related to traffic congestion at the intersection of West Covina Parkway and the westbound I-10 ramps remain significant and unavoidable despite mitigation because the I-10 ramps are a State-controlled facility and the City therefore cannot guarantee that improvements, if necessary, would be carried out at this intersection. For all other impacts, adherence to the goals, polices, and actions in PlanWC and the Downtown Plan and Code, and Traffic Mitigation Measures T-1(a) through T-1-(c) and T-3 would reduce impacts to a less than significant level, and these potential impacts are, therefore, also not cumulatively considerable.

4.15 UTILITIES AND SERVICE SYSTEMS

This section evaluates potential effects on utilities related to implementation of the proposed project by identifying anticipated demands and existing and planned service availability. For purposes of this EIR, utilities consist of (1) water supply; (2) wastewater; (3) storm drain facilities; and (4) solid waste. Data used to prepare this section was taken from various sources, including the Los Angeles County Sanitation Districts (LACSD), the City of West Covina, and Urban Water Management Plans (UWMPs) from water providers throughout the City of West Covina.

4.15.1 Existing Utilities

a. Water. This section presents information about West Covina's water supply system. Information for this section comes from the 2015 Urban Water Management Plans for the Upper San Gabriel Municipal Water District and the Three Valleys Municipal Water District, as well as the Main San Gabriel Basin Watermaster.

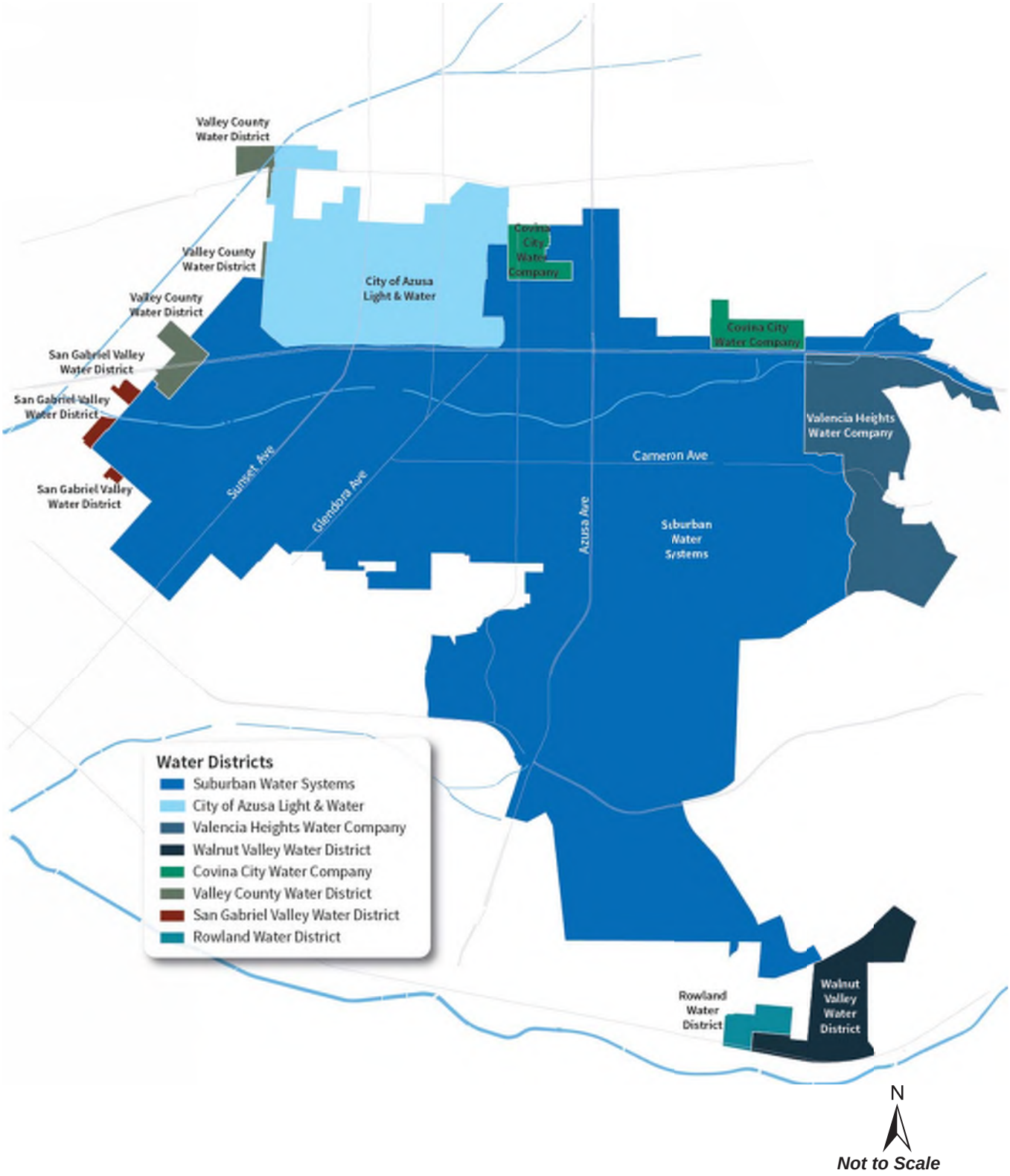
Water Supply. Water service within the City is provided by multiple water agencies. The majority of the City is served by Suburban Water Systems, which is an investor-owned water utility and part of SouthWest Water Company. Suburban Water System's water supplies include groundwater and imported surface water. In addition to Suburban Water Systems, water service within West Covina is provided by the following water agencies, as shown in Figure 4.15-1:

- *Upper San Gabriel Valley Water District*
- *Valley County Water District*
- *City of Azusa Light and Water*
- *Covina City Water Company*
- *Rowland Water District*
- *Walnut Valley Water District*
- *Valencia Heights Water Company*

Suburban Water Systems provides water to an approximately 42-square-mile service area that, in addition to the majority of West Covina, includes all or portions of Glendora, Covina, La Puente, Hacienda Heights, City of Industry, Whittier, La Mirada, La Habra, Buena Park and unincorporated portions of Los Angeles and Orange counties.

Groundwater is the primary source of water supply for the City, providing approximately 80 percent of Suburban Water Systems' water supply (SouthWest Water Company, 2014). Other water supplies include imported surface water, local surface water supplies and recycled water.

Groundwater. Groundwater resources provided to the City of West Covina by Suburban Water Systems as well as the other water agencies are drawn from the Main San Gabriel Groundwater Basin. As of 1973, the Main San Gabriel Groundwater Basin is an adjudicated basin and is managed by the Main San Gabriel Basin Watermaster. Each agency serving the City produces groundwater from privately owned wells dispersed throughout the Main San Gabriel Groundwater Basin. It is the Watermaster's responsibility to manage and control the



Source: City of West Covina, 2016.

Water Districts Serving West Covina

Figure 4.15-1

withdrawal of water from this basin and to notify each of the basin pumpers of their annual share of the available resources. If any of the water providers wish to construct or modify a well, construct a groundwater treatment plant or increase their groundwater extraction in the basin, they must first obtain approval from the Watermaster.

Surface Water. Local surface water is provided to West Covina from the San Gabriel River, which flows out of the San Gabriel Mountains to the north of the city. Surface water resources are diverted by Azusa Light and Water as well as the Covina Irrigation District, which sells water the to the City of Covina, Suburban Water Systems, Valencia Heights Water Company and the Valley County Water District.

Azusa Light and Water diverts water from the San Gabriel River through the Azusa-Duarte Tunnel to the Canyon Filtration Plant. The Canyon Filtration Plant has a production capacity of 8,407 Acre-feet per year (AFY). Annual availability of water is dependent on the releases from San Gabriel Reservoir and Morris Reservoir, which are managed by the Los Angeles County Department of Public Works and determined by the San Gabriel River Protective Association. Between 2005 and 2009 surface water resources accounted for 16 to 27 percent of Azusa Light and Water's overall supply (Azusa Light and Water, 2011).

The Covina Irrigation Company diverts San Gabriel River water from the San Gabriel Reservoir, Morris Reservoir, and the river below Morris Reservoir. Additionally, the Covina Irrigation Company has the ability to store water in both reservoirs. Water is diverted to the William B. Temple Treatment Plant, which has a capacity of 12.5 million gallons per day. Between 2005 and 2006 surface water resources accounted for between 48 and 64 percent of the Covina Irrigation Company's overall supply and are predicted to account for 56 percent of over supply through 2030 (Covina Irrigation Company, 2011).

Imported Water. Water agencies serving West Covina obtain imported water from the Metropolitan Water District of Southern California (MWD). MWD transports water from the Colorado River via the Colorado River Aqueduct and from the State Water Project via the California Aqueduct. Imported supplies are treated at MWD's Weymouth Treatment Plant before reaching water agencies supplying the City. Rather than purchasing imported water directly from MWD, Suburban Water Systems purchases its imported water resources from other local agencies such as the Upper San Gabriel Valley Municipal Water District, the Covina Irrigation Company, the City of Glendora, and the Walnut Valley Water District.

Recycled Water. Water agencies serving West Covina utilize varying amounts of recycled water. In partnership with Suburban Water Systems and the Upper San Gabriel Valley Municipal Water District (USGVMWD), the City has retrofitted park facilities, landscaped medians, and several City maintained Paseos to use recycled water. The USGVMWD has recently constructed 14 miles of pipeline, a 2-million gallon reservoir, a pump station, and a pressure-reducing station producing more than 440 million gallons of recycled water throughout the city per year. Currently, Cameron Park, Cortez Park, Friendship Park, Shadow Oak Park, and Woodgrove Park are being irrigated with recycled water. Additionally, several school districts within the City have retrofitted sports fields and landscape areas to use recycled water (City of West Covina, 2016). Recycled water available to agencies serving West Covina is purchased from the LACSD via the Whittier Narrows Water Reclamation Plant and the San Jose

Creek Water Reclamation Plant. The Whittier Narrows Water Reclamation Plant has a capacity of 15 million gallons of wastewater per day. The San Jose Creek Water Reclamation Plant has a capacity of approximately 100 million gallons per day (Sanitation Districts of Los Angeles County, 2016).

Conservation. As of May 9, 2016, Executive Order B-37-16 calls for long-term improvements to local drought preparation across the state, and directs the State Water Resources Control Board to develop proposed emergency water restrictions for 2017 if the drought persists. The City works closely with the eight water companies serving its residents to implement water conservation measures. Individual agency conservation measures include scheduled landscape watering days and hours, prohibiting runoff of irrigation water, prohibiting washing down of paved surfaces, and requiring use of recirculating fountains. Additionally, rebates are offered through SoCal Water Smart, which is an initiative through MWD. SoCal Water Smart currently offers rebates for water efficient appliances, turf removal, smart irrigation controllers, soil moisture sensors and several commercial water saving devices (SoCal Water Smart, 2015).

Further, the City recently participated in the San Gabriel Valley Water Smart City Challenge put on by the Upper San Gabriel Municipal Water District. In July of 2015, the City was selected as a winner of the challenge for the implementing the following measures:

- *Conducting a city-wide messaging campaign promoting water conservation and water rebates for West Covina residents*
- *Water reduction program at City owned facilities*
- *City Council member attendance at water educational programs*
- *Hosting www.socalwatersmart.com and www.saveourwater.com on City website throughout the duration of Governor Jerry Brown's drought declaration*
- *Partnering with Suburban Water Systems and Upper San Gabriel Municipal Water District to host a high efficiency toilet (HET) giveaway*
- *Hosting a high efficient landscape class in conjunction with the Upper San Gabriel Municipal Water District for residents*
- *Creating a thirty second Public Service Announcement (PSA) featuring residents, local business owners, or city elected officials highlighting conservation best practices*

Implementing the above measures helped the City obtain the highest rebate dollar amount per capita by City residents and businesses through SoCal Water Smart (City of West Covina, 2016).

Water Supply and Demand. The City's water portfolio is best described by Suburban Water System's portfolio, since Suburban is the City's largest water supplier. As of 2015, Suburban Water Systems water supply portfolio was comprised of approximately 70 percent purchased or imported water (17,066 AF), 26 percent self-produced groundwater (6,304 AF), and four percent recycled water (743 AF). It is estimated that this supply mix will not change through 2040 (Suburban Water Systems, 2016). Table 4.15-1 shows projected average water supply and demand through the year 2040, assuming a multiple-dry year scenario.

Table 4.15-1
Projected Average Water Supply and Demand for Suburban Water Systems
(Multiple-Dry Year Scenario)

Water Supply Source	2020	2025	2030	2035	2040
Total Supply	**44,174**	**44,174**	**44,174**	**44,174**	**44,174**
Total Demand	**40,850**	**40,850**	**40,850**	**40,850**	**40,850**
Difference	**3,324**	**3,324**	**3,324**	**3,324**	**3,324**

Source: Suburban Water Systems, 2016

Suburban Water System's 2015 UWMP indicates that, based on existing water rights and Watermaster management of the Main San Gabriel Groundwater Basin, an adequate supply of water should be available, with normal conservation efforts, to meet projected demand through 2040.

Drinking Water Quality. The City's water quality can best be described through the quality of water supplied by Suburban Water District, since it is the City's largest water supplier. According to Suburban Water District's *Water Quality Report 2014* (Suburban Water District 2014), drinking water may be reasonably expected to contain at least small amounts of some contaminants. This occurs because water traveling over the land surface or through the layers of the ground may naturally dissolve occurring minerals and, in some cases, radioactive material, and could pick up substances resulting from the presence of human or animal activity. Contaminants that may be present in source water include the following:

- ***Microbial contaminants**, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife*
- ***Inorganic contaminants**, such as salts and metals that can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming*
- ***Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses*
- ***Organic chemical contaminants**, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems*
- ***Radioactive contaminants,** that can be naturally-occurring or be the result of oil and gas production and mining activities*
- ***Lead**, if present in elevated levels, can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing.*

Suburban is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. Suburban suggests that when your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking, and that if you are concerned about lead in your water, you may wish to have your water tested. Suburban Water System water supplies did not violate any of the MCLs set by the EPA for drinking water in 2014 (Suburban Water District, 2014).

b. Wastewater. This section describes the City's existing wastewater system. Information for this section is mostly based on the City's *Sewage System Master Plan* and information provided by the Los Angeles County Sanitation District (LACSD).

Treatment System. Wastewater service within West Covina is provided by the City's Public Works Department. Wastewater from the City's system is treated by the LACSD. The LACSD is a conglomeration of 24 independent special districts responsible for collecting, treating, recycling, and disposing of the wastewater and industrial wastes generated by 5.5 million people living in an 824-square-mile area of Los Angeles County. The LACSD operates approximately 1,400 miles of main trunk sewers, 48 active pumping plants, and 11 wastewater treatment plants (LACSD website, 2016).

West Covina's wastewater is treated and disposed of at the LACSD's San Jose Creek Water Reclamation Plant (SJCWRP) and/or the Whittier Narrows Reclamation Plant (WNRP). Located at 1965 Workman Mill Road in unincorporated Los Angeles County, the SJCWRP occupies approximately 39 acres north of the Pomona Freeway (SR 60) on both sides of the San Gabriel River Freeway(SR 605). The SJCWRP has a maximum permitted capacity of 100 million gallons of wastewater per day (MGD), serving a large residential population of approximately one million people. Currently, the SJCWRP treats an average flow of 65.7 MGD (SWRCB, 2016a). Located at 301 N. Rosemead Boulevard (SR 19) in an unincorporated area commonly known as Whittier Narrows or South El Monte, WNRP occupies 27 acres south of SR 60. The WNRP has a maximum permitted capacity of 15 MGD and serves a population of approximately 150,000 people. Currently, the WNRP treats an average flow of 7.3 MGD (SWRCB, 2016b).

West Covina is spread across three LACSD sanitation districts: 15, 21, and 22. Within each sanitation district there are differing sewer connection fees. Connection fees must be paid for by the connection of new service, expansion of service, change of use category, demolition or rebuilding of a facility, and application for an industrial wastewater permit. Table 4.15-2 shows the fees associated with different land uses associated with the anticipated growth under the proposed project described in Section 2.0, *Project Description*. The connection fee for industrial dischargers are calculated by the LACSD sanitation districts based on the projected wastewater quantity and strength contained in the application for permit for Industrial Wastewater Discharge and are billed separately (LACSD, 2015).

Collection System. West Covina's existing sewer system consists of interceptors and lift stations for the conveyance of wastewater within the City. Specifically, the collection system consists of over 227 miles of gravity sewer and three pump stations.

Table 4.15-2
LACSD Sanitation District Sewer Connection Fees

Land Use	Unit	Sanitation District 15	Sanitation District 21	Sanitation District 22
Single Family Home	Parcel	$4,210	$4,320	$4,450
Condominium	Unit	$3,158	$3,240	$3,338
Multi Residential Unit	Unit	$2,526	$2,592	$2,670
Hotel	Room	$1,979	$2,030	$2,092
Store	1,000 sf	$1,600	$1,642	$1,691
Office Building	1,000 sf	$3,200	$3,283	$3,382
Light Manufacturing	1,000 sf	$505	$518	$534

Notes: sf = square feet
Source: (LACSD, 2015)

c. Storm Drains. West Covina has both undeveloped open space with natural drainage features and urban development with highly altered drainage systems, including concrete lined washes, underground storm drain systems, and catch basins. Lined washes and underground stormwater systems within the City of West Covina are designed and maintained by the Los Angeles County Flood Control District (LACFCD). The City of West Covina Street and Wastewater section of the City maintenance division shares responsibility for maintenance of catch basins, storm drains, and street gutters. Stormwater that drains from the City is directed toward stormdrains and catch basins and delivered to lined washes via the underground storm drain system. The lined washes running through the City include Walnut Creek, Big Dalton Wash, Doublegrove Channel, MTD 0016, and Puente Creek. All washes servicing West Covina eventually direct water to the San Gabriel River, which is also a reinforced concrete channel, and discharges water to the Pacific Ocean at the City of Long Beach.

d. Solid Waste. This section describes existing solid waste management and resource recovery systems for West Covina. Information in this section was gathered from personal communications with City staff.

The City contracts with Athens Services to provide trash, recycling, and special pickup services throughout the City. Details regarding waste haulers, transfer stations, and landfills are provided below.

Waste Haulers. Athens Services provides trash and recycling collection service to residences, as well as all commercial, governmental, and industrial facilities within West Covina. Athens Services has a non-exclusive, competitive franchise agreement with the City.

Transfer Stations. Transfer stations are facilities that transfer trash from small vehicles to large transfer trailers, or on to railroad cars, where the trash is then transported to distant landfills. A Materials Recovery Facility (MRF) can be utilized purely as a transfer station for trash but it also accepts commingled materials and sorts them into separate categories, such as glass, plastic, cardboard, etc. Once the usable materials have been separated, they are transported to firms that recycle them. The trash is transported to distant landfills. A "dirty" MRF accepts trash, and sorts that trash to pull out recyclables. After collection, waste is taken to

the Athens Services MRF in the City of Industry. The City of Industry MRF can process 5,000 tons of mixed material each day.

Landfills. After waste is sorted at the Athens MRF, material that cannot be recycled is sent to the Victorville Sanitary Landfill. Table 4.15-3 summarizes the permitted daily throughput, estimated average waste quantities disposed, and remaining capacity for the Victorville Landfill.

Table 4.15-3
Solid Waste Disposal at the Victorville Sanitary Landfill

Permitted Daily Throughput (tons/day)	Max Permitted Capacity (cubic yards)	Estimated Remaining Capacity (cubic yards)
3,000	83,200,000	81,510,000

Source: CalRecycle, http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0045/Detail/

Diversion facilities do not report tonnages by city, so specific diversion data is not available.

Waste Reduction Programs. The City of West Covina operates a bottle and can recycling program. When West Covina consumers purchase beverages packaged in California Redemption Value (CRV) containers, there is an additional recycling fee. CRV recycling fees can be refunded by taking CRV beverage containers to a local recycling center for redemption. Eligible beverage containers include water bottles, aluminum soda cans, juice bottles, and 2-liter soda bottles. There are four certified redemption centers within the City of West Covina where residents can drop off CRV beverage containers including the Albertsons at 2630E. Workman Avenue, Stater Brothers at 1025 Amar Road, Vons at 777 Glendora Avenue, and Northgate Market at 1320 W. Francisquito Avenue.

Residents of West Covina can also participate in product exchange programs sponsored by LACoMAX and CalMAX. These programs allow residents to post items on an internet platform to give away to other residents who may have a use for the items. This helps to extend the life of items that may otherwise be sent to the landfill.

Additionally, the City of West Covina offers rebates on the purchase of composting bins to residents who attend a free Smart Gardening Composting Workshop in the area. Encouraging the use of household compost bins allows residents to recycle their yard trimmings and kitchen scraps at home rather than sending them to the landfill.

The majority of waste reduction for the City of West Covina is done through Athens Services at their MRF in the City of Industry.

e. Street Lights. Streetlights within the City of West Covina are generally operated and maintained by Southern California Edison (SCE). Streetlight outages are reported to and repaired by SCE. The Traffic and Lighting Section of the City of West Covina's engineering division oversees evaluations and improvements of the City's street lighting system, including installation, spacing, type, size, and billing verifications. Any changes to street lighting are reviewed by the City Traffic Committee, which provides recommendations to the City Council. PlanWC aims to increase City-wide energy efficiency by the installation of solar panels for City

facilities and retrofitting existing lights to higher efficiency lamps, such as LED, as funds become available.

f. Natural Gas. Natural gas service within West Covina is provided by Southern California Gas Company. The availability of natural gas service is based upon conditions of gas supply and regulatory agencies. As a public utility, Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission, as well as federal regulatory agencies. Gas service is provided in accordance with conditions set by these agencies. Gas facilities within West Covina could be installed, altered or abandoned as necessary without any significant impact on the environment.

The City of West Covina, the Greater West Covina Business Association, and the Southern California Gas Company have partnered to bring the Advanced Meter Community Outreach Education (AMCOE) Project to West Covina. By adding an advanced meter communications device to residential and commercial meters, more insight into natural gas usage is available.

4.15.2 Regulatory Setting

a. Water

Federal

Clean Water Act. The federal Clean Water Act (CWA) establishes regulatory requirements for potable water supplies including raw and treated water quality criteria. The City is required to monitor water quality and conform to the regulatory requirements of the CWA.

Safe Drinking Water Act. The federal Safe Drinking Water Act (SDWA) establishes standards for contaminants in drinking water supplies. Contaminants regulated by the SDWA include metals, nitrates, asbestos, total dissolved solids, and microbes.

State

Safe Drinking Water Act (1976). California enacted its own Safe Drinking Water Act in 1976. The California Department of Public Health (CDPH) [formerly the California Department of Health Services (CDHS)] has been granted primary enforcement responsibility for the SDWA. Title 22 of the California Administrative Code establishes CDPH authority and stipulates drinking water quality and monitoring standards. These standards are equal to or more stringent than the federal standards.

Recycled Water Regulations. Within California, recycled water is regulated by the U.S. Environmental Protection Agency (U.S. EPA), the State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), and CDPH. The SWRCB has adopted Resolution No. 77-1, Policy with Respect to Water Reclamation in California. This policy states that the SWRCB and RWQCBs will encourage and consider or recommend for funding water reclamation projects that do not impair water rights or beneficial in-stream uses. The CDPH establishes the recycled water uses allowed in California and designates the level of

treatment (i.e., undisinfected secondary, disinfected secondary, or disinfected tertiary) required for each of these designated uses (Title 22, California Code of Regulations).

The Regional Water Quality Control Boards (RWQCBs) implement the SWRCB Guidelines for Regulation of Water Reclamation and issue waste discharge permits that serve to regulate the quality of recycled water based on stringent water quality requirements. The CDPH develops policies protecting human health and comments and advises on RWQCB permits.

Title 22. The California Water Code requires the CDPH to establish water reclamation criteria. In 1975, the former CDHS prepared Title 22 to fulfill this requirement. Title 22 regulates production and use of reclaimed water in California by establishing three categories of reclaimed water: primary effluent, which typically includes grit removal and initial sedimentation or settling tanks; adequately disinfected, oxidized effluent (secondary effluent) which typically involves aeration and additional settling basins; and adequately disinfected, oxidized, coagulated, clarified, filtered effluent (tertiary effluent) which typically involves filtration and chlorination. In addition to defining reclaimed water uses, Title 22 defines requirements for sampling and analysis of effluent and requires specific design requirements for facilities.

Urban Water Management Planning Act of 1983. The California Urban Water Management Planning Act requires all publicly or privately owned utilities that provide water service to more than 3,000 service connections or over 3,000 acre-feet per year to prepare an Urban Water Management Plan (UWMP). The UWMP is intended to support long-term resource planning and ensure suppliers have adequate supplies for existing and future demand. SB X7-7, passed in 2009, requires a reduction in 20 percent per capita water use by the year 2020. These water savings targets must be quantified in updated UWMPs.

Local

Integrated Resources Plan. The updated Integrated Resources Plan (IRP), approved by Metropolitan in October 2010, is Metropolitan's strategic plan for water reliability through the year 2035. The plan emphasizes water-use efficiency through conservation and local supply development.

b. Wastewater

Federal

National Pollution Discharge Elimination System (NPDES) Permits. The NPDES permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

In California, the federal requirements are administered by the SWRCB, , and individual NPDES permits are issued by the RWQCBs.

Disposal of Biosolids. Title 40 of the Code of Federal Regulations (CFR) Part 503, Title 23 California Code of Regulations, and standards established by the LARWQCB regulate the disposal of biosolids.

Clean Water Act. The Federal Water Pollution Control Act of 1972, more commonly known as the Clean Water Act (CWA), regulates the discharge of pollutants into watersheds throughout the nation. Under the CWA, the United States Environmental Protection Agency (USEPA) implements pollution control programs and sets wastewater standards.

Local

Sanitation Districts of Los Angeles County (LACSD). The LACSD adopted a Wastewater Ordinance effective April 1, 1972 (which was amended on July 1, 1980; July 1, 1983; November 1, 1989; and July 1, 1998) to protect and finance the operation of its wastewater conveyance, treatment, and disposal facilities. The LACSD also adopted a Connection Fee Ordinance in 1981 (which was amended in 1984, 1990, 1992, 1997, and 2007). Companies that discharge industrial wastewater to the sewerage system are governed by both the Wastewater Ordinance and the Connection Fee Ordinance. These legal mechanisms establish the Districts' Industrial Wastewater Discharge Permit, Connection Fee, and Surcharge Programs. The Industrial Wastewater Discharge Permit Program allows for the regulation of industrial wastewater dischargers to protect the public health, environment, and the public sewerage system. The Surcharge Program requires all industrial companies discharging to the Districts' sewerage system to pay their fair share of the wastewater treatment and disposal costs. The Connection Fee Program requires all new users of the Districts' sewerage system, as well as existing users that significantly increase the quantity or strength of their wastewater discharge, to pay their fair share of the costs for providing additional conveyance, treatment, and disposal facilities.

Los Angeles Regional Water Quality Control Board (LARWQCB). The LARWQCB protects ground and surface water quality in the Los Angeles Region, including the coastal watersheds of Los Angeles and Ventura Counties, along with small portions of Kern and Santa Barbara Counties. It has constitutional, statutory, and regulatory authority to regulate discharges to waters of the state, to promote the beneficial use of water, and to prevent the waste of water. The LARWQCB is one of nine Regional Boards statewide. These Boards are part of the California Environmental Protection Agency (CAL/EPA).

c. Solid Waste

Federal

With the exception of determining where disposal sites are located, and operational standards, there are no applicable Federal laws, regulations, or policies that pertain to solid waste.

State

California Integrated Waste Management Act. California's Integrated Waste Management Act of 1989 (AB 939) requires that cities and counties divert 50 percent of all solid waste from landfills as of January 1, 2000 through source reduction, recycling, and composting. AB 939 also establishes a goal for all California counties to provide at least 15 years of ongoing landfill capacity. To help achieve this goal, the Act requires that each city and county prepare a Source Reduction and Recycling Element to be submitted to the Department of Resources Recycling and Recovery (CalRecycle), a department within the California Natural Resources Agency, which administers programs formerly managed by the State's Integrated Waste Management Board and Division of Recycling. As part of California's Integrated Waste Management Board's (CIWMB) Zero Waste Campaign, regulations affect what common household items can be placed in the trash. As of February 2006, household materials including fluorescent lamps and tubes, batteries, electronic devices, and thermostats that contain mercury are no longer permitted in the trash and must be disposed of separately.

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is based on a jurisdiction's reported total disposal of solid waste divided by a jurisdiction's population. CIWMB sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CIWMB with an update of its progress in implementing diversion programs and its current per capita disposal rate.

California Solid Waste Reuse and Recycling Access Act of 1991. The California Solid Waste Reuse and Recycling Access Act requires areas in development projects to be set aside for collecting and loading recyclable materials. The Act requires CalRecycle to develop a model ordinance for adoption by any local agency relating to adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model, or an ordinance of their own, governing adequate areas in development projects for collection and loading of recyclable materials.

CALGreen Building Code. The California Green Building Standards Code (CALGreen Code) came into effect for all projects beginning after January 1, 2011. Section 4.408, *Construction Waste Reduction Disposal and Recycling* mandates that, in the absence of a more stringent local ordinance, a minimum of 50 percent of non-hazardous construction and demolition debris must be recycled or salvaged. The Code requires project applicants to have a waste management plan for on-site sorting of construction debris.

Local

Los Angeles Countywide Integrated Waste Management Plan. The Los Angeles Countywide Integrated Waste Management Plan (CIWMP), adopted by the Los Angeles County Board of Supervisors in January 1998 and approved by CalRecycle in June 1999, outlines a means of addressing the County's long-term refuse disposal needs in compliance with AB 939. The CIWMP is composed of the Los Angeles Countywide Summary Plan, the Source Reduction and Recycling Element (SRRE) for the County, the Nondisposal Facility Element (NDFE) for the County, the Household Hazardous Waste Element (HHWE) for the County, and the Los Angeles Countywide Siting Element. Additionally, the Los Angeles Department of Public Works is responsible for creating an Annual Report, which serves as an annual update to the

Summary Plan. The latest Annual Report for the County of Los Angeles is the 2014 Annual Report.

4.15.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology. Available information pertaining to City of West Covina utilities was reviewed during this analysis including, but not limited to: West Covina website, West Covina Community View (City of West Covina, 2016), Suburban Water Systems 2010 UWMP (Suburban Water Systems, 2011), Main San Gabriel Groundwater Basin Watermaster, LACSD website, personal communication with LACSD (2016), personal communications with Athens Services, and personal communication with Victorville Sanitary Landfill.

Significance Thresholds. The following thresholds of significance are based on Appendix G to the State *CEQA Guidelines*. For the purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.*
- *Require or result in the construction of new water or wastewater treatment or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *Have insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.*
- *Result in a determination by the wastewater treatment provider which serves or may serve the project that is has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.*
- *Not be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs.*
- *Not comply with federal, state and local statutes and regulations related to solid waste.*

b. Project Impacts and Mitigation Measures.

Threshold:	*Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.*
Threshold:	*Require or result in the construction of new water or wastewater treatment or expansion of existing facilities, the construction of which could cause significant environmental effects.*
Threshold:	*Result in a determination by the wastewater treatment provider which serves or may serve the project that is has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.*

Impact U-1 Development facilitated by the proposed project would incrementally increase citywide wastewater generation, but the projected increase would not exceed the capacity of existing wastewater treatment facilities or service providers. Impacts would be *less than significant*.

Development facilitated by the proposed project would increase wastewater generation. As described previously, wastewater from the City is treated and disposed of at the LACSD's SJCWRP, and/or the WNRP. The SJCWRP maintains a maximum permitted capacity of 100 MGD and currently treats an average flow of 65.7 MGD (SWRCB, 2016a), leaving an available capacity of 34.3 MGD. The WNRP maintains a design capacity of 15 MGD and currently treats and average flow of 7.3 MGD (SWRCB, 2016b), leaving an available capacity of 7.7 MGD. Combined, the two plants have a total available capacity of 42.0 MGD.

As discussed in Section 2.0, *Project Description*, the proposed project would facilitate development of approximately 2,100 residential units, 400,000 square feet of office space, 200,000 square feet of retail, 15,000 square feet of industrial, and 600 hotel rooms. To estimate the amount of wastewater generated from different land uses, LACSD uses wastewater generation rates (LACSD, 2016). Table 4.15-4 shows that the total anticipated wastewater flow from the amount of development projected to occur under the proposed project is 505,600 gallons per day. As discussed above, the combined remaining of WNRP and SJCWRP is 42.0 MGD. Therefore, these two wastewater treatment facilities would have adequate capacity to accommodate the wastewater generated from development facilitated by the proposed project.

Table 4.15-4
LACSD Wastewater Generation Rates

Land Use	Total Units	Wastewater Generation Rate (gpd)	Total Flow (gpd)
Residential Units[1]	2,100	156 gpd/unit	327,600
Hotel	600	125 gpd/room	75,000
Commercial Office	400,000	200 gpd/1,000 sf	80,000
Retail (Store)	200,000	100 gpd/1,000 sf	20,000
Industrial (Manufacturing)	15,000	200 gpd/1,000 sf	3,000
Total Anticipated Flow		**505,600**	

Generation Rate Source: (LACSD, 2016)
gpd = gallons per day
sf = square feet
1 LACSD wastewater generation rate for five units or more of multi-family residential development were used to calculate the wastewater generation rate for new residential units, since this unit type best represents the type of new residential development expected to occur.

Implementation of PlanWC would direct the majority of new growth to the Downtown area. According to PlanWC, generally, the City has found that sewer systems within the Downtown area are operating at 65 percent capacity and are in good condition, but some sewers are operating above 65 percent capacity and will need to be assessed and replaced to accommodate new growth. Further, in their public comments on the proposed project, LACSD stated that there are no current deficiencies in the LACSD trunk sewer lines serving West Covina. Development facilitated by the proposed project, however, could potentially lead to additional

wastewater flows in excess of the current capacities of West Covina and LACSD sewer lines within the City, necessitating sewer line replacement. Generally, replacement of sewer lines would have less than significant environmental impacts because sewer lines would be replaced under existing City streets and in the same location of existing sewer lines. However, potential impacts of future development on the West Covina sewer system and LACSD trunk sewer lines should be analyzed on an individual project basis.

PlanWC goals and policies related to sewer service are listed below. PlanWC Policy P5.8 is to ensure the provision of adequate sewer system capacities to serve the existing and planned development. Actions under Policy P5.8 would ensure that all construction of new or replacement sewers lines would be consistent with the City's Sewer System Management Plan, and that the sewer system would be improved where necessary to serve new development. Generally, impacts associated with replacement of sewer lines within the City would be less than significant because replacement would occur under existing City streets and at the location of existing sewer lines. Potential impacts to LACSD sewer line facilities by future development within West Covina would be analyzed on an individual project basis through the environmental review process required of such new development, but potential environmental impacts related to any necessary sewer line replacement would be less than significant such replacement would occur under existing City streets and at the location of existing sewer lines. Therefore, impacts to the sewer system, and from potential sewer line replacement, from increased growth in the City facilitated by the proposed project would be **less than significant**.

PlanWC Goals and Policies

PlanWC sets goals, policies, and actions that would address issues related to the City's sewer system. Goals and policies applicable to the proposed project are listed below.

Our Resilient Community

Our goal is to support development pattern and support systems that yield a resilient low carbon built environment.

P5.8 *Ensure provision of adequate sewer system capacities to serve existing & planned development.*

- ***A5.8a*** *Preventing rain water from getting into sewer system.*
- ***A5.8b*** *Preserve the longevity & sound condition through evaluation & maintenance of the sewer infrastructure.*
- ***A5.8c*** *Pursue construction of new or replacement sewer lines consistent with the City's Sewer System Management Plan.*
- ***A5.8d*** *Pursue enlargement or extension of the sewage collection system where necessary to serve new development, with the capital costs & benefits allocated equitably & fairly between the existing users & new users.*

Mitigation Measures. None required beyond implementation of the PlanWC policies and actions discussed above.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

Impact U-2 Development facilitated by the proposed project would incrementally increase stormwater runoff within the City, but stormwater runoff would not exceed the capacity of the existing stormwater drainage facilities. Impacts would be *less than significant*.

As discussed in Section 4.8, *Hydrology and Water Quality*, implementation of the proposed project may incrementally increase the amount of impervious surfaces within the City. The addition of impervious surfaces within the City resulting from development allowed by the proposed project could result in an increased volume of stormwater entering the City's existing storm drain infrastructure. However, the City of West Covina is currently developed with predominantly urban land uses, including a substantial amount of impervious surfaces. As discussed in Section 4.8, *Hydrology and Water Quality*, implementation of the proposed project is not expected to significantly alter drainage patterns within the City or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Additionally, future development within West Covina would be required to comply with the City's Low Impact Development Ordinance (Ordinance No. 2262), which would reduce runoff generated from developed sites, and any potential impacts of development projects on stormwater drainage facilities would be analyzed on an individual project basis.

Both PlanWC and the Downtown Plan and Code contain policies to manage and reduce stormwater runoff. Specifically, Policy P4.8 calls for the implementation of "green" streetscapes to benefit stormwater management. Similarly, Policy P8.6 calls for the development of green spaces, which would benefit stormwater management by reducing impervious surfaces throughout the City. With adherence to the policies and actions related to green space and stormwater management in PlanWC and the Downtown Plan and Code (listed below), impacts would be **less than significant**.

PlanWC

P4.8 *Implement "green" streetscape elements for purposes of beautification, carbon reduction and stormwater runoff management.*

P8.6 *Develop a network of open spaces.*

- ***A8.6a*** *Connect the open spaces to neighborhoods through a series of landscaped streets that provide green links to the Walnut Creek as well as stormwater drainage.*
- ***A8.6b*** *Revise zoning ordinance to require new development to connect their open spaces to the open space network.*

Downtown Plan and Code

P11.2 *Promote best practices for water conservation, re-use, & retention as part of new construction, renovations, site improvements, and landscaping.*

A11.2 *Integrate visible environmental site design strategies that provide multiple performance area benefits for water quality, habitat, heath and aesthetic improvement. Strategies include:*

1. *Pervious pavement;*
2. *Reduce impervious cover to maximize infiltration and/or green space;*
3. *Use street trees for stormwater interception, temperature mitigation and air quality improvement;*
4. *Bioswales/biofiltration/bioretention/bioinfiltration;*
5. *Rainwater harvesting for retention, irrigation and gray water;*
6. *Install drought tolerant plant materials; and*
7. *Install smart irrigation controllers designed to reduce water demand and curtail water runoff.*

P11.3 *Implement "green" streetscape elements for purposes of beautification, carbon reduction and stormwater runoff management.*

A11.3a *Develop a green infrastructure plan addressing design, implementation and maintenance of landscape elements in public rights-of-way. This plan should include design guidance, standards and best practices.*

A11.3b *As part of the green infrastructure plan, develop a strategy to increase the Downtown tree canopy by adding 100 new trees in the Downtown area annually.*

A11.3c *Continue to require new development and public infrastructure to incorporate "best-practices" to protect and improve ecological quality and functions relating to stormwater, by treating urban runoff, retaining stormwater, and attaining no net increase in runoff from Downtown.*

A11.3d *Develop an interpretive signage program to heighten awareness of Walnut Creek, drainage patterns, natural areas, and sustainability features in Downtown.*

Mitigation Measures. No mitigation beyond implementation of the PlanWC and Downtown Plan and Code policies and actions discussed above is required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Have insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.*

Impact U-3 **Development facilitated by the proposed project would increase demand for water supply. However, Suburban Water Systems 2015 Urban Water Management Plan projects that adequate water supply will be available to serve population growth in the City through 2040. Impacts would be *less than significant.***

Suburban Water Systems' 2015 UWMP projects water supply and demand through 2040. Since the service area of Suburban Water Systems includes areas outside of West Covina, population forecasts were created using Department of Water Resources (DWR) methods which anchor the residential water connections to the Census population estimates. Demand projections are based on population growth forecasts using the DWR method. According to the UWMP, Suburban Water Systems' San Jose Hills service area is anticipated to have a service population of 178,792 in 2040. With this anticipated growth, the UWMP projects that the City will have adequate water supply, with normal conservation efforts, to meet demand through 2040 in average year, single dry year, and multiple dry year scenarios as shown in Table 4.14-1 in the *Setting*. Development facilitated by the proposed project is expected to increase the city's population. Forecasted growth under the proposed project is expected to be within SCAG forecasts, which predict that West Covina's population will be 116,700 by the year 2040. This population is within the population anticipated in the 2015 UWMP.

Using a conservative estimate of water supply and demand based on a multiple dry year scenario, Suburban Water System projects a total surplus in water supply availability of 3,324 acre feet per year in 2020 through 2040 (Suburban Water Systems, 2016). Projected increase in water demand from development envisioned under the proposed project is assumed to be 120% of wastewater flows. Using the estimated wastewater flows generated from development facilitated by the proposed project of 505,600 gpd (shown in Table 4.15-2 above), future development is expected to result in an increase in water demand of approximately 975 acre feet per year. Therefore, water supplies would be adequate to serve development and population growth envisioned under the PlanWC.

Further, PlanWC and the Downtown Plan and Code both contain policies to reduce water use. Specifically, PlanWC Policy P5.7 is to manage and develop safe, reliable, and economical water supply for existing and planned new customers. Downtown Plan and Code Policy P11.2 is to promote best management practices for all new construction, renovations, site improvements and landscaping. With adherence to the policies and actions related to water supply in PlanWC and the Downtown Plan and Code (listed below), impacts would be **less than significant**.

PlanWC Goals and Policies

PlanWC outlines policies and actions that would address issues related to the City's water supply. The policies and actions applicable to water supply issues related to the proposed project are listed below.

PlanWC

Our Resilient Community

PlanWC outlines policies and actions that would address issues related to the City's water supply. The policies and actions applicable to water supply issues related to the proposed project are listed below.

P5.7 *Manage & develop safe, reliable, economical water supply for existing & planned new customers.*

A5.7a *Reduce demand through water conservation techniques.*

A5.7b *Partner with the eight water districts to forecast demand & determine appropriate facility needs.*

A5.7c *Set conditions of approval for each new development to ensure adequate water supply prior to occupancy.*

Downtown Plan and Code

Our Resilient Community

P11.2 *Promote best practices for water conservation, re-use, & retention as part of new construction, renovations, site improvements, and landscaping.*

A11.2 *Integrate visible environmental site design strategies that provide multiple performance area benefits for water quality, habitat, heath and aesthetic improvement. Strategies include:*

- *Pervious pavement;*
- *Reduce impervious cover to maximize infiltration and/or green space;*
- *Use street trees for stormwater interception, temperature mitigation and air quality improvement;*
- *Bioswales/biofiltration/bioretention/bioinfiltration;*
- *Rainwater harvesting for retention, irrigation and gray water;*
- *Install drought tolerant plant materials; and*
- *Install smart irrigation controllers designed to reduce water demand and curtail water runoff.*

P11.4 *Encourage new "green businesses" and institutions to locate Downtown, and existing businesses and institutions to reduce operating costs by going "green."*

A114a *Promote environmental business practices to reduce energy use, reduce water use, reduce waste and increase recycling and composting.*

Mitigation Measures. No mitigation beyond implementation of the PlanWC and Downtown Plan and Code policies and actions discussed above is required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Threshold:	*Not be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs.*
Threshold:	*Not comply with federal, state and local statutes and regulations related to solid waste.*

Impact U-4 **Implementation of the proposed project would increase the amount of solid waste sent to area landfills. However, landfills serving West Covina have adequate capacity to accept the additional waste. Further, PlanWC and the Downtown Plan and Code contain policies to increase recycling in the City. Impacts would be *less than significant.***

Development facilitated by the proposed project would add approximately 2,100 residential units, 400,000 square feet of office space, 200,000 square feet of retail, 15,000 square feet of industrial, and 600 hotel rooms over the next 20 years. To estimate solid waste generated from commercial office space and industrial development facilitated by the proposed project, the number of new employees resulting from this development was estimated using square feet per employee values presented in the SCAG Employment Density Study (SCAG, 2001). Office space is assumed to have 299 employees per square foot, and industrial is assumed to have 749 employees per square foot (SCAG 2001). As shown in Table 4.14-5, such levels of development could generate approximately 42,841 pounds (21.42 tons) of solid waste per day.

Table 4.14-5
Projected Solid Waste Generation Increase

Land Use	Units	Generation Factor	Daily Solid Waste Generation (pounds)	Daily Solid Waste Disposal (tons)
Single Family Residential	2,100 Households	12.23 lbs/household/day	25,683	12.8
Commercial*	1,338 Employees	10.53 lbs/employee/day	14,090	7.07
Retail	200,000 square feet	2.5 lbs/1,000 square feet/day	500	0.25
Industrial	20 Employees	8.39 lbs/employee/day	168	0.1
Hotel	600 Rooms	4 lbs/room/day	2,400	1.2
Total			***42,841***	***21.42***

Source: CalRecycle estimated solid waste generation and disposal rates, http://www.calrecycle.ca.gov/wastechar/wastegenrates/
** Though total employees includes retail and other kinds of employment, for the purposes of this analysis, all employees were assumed to be "commercial" employees.*

Waste within West Covina is collected by Athens Services and sent to the Athens City of Industry MRF, where it is sorted. Solid waste from the MRF is then sent to the Victorville Sanitary Landfill, which has a permitted maximum throughput of 3,000 tons/day and an anticipated closure date of 2047 (CalRecycle 2016). Currently, the Victorville Landfill has a daily throughput of approximately 1,125 tons per day (Frank Luna 2016). Therefore, the addition of 21.42 tons/day potentially generated by the proposed project would not exceed the permitted maximum throughput of the landfill. In addition, this analysis does not take into account waste that is diverted or recycled. Athens Services is in compliance with the rules and regulations of AB 939. Therefore, the diversion rate from the Athens City of Industry MRF is conservatively assumed to be 50 percent for this analysis. Based on a 50 percent diversion rate, actual solid waste disposal would be approximately 10.71 tons/day.

Potential future development facilitated by the proposed project would also be reviewed on a project-by-project basis; solid waste impacts would be evaluated based on existing and planned disposal facilities and capacities available. Lastly, PlanWC and the Downtown Plan and Code include goals and policies to ensure continued effective management of solid waste generated in West Covina. For example, Policy P5.9 is to provide adequate facilities and services for the collection, transfer, recycling and disposal of solid waste. Therefore, impacts would be less than significant.

As described above, AB 939 mandates that local jurisdictions divert at least 50 percent of all solid waste generated by January 1, 2000. Through its contract with Athens Services, the City of West Covina is able to achieve a 50 percent diversion rate from the City of Industry MRF. Thus, implementation of the proposed project, including policies to increase community waste reduction and recycling, would not conflict with federal, state, or local statutes or regulations related to solid waste disposal. Impacts would be **less than significant.**

PlanWC and Downtown Plan and Code Policies and Actions

PlanWC sets goals and outlined policies and actions that would address issues related to the City's water supply. The goals and policies that are applicable to the project are included below.

PlanWC

Our Resilient Community

PlanWC contains policies and actions that would address issues related to the City's sewer system. The policies and actions related to this issue that are applicable to the proposed project are listed below.

P5.9 *Provide adequate facilities & services for the collection, transfer, recycling, and disposal of refuse.*

A5.9 *Continue to collaborate with users & service partners to identify & support programs & new techniques of solid waste disposal, such as:*

- *Recycling;*
- *Composting;*
- *Waste to energy technology; and*
- *Waste separation, to reduce the volume & toxicity of solid wastes that must be sent to landfill facilities.*

Downtown Plan and Code

P11.4 *Encourage new "green businesses" and institutions to locate Downtown, and existing businesses and institutions to reduce operating costs by going "green."*

A11.4a *Promote environmental business practices to reduce energy use, reduce water use, reduce waste and increase recycling and composting.*

Mitigation Measures. No mitigation measures beyond implementation of the PlanWC and Downtown Plan and Code policies and actions discussed above are required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

a. Cumulative Impacts

Because the proposed project is a General Plan Update and Downtown Plan and Code, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the

analysis of project impacts also constitutes the cumulative analysis. While development facilitated by the proposed project would incrementally increase demand on utilities within the City of West Covina, the growth expected to occur as a result of the proposed project would be within the projections provided by the SCAG. Therefore, cumulative impacts from the implementation of the proposed project would be less than significant and not be cumulatively considerable.

4.16 LESS THAN SIGNIFICANT ENVIRONMENTAL FACTORS

This section discusses those factors determined to be less than significant that do not require a full environmental impact analysis. Environmental factors discussed in this section include Agriculture and Forestry Resources and Mineral Resources.

a. Agriculture and Forestry Resources. There are no areas within West Covina currently zoned, designated, or utilized for agricultural or forestry activities, and the City contains no Prime Farmland, Unique Farmland, or Farmland of Statewide Significance, as shown on maps provided by the Farmland Mapping and Monitoring Program of the California Department of Conservation (California Department of Conservation, April 2016). There are also no areas of forest land as defined in Public Resources Code section 12220(g), or timberland as defined in Public Resources Code section 4526, within or in the immediate vicinity of West Covina, and the proposed project would have no impact related to loss or conversion of forest land or timberland. As a result, no impacts on Agriculture and Forestry Resources would occur from implementation of the proposed project.

b. Mineral Resources. There are no areas within West Covina containing known mineral resources appropriate for mineral extraction. Therefore, there would be no loss of availability of known mineral resources or of locally important mineral resource recovery sites. As a result, no impacts relating to mineral resource extraction would occur from implementation of the proposed project.

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5.0 OTHER CEQA CONSIDERATIONS

This section discusses other issues for which CEQA requires analysis in addition to the specific issue areas discussed in Section 4.0, *Environmental Impact Analysis*. These additional issues include the proposed project's potential to induce growth and create significant and irreversible impacts on the environment.

5.1 GROWTH INDUCING EFFECTS

Section 15126.2(d) of the *CEQA Guidelines* requires that EIRs discuss the potential for projects to induce population or economic growth, either directly or indirectly. CEQA also requires a discussion of ways in which a project may remove obstacles to growth.

Population and Employment Growth. As discussed in Section 2.0, *Project Description*, it is anticipated that the proposed project would result in approximately 2,100 additional residential units in the City of West Covina over the next 20 years, most of it occurring in those areas identified in PlanWC and the Downtown Plan as having the greatest potential for change (the Downtown area and in focused districts, corridors, and neighborhoods). Based on West Covina's estimated average household size of 3.41 persons (DOF, 2016), this would lead to an increase of approximately 7,161 residents in the City, which would increase the City's population from 107,873 in 2016 to 115,034 in 2036, an approximately 6.6% increase in population growth over the 20 year timeframe of the proposed project. This would be below SCAG's 2040 population forecast for the City of 116,700 from the 2016 RTP/SCS (SCAG, 2016). Consequently, implementation of the proposed project would not exceed the population forecasts upon which SCAG's 2016 RTP/SCS and the 2012 South Coast Air Quality Management Plan (AQMP) are based.

Residential density standards included in the proposed project (discussed in Section B, *Planning Designations and Transect Zones* of the *Our Well Planned Community* chapter of PlanWC) express a maximum number of housing units per net acre for each land use type defined in PlanWC. These residential density standards would limit potential population growth in the City to within the forecast amounts. Additionally, Section 26-701 to Section 26-710 of the West Covina Municipal Code (WCMC) requires development within the hillside overlay zone to be in accordance with certain guiding principles and standards. The guiding principles and standards ensure land use densities in conformance with the General Plan, a development pattern that balances economics with environmental concerns, and guarantee a certain amount of undeveloped land. This would also limit potential growth in the City's resident population. Lastly, it is the specific purpose of the proposed project to accommodate the orderly development of West Covina. Therefore, by its nature, the proposed project is intended to reduce the potential for uncontrolled growth and associated environmental impacts. For the reasons discussed above, implementation of the proposed project would not lead to such impacts.

Removal of Obstacles to Growth. West Covina is almost entirely built out, and does not contain any rural areas. With the exception of existing natural preserves, most large land areas have been developed, including most of the hillsides. As a result, few sites of sufficient size for large housing developments remain available. Further, there is limited potential for the City to

expand outward, as it is largely surrounded by other incorporated cities, and the City has no plans to annex any of the already-developed unincorporated areas within its Sphere of Influence (SOI) shown in Figure 2-1 of this EIR. Thus, all new development envisioned as part of the proposed project would occur within West Covina's current incorporated boundary. As discussed in Section 2.0, *Project Description*, the proposed project encourages the reuse and intensification of already developed areas. Most growth within the City is anticipated to consist of reinvestment in existing buildings; minor improvements to utility and infrastructure and the public realm; and occasional infill development. Housing growth, for example, would be targeted in strategic areas in the Downtown and in other defined districts, corridors, and neighborhoods.

Areas where development activity could occur include areas that are already served by existing infrastructure. Development of vacant lands would require new water and sewer connections. However, the proposed project does not envision major infrastructure extensions, and any improvements would be primarily limited to minor improvements of aging facilities and enhancement of existing infrastructure in key locations. As described above, the proposed project targets the majority of development as redevelopment and infill development within the City, limiting the amount of new development, and the proposed project also contains residential density standards that would help control growth. Additionally, the WCMC regulates development in the hillside areas. Therefore, the proposed project would not remove obstacles to growth.

5.2 IRREVERSIBLE ENVIRONMENTAL EFFECTS

The CEQA *Guidelines* require that EIRs evaluating projects involving amendments to public plans, ordinances, or policies contain a discussion of significant irreversible environmental changes. CEQA also requires decision makers to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the proposed development.

Construction activity that would be facilitated by the proposed project would involve the use of building materials and energy, some of which are non-renewable resources. Consumption of these resources would occur with any development in the region and are not unique to West Covina or the proposed project. The addition of new residential and non-residential development in the City during the lifetime of the proposed project would irreversibly increase local demand for non-renewable energy resources such as petroleum and natural gas. Increasingly efficient building fixtures and automobile engines, as well as implementation of policies included in PlanWC and the Downtown Pan are expected to offset the demand to some degree. It is not anticipated that growth accommodated under the proposed project would significantly increase energy demand in a way that would change local or regional energy supplies. For example, PlanWC Policy P1.2 is to promote the use of energy-efficient vehicles and PlanWC Policy P5.6 is to reduce the consumption of non-renewable energy resources by requiring and encouraging conservation measures and the use of alternative energy sources.

Growth carried out under the proposed project would require an irreversible commitment of public services and utilities such as law enforcement, fire protection, water supply, wastewater treatment, and solid waste disposal services. As discussed in Sections 4.12, *Public Services* and 4.15,

Utilities, impacts to public services and utilities would be reduced to a less than significant level with implementation of existing regulations and the policies and development standards included in the proposed project.

Additional vehicle trips associated with growth under the proposed project would incrementally increase local traffic, noise levels, and regional air pollutant emissions. As discussed in Section 4.2, *Air Quality*, implementation of the policies included in PlanWC and regional air pollution programs would reduce the air pollutant emissions associated with individual future development projects carried out under the proposed project to below significance thresholds. As discussed in Section 4.9, *Noise*, implementation of existing regulations and the policies included in PlanWC would reduce the noise associated with future growth to below significant thresholds. As discussed in Section 4.13, *Transportation and Circulation*, traffic would increase in the Downtown area as a result of PlanWC and the Downtown Plan and Code. Mitigation measures to conduct a transportation performance study for redesigned streets and to seek congestion management funding opportunities would reduce traffic associated with future growth to below significance levels.

5.3 SUBSTANTIAL EFFECTS ON HUMANS

Potential substantial effects on humans from implementation of the proposed project have been discussed throughout the individual resource sections of this EIR. The impacts on humans have either been determined less than significant or have been mitigated for in each individual section. Please see resource sections for additional detail.

5.4 CUMULATIVE IMPACTS

In addition to the specific impacts of individual projects, CEQA requires an EIR to consider potential cumulative impacts. CEQA defines "cumulative impacts" as two or more individual impacts that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

The purpose of a General Plan EIR is to discuss the impacts that would result from buildout of the proposed general plan. Analysis of cumulative impacts has been discussed throughout individual resource sections of this EIR. Cumulative impacts have either been determined less than significant or have been mitigated for in each individual section. Please refer to individual resource sections for additional detail.

A comment from the General Plan Update scoping meeting held on February 29, 2016 asked for the potential development of the Pioneer Adult Center to be discussed in the cumulative impact analysis. The Pioneer Adult Center is a large underutilized infill site on Rowland Avenue. According to PlanWC, the site, if redeveloped, offers a good opportunity for a small park; redevelopment would provide a contextual response to adjacent single-family residences; and surface parking areas could be replaced with new fabric infill development, providing a more engaging street edge.

Development at the Pioneer school site would result in infill development along the Azusa Avenue corridor. This would be consistent with the goals and policies in PlanWC and the Downtown Plan encouraging such development. Additionally, at the programmatic level, because development at this site would be entirely consistent with the proposed project it would also be consistent with the findings of all impact analysis sections in this EIR. Future development of the site would be subject to future CEQA review, if and when the proposed if proposed, at which time the project-level impacts of such a proposal would be studied.

6.0 ALTERNATIVES

6.1 INTRODUCTION

As required by Section 15126.6 of the *State CEQA Guidelines*, this section of the EIR examines a range of alternatives to the City of West Covina General Plan Update and Downtown Plan and Code (the proposed project). Included in this analysis is a version of the CEQA-required "no project" alternative, which assumes that growth in West Covina would proceed in accordance with the City's current (1985) General Plan. In addition, this section analyzes a Reduced Development Alternative to address potential growth-related impacts associated with the proposed project, and a Dispersed Development Alternative to address potential impacts associated with concentrating the majority of future growth within the Downtown. The alternatives are listed below:

- Alternative 1: No Project (1985 General Plan)
- Alternative 2: Reduced Development Alternative
- Alternative 3: Dispersed Development Alternative

As required by CEQA, this section also includes a discussion of the "environmentally superior alternative" among those studied.

6.2 ALTERNATIVE 1: NO PROJECT (1985 GENERAL PLAN)

6.2.1 Description

This alternative involves continued implementation of the 1985 General Plan (including West Covina's 2014-2021 Housing Element, which was adopted in October 2013, with minor revisions to ensure consistency with the proposed project in August 2016). This alternative assumes that proposed project would not be adopted, and the existing General Plan would remain in effect and continue to facilitate development in accordance with existing land use designations. Because the City is almost completely built out, buildout of the 1985 General Plan would be roughly equivalent to existing conditions. The amount of development under existing conditions is shown in Table 4-1 of PlanWC.

One exception to buildout of the 1985 General Plan roughly equaling existing development is in relation to the amount of housing in the Downtown area, where existing zoning allows up to 75 dwelling units per acre (du/acre) (see Section 26-749.220 of the West Covina Municipal Code (WCMC)). The total acreage of the Downtown area is roughly 229 acres. If all 229 acres were developed with housing at 75 du/acre, it would result in 15,549 new dwelling units. This is not a realistic estimate, since the Downtown area is already developed, mostly with commercial uses and the City's Civic Center complex. The Downtown area does, however, have a large amount of space occupied by surface parking lots, which could be redeveloped with housing if market demand warranted such construction and commercial property owners desired to sell or redevelop portions of their properties. Existing uses in these areas could also be replaced with new uses, resulting in building replacement and changes in building types from commercial to residential.

The Downtown Plan envisions infill redevelopment in the Downtown area, but in a mixed use setting, with 1,700 new dwelling units. If even a third of the Downtown area's residential development potential under current zoning were realized, roughly 5,000 new residential units would result, as opposed to the 1,700 dwelling units envisioned under the proposed project.

Based on a market assessment, PlanWC projects the following amount of development in West Covina over the next 20 years, with a majority of this growth directed to the Downtown:

- 2,100 residential units
- 400,000 square feet (sf) of office
- 200,000 sf of retail commercial
- 15,000 sf of industrial
- 600 hotel rooms

The No Project Alternative would not lead to much of the non-residential development listed above. It could hypothetically lead to a greater number of residential units being constructed in the Downtown (as described above), but there is no requirement for housing in the Downtown area under existing zoning, and if current development patterns persisted, the Downtown area would remain occupied mainly by commercial and civic uses, and experience little or no new residential development over the next 20 years.

The proposed project would change where and how development would occur throughout the City. While the 1985 General Plan would continue to facilitate development in the same pattern as is currently seen in the City, the proposed project would facilitate infill development within the Downtown and in other targeted districts, corridors, and neighborhood centers (see Figure 4.4 of the *Our Well Planned Community* chapter of PlanWC).

6.2.2 Impact Evaluation

a. Aesthetics. Development under the City's current General Plan would continue the current land use pattern in the City. The main difference between the No Project Alternative and the proposed project is how the Downtown area would develop in the future. If current development patterns persist, the No Project Alternative would most likely lead to a continuation of separated commercial and civic uses in the Downtown, without the residential development specifically encouraged under the proposed project. If residential development did occur in the Downtown under the No Project Alternative, it could occur at a densities up to 75 du/acre, potentially leading to higher density residential development, at least on individual sites, than under the proposed project (see Section 6.2.1, *Description*).

Additionally, any such residential development would occur without the detailed building form and design standards contained in Section 4, *Development Standards by Zone* of the Downtown Plan and Code, although it would be subject to the City's existing policies and regulations described in Section 4.1.1e, *Regulatory Setting* of this EIR. The City's existing General Plan policies provide general, citywide guidance to encourage a high level of visual quality and consistency in development, but do not provide design standards or specifically address the Downtown. These policies also do not address mixed-use development. The WCMC contains development standards regulating the visual character and quality of specific development, but these development standards generally address project-level aesthetics, and do not speak in

detail to a broader vision of how development of different buildings and properties should relate to each other or to the public realm. The Downtown Plan and Code provides design standards that specifically relate to and are designed to achieve the broader vision of the proposed project to revitalize the Downtown area as a mixed use environment.

Aesthetic impacts related to scenic vistas, scenic resources, and light and glare would be similar under either the proposed project or the No Project Alternative. As described in Impact AES-1, Impact AES-2, and Impact AES-4, both existing City goals, policies, and regulations and goals, policies, and standards in the proposed project protect scenic vistas and resources, and protect against aesthetic impacts of light and glare.

Overall, the No Project Alternative would have a somewhat greater negative aesthetic impact than the proposed project, since it would not encourage the revitalization of the Downtown area as a mixed use environment subject to the overall vision laid out in the proposed project, including the detailed building form and design standards contained in the Downtown Plan and Code.

b. Air Quality. As discussed in Section 4.2, *Air Quality*, implementation of goals, policies, and actions included in the proposed project relating to limiting vehicle use and energy consumption would limit air pollutant emissions to levels consistent with regional forecasts. The proposed project would thus be consistent with SCAQMD and SCAG goals and policies to reduce vehicle miles traveled (VMT) and emissions through the types of transportation and land use strategies included in the proposed project. While the proposed project directs new growth primarily to the Downtown area and targeted corridors and neighborhood centers, the No Project Alternative would continue the current low-density/intensity development pattern present throughout the City, and would not be as consistent with these regional goals and policies. As a result, the overall reduction in per capita VMT and emissions expected to occur as a result of the proposed project likely would not occur under the No Project Alternative. For these reasons, overall air quality impacts would be somewhat greater under this alternative than under the proposed project.

c. Biological Resources. Under this alternative, biological resource impacts would be similar to those of the proposed project, since the areas of open space provided under the City's current General Plan would remain designated for open space. Compliance with existing policies (in the case of the current General Plan) or proposed policies (in the case of the proposed project), regulatory requirements, and CEQA review would address potential impacts to biological resources under either the proposed project or the No Project Alternative, and such impacts would be less than significant in either case.

d. Cultural Resources. Since the areas of disturbance associated with the proposed project or the No Project Alternative would be roughly the same, the potential for cultural resources to be disturbed by development carried out under either scenario would be roughly the same. Potential historic resources in the City are protected under the West Covina WCMC. While compliance with existing regulatory requirements would reduce the potential for cultural resources impacts under either scenario, the City's current General Plan does not have any policies specifically requiring the City to assess the potential for disturbance of subsurface cultural resources, or to comply with existing regulations pertaining to Native American

resources. Section 4.4, *Cultural Resources* includes Mitigation Measure CR-2, which requires the City to add policies to PlanWC requiring such measures. Because it would retain the City's current General Plan and thus not include such a measure, the No Project Alternative would have slightly greater potential impacts to cultural resources than the proposed project.

e. Geology and Soils. Since the areas of disturbance associated with the proposed project or the No Project Alternative would be roughly the same, the potential for impacts related to geology and soils would be roughly the same under either scenario. Compliance with existing policies (in the case of the current General Plan) or proposed policies (in the case of the proposed project), and existing regulatory requirements, and CEQA review would address potential impacts related to geology and soils under either the proposed project or the No Project Alternative, and such impacts would be less than significant in either case.

f. Greenhouse Gas Emissions. As discussed in Section 4.6, *Greenhouse Gas Emissions*, policies contained in PlanWC and the Downtown Plan to promote transit-oriented infill development and provide incentives for high-performance buildings and infrastructure would reduce overall per capita greenhouse gas (GHG) emissions in West Covina. The proposed project would also be consistent with the major initiatives contained in SCAG's 2016-2040 RTP/SCS to reduce GHG emissions per capita by eight percent by 2020, 18 percent by 2035, and 21 percent by 2040, all compared to 2005 levels. The No Project Alternative would not implement these policies, would lead to higher per capita GHG emissions, and would be less consistent with applicable plans and regulations for the purpose of reducing GHG emissions. Its impacts related to GHG emissions would thus be greater than those of the proposed project, and potentially significant.

g. Hazards and Hazardous Materials. Since the areas of disturbance associated with the proposed project or the No Project Alternative would be roughly the same, the potential for impacts related to hazards and hazardous materials would be roughly the same under either scenario. Compliance with existing policies (in the case of the current General Plan) or proposed policies (in the case of the proposed project), and existing regulatory requirements would address potential impacts related to hazards and hazardous materials under either the proposed project or the No Project Alternative, and such impacts would be less than significant in either case.

h. Hydrology and Water Quality. Development under either the proposed project or the No Project Alternative would be subject to the same existing regulatory requirements (such as NPDES permit requirements) governing runoff and protecting water quality and supply. The proposed project encourages water conservation through techniques such as the use of recycled water where appropriate in order to further reduce the demand for potable water. Additionally, implementation of PlanWC policies and actions and adherence to the requirements of the WCMC would maximize the on-site infiltration capacity of new development and redevelopment projects and would minimize off-site runoff that would leave those project sites, helping to protect water quality, recharge groundwater, and protect against flooding. While WCMC requirements would apply to either the proposed project or the No Project Alternative, the No Project Alternative would allow development in the City to continue without the PlanWC policies discussed above. The No Project Alternative would therefore have slightly greater, although still less than significant, impacts related to hydrology and water quality.

i. Land Use and Planning. Both the proposed project and the No Project Alternative would provide for the orderly development of West Covina, although under somewhat different development scenarios. Neither would physically divide an established community or conflict with an applicable habitat conservation plan or natural community conservation plan. As discussed in Section 4.9, *Land Use and Planning*, the proposed project would be consistent with all applicable policies of SCAG's 2016 RTP/SCS with implementation of Mitigation Measure LU-2 adding a policy and actions to work to develop a safer transportation system to PlanWC. Because the City's current General Plan also does not contain such a policy, it is equally inconsistent with Goal 9 of SCAG's 2016 RTP/SCS. Because it would retain the City's current General Plan and thus not include such a measure, the No Project Alternative would have greater potential impacts related to land use and planning than the proposed project.

j. Noise. The proposed project would, in general, focus more of the City's future residential development into mixed use environments in the City's Downtown than the No Project Alternative, which would tend to continue the City's existing development pattern. Residences in the Downtown, along corridors, and in neighborhood centers, in proximity to non-residential uses and major transportation corridors, could be exposed to higher levels of noise than residences in exclusively residential areas away from major roads. However, as described in Impact N-2 and Impact N-3 in Section 4.10, *Noise*, PlanWC and the Downtown Plan include several policies that would help avoid such impacts. The City's current Noise Element contains policies aimed at maintaining an acceptable noise environment in the City. Construction noise impacts would be governed by the WCMC under either the proposed project or this alternative, and railway noise impacts would not be significantly different under either scenario. Overall, the proposed project and the No Project Alternative would have similar and less than significant impacts related to noise.

k. Population and Housing. Both the proposed project and the No Project Alternative would provide for the orderly development of West Covina, although under somewhat different development scenarios. These differences, however, would not significantly affect the total population of the City under either scenario. Neither the proposed project nor the No Project Alternative would exceed SCAG population forecasts or otherwise induce substantial population growth. While the No Project Alternative would perpetuate existing development patterns in the City, and the proposed project would direct a greater proportion of future growth to the Downtown, neither would displace substantial numbers of people or housing. Impacts related to population and housing would be similar and less than significant in either case.

l. Public Services. While development facilitated by the proposed project would increase the City's population, and thus demand for public services, it would not do so to a significantly greater degree than the No Project Alternative, since it would redirect growth compared to the City's current General Plan, rather than significantly expand the City's growth capacity. Both the City's current General Plan and the proposed project include policies to ensure that public services continue to be provided to the City commensurate with population growth and need. Impacts related to public services would be similar and less than significant in either case.

m. Recreation. While development facilitated by the proposed project would increase the City's population, and thus demand for recreation facilities and services, it would not do so to a significantly greater degree than the No Project Alternative, since it would redirect growth compared to the City's current General Plan, rather than significantly expand the City's growth capacity. Both policies in the City's current General Plan and the proposed project, as well as WCMC regulations, would ensure that recreational facilities and services continue to be provided to the City commensurate with population growth and need. Impacts related to recreation under this alternative would therefore be similar to those of the proposed project, and less than significant in either case.

n. Transportation and Circulation. The No Project Alternative would continue the City's existing development pattern and not include the proposed project's goals, policies, and actions designed to focus future development and create mixed-use, transit-friendly environments in Downtown West Covina, thereby reducing per capita VMT. It would therefore not be as consistent as the proposed project with goals and policies in regional planning documents (such as SCAG's RTP/SCS) to reduce per capita vehicle miles traveled (VMT) (see Table 4.14-4 of this EIR), and would have greater impacts related to potentially conflicting with regional plans and policies.

This EIR has determined that the proposed project may have significant traffic-related impacts, some of them unavoidable, related to potential traffic congestion at individual intersections. Because the amount of growth under the No Project Alternative would be roughly similar to that of the proposed project, some or all of these impacts may still occur, but in different locations. Potential impacts may still be significant and unavoidable at intersections not controlled by the City, such as intersections with the I-10 freeway, and this alternative would not implement the mitigation measures included in Section 4.14, *Transportation and Circulation* of this EIR to reduce the severity of these impacts. Like the proposed project, the No Project Alternative would have less than significant impacts related to changes in air traffic patterns, traffic hazards, and emergency access.

Because the No Project Alternative would not include the strategies included in the proposed project to reduce per capita vehicle trips and VMT, and would not include the mitigation measures included in this EIR to reduce traffic-related impacts, it would have greater impacts on transportation and circulation than the proposed project, although in both cases these impacts may be significant and unavoidable for intersections not controlled by the City.

o. Utilities and Service Systems. As discussed in Section 4.15, *Utilities and Service Systems*, the proposed project's potential impacts related to provision of utilities and service systems would be less than significant. The No Project Alternative would lead to less development in West Covina's Downtown, but a similar amount of development in the City as a whole. Because the total amount of development would not be significantly different under either scenario, the No Project Alternative's impacts on utilities and service systems would be similar to those of the proposed project and also less than significant.

6.3 ALTERNATIVE 2: REDUCED DEVELOPMENT

6.3.1 Description

The Reduced Development Alternative (Alternative 2) is included in this section of the EIR in order to address potential growth-related impacts associated with the proposed project. The Reduced Development Alternative would accommodate 50% less growth of all types than the proposed project. The 50% reduction figure has been chosen in order to provide an easily comparable reduction that is roughly halfway between the proposed project and a "no build" alternative in terms of development intensity.

The total development potential under this alternative compared to development potential under the proposed project is shown in Table 6-1. Although this alternative would result in less overall development than the proposed project, development is assumed to occur in the same general locations as under the proposed project, and be subject to the same goals, policies, and development standards as under the proposed project.

Table 6-1
Total Development Potential of Alternative 2 Compared to Proposed Project

Development Type	Proposed Project	Alternative 2 (Reduced Development)
Residences	2,100 units	1,050 units
Office Space	400,000 sf	200,000 sf
Retail Commercial Space	200,000 sf	100,000 sf
Industrial Space	15,000 sf	7,500 sf
Hotel	600 rooms	300 rooms

Source: PlanWC,

Implementation of the Reduced Development Alternative would result in development within the City that would generally meet the project objectives established for the proposed General Plan Update, although in some cases to a lesser degree than the proposed project. For example, the amount of new development in West Covina over the next 20 years called for under the proposed project is based on a market assessment prepared as part of the proposed project. This market assessment was also the basis for the goals, policies, and actions contained in the *Our Prosperous Community* chapter of PlanWC. The goal of this chapter is to maintain and monitor West Covina's fiscal health, reinforce the West Covina's brand as a great place to Live, Work and Play in the San Gabriel Valley, and nurture local businesses and attract non-retail jobs through a multi-faceted program of economic initiatives that will strengthen the City's fiscal health, enhance economic competitiveness, and grow local businesses. This goal is also one of the objectives of the proposed project. The Reduced Development Alternative would not achieve this goal, or the policies and actions designed to help achieve this goal, to as great a degree as the proposed project because it would not attract or create as many jobs or create as much economic growth.

6.3.2 Impact Evaluation

a. Aesthetics. Under the Reduced Development Alternative, development in the City would be subject to the same goals, policies, and development standards as under the proposed project. The reduced amount of development that would occur under this alternative could lead to a reduction in the impression of intensity of development, including qualities such as density, height, and massing. However, no significant, adverse aesthetic impacts related to the intensity of development under the proposed project have been identified in this EIR. Additionally, all development would be subject to the form-based goals and policies in PlanWC, and in the case of development in the Downtown area, the detailed building form and design standards contained in Section 4, *Development Standards by Zone* of the Downtown Plan and Code. As described in Impact AES-1, Impact AES-2, and Impact AES-4, both existing City goals, policies, and regulations and goals, policies, and standards in the proposed project protect scenic vistas and resources, and protect against aesthetic impacts of light and glare. Thus, impacts related to scenic vistas, scenic resources, and light and glare would be similar under either the proposed project or the Reduced Development Alternative. Overall, the Reduced Development Alternative would have an aesthetic impact similar to that of the proposed project.

b. Air Quality. As discussed in Section 4.2, *Air Quality*, implementation of goals, policies, and actions included in the proposed project relating to limiting vehicle use and energy consumption would limit air pollutant emissions to levels consistent with regional forecasts. The proposed project would thus be consistent with SCAQMD and SCAG goals and policies to reduce vehicle miles traveled (VMT) and emissions through the types of transportation and land use strategies included in the proposed project. The Reduced Development Alternative would retain all the goals, policies, and actions included in the proposed project relating to limiting vehicle use and energy consumption, but would result in a reduced amount of total development. As a result, the overall reduction in per capita VMT and emissions expected to occur as a result of the proposed project would be greater under the Reduced Development Alternative, and this alternative, like the proposed project, would not lead to exceedance of air pollutant emissions forecasts in the AQMP. Therefore, the overall air quality impacts of this alternative would be less than those of the proposed project, and less than significant.

c. Biological Resources. Under this alternative, biological resource impacts would be similar to those of the proposed project, since the areas of open space provided under the City's current General Plan would remain designated for open space. Compliance with PlanWC policies, as well as regulatory requirements and CEQA review, would address potential impacts to biological resources under either the proposed project or the Reduced Development Alternative, and such impacts would be less than significant in either case.

d. Cultural Resources. Since the areas of disturbance associated with the proposed project or the Reduced Development Alternative would be roughly the same, the potential for cultural resources to be disturbed by development carried out under either scenario would be roughly the same. Potential historic resources in the City are protected under the West Covina WCMC. While compliance with existing regulatory requirements would reduce the potential for cultural resources impacts under either scenario, PlanWC does not have any policies specifically requiring the City to assess the potential for disturbance of subsurface cultural resources, or to comply with existing regulations pertaining to Native American resources.

Section 4.4, *Cultural Resources* includes Mitigation Measure CR-2, which requires the City to add policies to PlanWC requiring such measures. The Reduced Development Alternative would also require this mitigation measure. Overall, the Reduced Development Alternative would have significant but mitigable impacts on cultural resources similar to those of the proposed project.

e. Geology and Soils. Since the areas of disturbance associated with the proposed project or the Reduced Development Alternative would be roughly the same, the potential for impacts related to geology and soils would be roughly the same under either scenario. Compliance with PlanWC policies, as well as existing regulatory requirements and CEQA review, would address potential impacts related to geology and soils under either the proposed project or the Reduced Development Alternative, and such impacts would be less than significant in either case.

f. Greenhouse Gas Emissions. As discussed in Section 4.6, *Greenhouse Gas Emissions*, policies contained in PlanWC and the Downtown Plan to promote transit-oriented infill development and provide incentives for high-performance buildings and infrastructure would reduce overall per capita GHG emissions in West Covina. The proposed project would also be consistent with the major initiatives contained in SCAG's 2016-2040 RTP/SCS to reduce GHG emissions per capita by eight percent by 2020, 18 percent by 2035, and 21 percent by 2040, all compared to 2005 levels. The Reduced Development Alternative would also implement these policies, lead to reductions in per capita GHG emissions, and be consistent with applicable plans and regulations for the purpose of reducing GHG emissions. Its impacts related to GHG emissions would thus be roughly the same as those of the proposed project.

g. Hazards and Hazardous Materials. While the areas of disturbance associated with the proposed project or the Reduced Development Alternative would be roughly the same, the Reduced Development Alternative would lead to 50% less development than the proposed project, which could result in a reduction in the total amount of hazardous materials handled compared to the proposed project. Therefore, although compliance with policies included in the proposed project and existing regulatory requirements would address potential impacts related to hazards and hazardous materials and make such impacts less than significant in either case, the Reduced Development Alternative's impacts in this regard would be less than those of the proposed project.

h. Hydrology and Water Quality. Development under either the proposed project or the Reduced Development Alternative would be subject to the same existing regulatory requirements (such as NPDES permit requirements) governing runoff and protecting water quality and supply. The proposed project includes policies encouraging water conservation through techniques such as the use of recycled water where appropriate in order to further reduce the demand for potable water. Implementation of PlanWC policies and actions and adherence to the requirements of the WCMC would be required under either the proposed project or the Reduced Development Alternative. These would maximize the on-site infiltration capacity of new development and redevelopment projects and minimize off-site runoff that would leave those project sites, helping to protect water quality, recharge groundwater, and protect against flooding. The proposed project and the Reduced Development Alternative

would therefore have similar and less than significant impacts related to hydrology and water quality.

i. Land Use and Planning. Both the proposed project and the No Project Alternative would provide for the orderly development of West Covina, although under somewhat different development scenarios. Neither would physically divide an established community or conflict with applicable habitat conservation plan or natural community conservation plan. As discussed in Section 4.9, *Land Use and Planning*, the proposed project would be consistent with all applicable policies of SCAG's 2016 RTP/SCS with implementation of Mitigation Measure LU-2 adding a policy and actions to work to develop a safer transportation system to PlanWC. Because the City's current General Plan also does not contain such a policy, it is equally inconsistent with Goal 9 of SCAG's 2016 RTP/SCS. The Reduced Development Alternative would therefore also require this mitigation measure. Therefore, both the proposed project and the Reduced Development Alternative would have similarly significant but mitigable impacts related to Land use and Planning.

j. Noise. The Reduced Development Alternative would, like the proposed project, generally focus the City's future residential development into mixed use environments in the City's Downtown. Residences in the Downtown, along corridors, and in neighborhood centers, in proximity to non-residential uses and major transportation corridors, could be exposed to higher levels of noise than residences in exclusively residential areas away from major roads. The Reduced Development Alternative would, however, expose fewer residences to this noise. As described in Impact N-2 and Impact N-3 in Section 4.10, *Noise*, PlanWC and the Downtown Plan include several policies that would help avoid such impacts, construction noise impacts would be governed by the WCMC under either the proposed project or this alternative, and railway noise impacts would not be significantly different under either scenario. Noise impacts would be less than significant under either the proposed project or the Reduced Development Alternative, but the Reduced Development Alternative's noise impacts would be somewhat less than those of the proposed project.

k. Population and Housing. Both the proposed project and the Reduced Development Alternative would provide for the orderly development of West Covina. The Reduced Development Alternative would include less housing and other development, and therefore could lead to less population growth in the City over the next 20 years, although it could also lead to that same population crowding into fewer available housing units, either inside or outside of the City. Neither the proposed project nor the Reduced Development Alternative would exceed SCAG population forecasts or otherwise induce substantial population growth, and neither would displace substantial numbers of people or housing. Impacts related to population and housing would be similar to those of the proposed project and less than significant in either case.

l. Public Services. While the amount of development facilitated by the Reduced Development Alternative would be less than that facilitated by the proposed project, either alternative would increase the City's population, and thus demand for public services. Under either scenario, policies to ensure that public services continue to be provided to the City commensurate with population growth and need would apply. Impacts related to public

services would be similar to those of the proposed project and less than significant in either case.

m. Recreation. While the amount of development facilitated by the Reduced Development Alternative would be less than that facilitated by the proposed project, either alternative would increase the City's population, and thus demand for recreational services and facilities. Under either scenario, PlanWC policies and WCMC regulations would apply, and would ensure that recreational services and facilities would continue to be provided to the City commensurate with population growth and need. Thus, impacts related to recreational services and facilities would be similar and less than significant in either case.

n. Transportation and Circulation. The Reduced Development Alternative would include the proposed project's goals, policies, and actions designed to focus future development and create mixed-use, transit-friendly environments in Downtown West Covina, and reduce per capita VMT. It would therefore be equally consistent with goals and policies in regional planning documents (such as SCAG's RTP/SCS) to reduce per capita vehicle miles traveled (VMT) (see Table 4.14-4 of this EIR). The Reduced Development Alternative would therefore have similar impacts related to potentially conflicting with regional plans and policies.

This EIR has determined that the proposed project may have significant traffic-related impacts, some of them unavoidable, related to potential traffic congestion at individual intersections. Because the amount of growth under the Reduced Development Alternative would be half of that of the proposed project, traffic generation and traffic congestion impacts would be reduced compared to the proposed project, although some or all of these impacts may still occur. Mitigation measures T-1(a) through T-1(c) and T-3 would still be required for this alternative, and potential impacts could still be significant and unavoidable at intersections not controlled by the City, such as intersections with the I-10 freeway. Like the proposed project, the Reduced Development Alternative would have less than significant impacts related to changes in air traffic patterns, traffic hazards, and emergency access.

Because the Reduced Development Alternative would retain the strategies included in the proposed project to reduce per capita vehicle trips and VMT, and would also include the mitigation measures included in Section 4.14, *Transportation and Circulation* of this EIR, but would reduce the total amount of development compared to the proposed project, it would reduce the severity of traffic congestion impacts at some intersections. It would therefore have less impact on transportation and circulation than the proposed project, although in both cases these impacts may be significant and unavoidable for intersections not controlled by the City.

o. Utilities. As discussed in Section 4.15, *Utilities and Service Systems*, the proposed project's potential impacts related to provision of utilities and service systems would be less than significant. The Reduced Development Alternative would lead to 50% less development than the proposed project, and would therefore have less impact on utilities and service systems than the proposed project. These impacts would be less than significant in either case.

6.4 ALTERNATIVE 3: DISPERSED DEVELOPMENT

6.4.1 Description

The Dispersed Development Alternative (Alternative 3) is included in this section of the EIR in order to address any potential impacts that may occur from directing the majority of new growth called for under the proposed project to the Downtown area. The Dispersed Development Alternative would accommodate the same amount of growth as the proposed project, but would not concentrate as much of this development in the Downtown. This alternative assumes that PlanWC and the Downtown Plan and Code would still be adopted, but would be altered to not include the aspects of these plans promoting the majority of new growth for the Downtown, and instead allow or promote spreading this growth more evenly throughout the City. Generally, this would mean accommodating more residential growth in the City's existing residential neighborhoods, and accommodating more non-residential development (such as retail, office, and hotel uses) in areas currently planned and zoned for such uses outside the Downtown. In areas outside the Downtown, the non-residential development would also not be focused in the corridors, districts, and neighborhood centers defined in the proposed project, but would be allowed to occur in any area currently planned and zoned for such uses.

6.4.2 Impact Evaluation

a. Aesthetics. Although the Dispersed Development Alternative would not focus the majority of new growth in the City's Downtown, it would retain the form-based goals and policies in PlanWC, and in the case of development in the Downtown area, the detailed building form and design standards contained in Section 4, *Development Standards by Zone* of the Downtown Plan and Code. As with the Reduced Development Alternative, the reduced amount of development that would occur in the Downtown under the Dispersed Development Alternative could lead to a reduction in the impression of intensity of development in the Downtown, including qualities such as density, height, and massing. However, no significant, adverse aesthetic impacts related to the intensity of development under the proposed project have been identified in this EIR. Additionally, under this alternative it is assumed that any reduction in development intensity in the Downtown would be displaced to areas outside the Downtown, where it would not be subject to the more detailed building form and design standards of the Downtown Plan and Code. Potential impacts related to the visual character and quality of new development under this alternative would therefore be greater than under the proposed project.

As described in Impact AES-1, Impact AES-2, and Impact AES-4, goals, policies, and standards in the proposed project, as well as existing City regulations, protect scenic vistas and resources, and protect against aesthetic impacts of light and glare. These would continue to apply under the Dispersed Development Alternative. Thus, impacts related to scenic vistas, scenic resources, and light and glare under this alternative would be similar to those of the proposed project.

Overall, the Dispersed Development Alternative would have greater aesthetic impacts than the proposed project because it would spread more of the development called for under the

General Plan into areas not subject to the detailed design standards contained in the Downtown Plan and Code.

b. Air Quality. As discussed in Section 4.2, *Air Quality*, implementation of goals, policies, and actions included in the proposed project to limit vehicle use and energy consumption would limit air pollutant emissions to levels consistent with regional forecasts. The proposed project would thus be consistent with SCAQMD and SCAG goals and policies to reduce vehicle miles traveled (VMT) and emissions through the types of transportation and land use strategies included in the proposed project. While the proposed project directs new growth primarily to the Downtown area and targeted corridors and neighborhood centers, the Dispersed Development Alternative would spread more of this development throughout the City, increase trip lengths, VMT, and emissions, and not be as consistent with these regional goals and policies. As a result, the Dispersed Development Alternative would lead to less overall reduction in per capita VMT and emissions. For these reasons, overall air quality impacts would be somewhat greater under this alternative than under the proposed project.

c. Biological Resources. Although the Dispersed Development Alternative would spread new growth out over a wider area of the City, growth would still not occur in areas consisting of or designated for open space. Compliance with PlanWC policies, existing regulatory requirements, and CEQA review would address potential impacts to biological resources under either the proposed project or the Dispersed Development Alternative, and such impacts would be less than significant in either case.

d. Cultural Resources. Because the Dispersed Development Alternative would spread new growth out over a wider area of the City, the potential for cultural resources to be disturbed by development carried out under either scenario would be somewhat greater under this alternative than under the proposed project. Both the proposed project and this alternative would require Mitigation Measure CR-2, which requires the City to add policies to PlanWC requiring the City to assess the potential for disturbance of subsurface cultural resources, and to comply with existing regulations pertaining to Native American resources. Overall, the Development Alternative's impacts to cultural resources would be greater than those of the proposed project, but still less than significant with mitigation incorporated.

e. Geology and Soils. Although the Dispersed Development Alternative would spread new growth out over a wider area of the City, since the areas that would be developed are fully urbanized in either case, the potential for impacts related to geology and soils would be roughly the same under either scenario. Compliance with PlanWC policies, existing regulatory requirements, and CEQA review would address potential impacts related to geology and soils under either the proposed project or the Dispersed Development Alternative, and such impacts would be less than significant in either case.

f. Greenhouse Gas Emissions. As discussed in Section 4.6, *Greenhouse Gas Emissions*, policies contained in PlanWC and the Downtown Plan to promote transit-oriented infill development and provide incentives for high-performance buildings and infrastructure would reduce overall per capita GHG emissions in West Covina. The proposed project would also be consistent with the major initiatives contained in SCAG's 2016-2040 RTP/SCS to reduce GHG emissions per capita by eight percent by 2020, 18 percent by 2035, and 21 percent by 2040, all

compared to 2005 levels. While the Dispersed Development Alternative would also implement these policies, it would not reduce per capita GHG emissions as much as the proposed project because it would spread development over a wider geographic areas, thus increasing trip lengths and VMT. For the same reason, it would also be less consistent with applicable plans and regulations for the purpose of reducing GHG emissions. Its impacts related to GHG emissions would thus be somewhat greater than those of the proposed project.

g. Hazards and Hazardous Materials. Since the areas of disturbance associated with the proposed project or the No Project Alternative would be roughly the same, the potential for impacts related to disturbance of hazards and hazardous materials would be roughly the same under either scenario. Increases in hazardous materials transportation and use would be spread out over a wider area of the City, but compliance with proposed policies and existing regulatory requirements would fully address potential impacts related to hazards and hazardous materials under either the proposed project or the Dispersed Development Alternative, and such impacts would be less than significant in either case.

h. Hydrology and Water Quality. Development under either the proposed project or the Dispersed Development Alternative would subject to the same existing regulatory requirements (such as NPDES permit requirements) governing runoff and protecting water quality and supply. The proposed project encourages water conservation through techniques such as the use of recycled water where appropriate in order to further reduce the demand for potable water. Additionally, implementation of PlanWC policies and actions and adherence to the requirements of the WCMC would maximize the on-site infiltration capacity of new development and redevelopment projects and would minimize off-site runoff that would leave those project sites, helping to protect water quality, recharge groundwater, and protect against flooding. These policies, as well as applicable WCMC requirements, would apply City-wide and equally to both the proposed project and the Dispersed Development Alternative. Impacts related to hydrology and water quality would therefore be similar to those of the proposed project and less than significant in either case.

i. Land Use and Planning. Both the proposed project and the Dispersed Development Alternative would provide for the orderly development of West Covina, although under somewhat different development scenarios. Neither would physically divide an established community or conflict with an applicable habitat conservation plan or natural community conservation plan. As discussed in Section 4.9, *Land Use and Planning*, the proposed project would be consistent with all applicable policies of SCAG's 2016 RTP/SCS with implementation of Mitigation Measure LU-2 adding a policy and actions to work to develop a safer transportation system to PlanWC. This mitigation measure would also be required under the Dispersed Development Alternative. Therefore, both the proposed project and the Dispersed Development Alternative would have similarly significant but mitigable impacts related to Land Use and Planning.

j. Noise. The proposed project would, in general, focus more of the City's future residential development into mixed use environments in the City's Downtown than the Dispersed Development Alternative, which would spread this development across a wider area of the City. Under the proposed project, residences in the Downtown, along corridors, and in neighborhood centers, in proximity to non-residential uses and major transportation corridors,

could be exposed to higher levels of noise than residences in exclusively residential areas away from major roads. This would not occur to as great a degree under the Dispersed Development Alternative. However, as described in Impact N-2 and Impact N-3 in Section 4.10, *Noise*, PlanWC and the Downtown Plan include several policies that would help avoid such impacts. Construction noise impacts would be governed by the WCMC under either the proposed project or this alternative, and railway noise impacts would not be significantly different under either scenario. Overall, the proposed project and the Dispersed Development Alternative would have similar and less than significant impacts related to noise.

k. Population and Housing. Both the proposed project and the Dispersed Development Alternative would provide for the orderly development of West Covina, although under somewhat different development scenarios. Under either scenario, however, the same amount of development would be expected, and therefore both would have roughly the same effect on the total population of the City. Neither the proposed project nor the Dispersed Development Alternative would exceed SCAG population forecasts or otherwise induce substantial population growth. While the Dispersed Development Alternative would not, like the proposed project, direct the majority of new growth to the Downtown, neither would displace substantial numbers of people or housing. Impacts related to population and housing would be similar to those of the proposed project and less than significant in either case.

l. Public Services. Both the Dispersed Development Alternative and the proposed project would facilitate development that would increase the City's population, and thus demand for public services. The Dispersed Development Alternative would redirect, rather than increase or decrease, this growth, and its effects in this regard would therefore be similar to those of the proposed project. Under either scenario, PlanWC policies to ensure that public services continue to be provided to the City commensurate with population growth and need would apply. Impacts related to public services under this alternative would therefore be similar to those of the proposed project, and less than significant in either case.

m. Recreation. While development facilitated by the Dispersed Development Alternative would increase the City's population, and thus demand for recreation facilities and services, it would not do so to a significantly greater degree than the proposed project, since it would redirect, rather than increase or decrease growth compared to the proposed project. PlanWC policies and WCMC regulations would ensure that recreational facilities and services continue to be provided to the City commensurate with population growth and need. Impacts related to recreation would be similar to those of the proposed project and less than significant in either case.

n. Transportation and Circulation. While the Dispersed Development Alternative would accommodate the same amount of growth as the proposed project, it assumes that PlanWC and the Downtown Plan and Code would be altered to not include the aspects of these plans promoting the majority of new growth for the Downtown, and instead allow or promote spreading this growth more evenly throughout the City. Under this alternative, average trip lengths would be greater than under the proposed project, and creating access to convenient alternative transportation options such as transit for development spread more evenly throughout the community would be more difficult to achieve. This alternative would therefore not be as consistent with goals and policies in regional planning documents (such as SCAG's

RTP/SCS) to reduce per capita vehicle miles traveled (VMT) as the proposed project (see Table 4.14-4 of this EIR). The No Project Alternative would therefore have greater impacts related to potentially conflicting with regional plans and policies.

This EIR has determined that the proposed project may have significant traffic-related impacts, some of them unavoidable, related to potential traffic congestion at individual intersections. Because future development under this alternative would be spread more evenly throughout the City, traffic generated by future growth may also be spread more evenly throughout the City. Traffic congestion impacts from this growth would still occur, however, although in different locations. This alternative would also require the mitigation measures included in Section 4.14, *Transportation and Circulation* of this EIR, but potential impacts may still be significant and unavoidable at intersections not controlled by the City, such as intersections with the I-10 freeway. Like the proposed project, the Dispersed Development Alternative would have less than significant impacts related to changes in air traffic patterns, traffic hazards, and emergency access.

For these reasons, the Dispersed Development Alternative would have greater impacts on transportation and circulation than the proposed project, although in both cases these impacts may be significant and unavoidable for intersections not controlled by the City.

o. Utilities. As discussed in Section 4.15, *Utilities and Service Systems*, the proposed project's potential impacts related to provision of utilities and service systems would be less than significant. The Dispersed Development Alternative would lead to less development in West Covina's Downtown, but a similar amount of development in the City as a whole. Because the total amount of development would not be significantly different under either scenario, the Dispersed Development Alternative's impacts on utilities and service systems would be similar to those of the proposed project and also less than significant.

6.5 ALTERNATIVE SITES

The California Supreme Court, in *Citizens of Goleta Valley v. Board of Supervisors* (1990), indicated that a discussion of alternative sites is needed in an EIR if a project "may be feasibly accomplished in a successful manner considering the economic, environmental, social, and technological factors involved" at another site. As suggested in *Goleta*, several criteria form the basis of whether alternative sites need to be considered in detail. These criteria take the form of the following questions:

1. *Could the size and other characteristics of another site physically accommodate the project?*
2. *Is another site reasonably available for acquisition?*
3. *Is the timing of carrying out development on an alternative site reasonable for the applicant?*
4. *Is the project economically feasible on another site?*
5. *What are the land use designation(s) of alternative sites?*
6. *Does the lead agency have jurisdiction over alternative sites? and*
7. *Are there any social, technological, or other factors that may make the consideration of alternative sites infeasible?*

Due to the nature of the proposed project as a General Plan update that would apply to all land located within the City of West Covina, finding an alternative site for the entirety of the proposed project is not possible. Much of the development envisioned under the proposed project would occur in the Downtown. Section 6.4 of this EIR analyzes a "Dispersed Development" alternative to the proposed project that would disperse this development throughout the community rather than concentrating much of it in the Downtown. This alternative serves the purpose of providing an "alternative site" alternative for this EIR.

6.6 OTHER ALTERNATIVES CONSIDERED

A "no project/no development" alternative, which would assume that no further residential development would occur in West Covina and that no new commercial, industrial, or infrastructure facilities would be constructed, was considered for analysis in this EIR. This can also be referred to as a "no build" alternative. The "no build" alternative was rejected for inclusion in this alternatives analysis for several reasons.

This alternative is unrealistic, because even if the proposed project is not adopted, property owners in West Covina would retain the development rights they have under the current General Plan. The "no project" alternative included in this analysis as Alternative 1, which assumes that growth in West Covina would proceed in accordance with the City's current (1985) General Plan, is therefore more realistic and better represents impacts that would actually occur if the proposed project is not adopted.

Additionally, this alternative would not meet the project objectives, which focus on producing positive change in focused areas of West Covina in order to maintain a high quality of life in the City while also accommodating and taking advantage of growth in the City and the region over the next 20 years.

6.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative among the options studied. When the "No Project" alternative is determined to be environmentally superior, CEQA also requires identification of the environmentally superior alternative among the development options.

Each of the alternatives discussed in this section has certain advantages and disadvantages compared to the proposed project. Table 6-1 indicates whether each alternative's environmental impact is greater than, less than, or similar to those of the proposed project. As shown in Table 6-2, when taking every environmental impact area into account, Alternative 2: Reduced Development is the environmentally superior alternative, followed by Alternative 3: Dispersed Development, then Alternative 1: No Project. Using this method of analysis, Alternative 2 is environmentally superior to the proposed project, and Alternative 1 and Alternative 3 are environmentally inferior to the proposed project.

Table 6-2
Comparison of Environmental Impacts of Alternatives

Issue	Alt. 1: No Project	Alt. 2: Reduced Development	Alt. 3: Dispersed Development
Aesthetics	-	=	-
Air Quality	-	+	-
Biological Resources	=	=	=
Cultural Resources	-	=	-
Geology and Soils	=	=	=
Greenhouse Gas Emissions	-	=	-
Hazards and Hazardous Materials	=	+	=
Hydrology and Water Quality	-	=	=
Land Use and Planning	-	=	=
Noise	=	+	=
Population and Housing	=	=	=
Public Services	=	=	=
Recreation	=	=	=
Transportation and Circulation	-	+	-
Utilities and Service Systems	=	+	=

+ Superior to the proposed project (reduced level of impact)
- Inferior to the proposed project (increased level of impact)
= Similar to the proposed project (similar level of impact)

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CVUSD:
http://data1.cde.ca.gov/dataquest/Enrollment/EthnicEnr.aspx?cChoice=DistEnrEt2&cYear=2014-15&cSelect=1964436--Covina-Valley%20Unified&TheCounty=&cLevel=District&cTopic=Enrollment&myTimeFrame=S&cType=ALL&cGender=B.

RUSD:
http://data1.cde.ca.gov/dataquest/Enrollment/EthnicEnr.aspx?cChoice=DistEnrEt2&cYear=2014-15&cSelect=1973452--Rowland%20Unified&TheCounty=&cLevel=District&cTopic=Enrollment&myTimeFrame=S&cType=ALL&cGender=B.

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7.2 PERSONS CONTACTED

Luna, Frank. Engineer, County of San Bernardino Solid Waste Management Division. Personal communication via phone June 14, 2016.

Fountain, Mike. April 25, 2016. Assistant Chief West Covina Fire Department. Personal Communication.

Lee, Lieutenant David. March 31, 2016. West Covina Police Department. Personal Communication.

Wen Wen Zhang, Library Manager. March 31, 2016. West Covina Library. Personal Communication.

7.3 REPORT PREPARERS

This EIR was prepared by the City of West Covina with the assistance of Rincon Consultants, Inc. and Nelson Nygaard. Consultant staff involved in the preparation of the EIR are listed below.

Rincon Consultants, Inc.
Joe Power, AICP, Principal
Greg Martin, AICP, Senior Planner/Project Manager
Chris Thomas, CAD Drafter/Graphics Technician
Debra Jane Seltzer, Document Production Specialist
Doug Carreiro, GIS Analyst
Eric VonBerg, Senior Project Manager
Jon Montgomery, GIS Analyst
Kari Zajac, Associate Planner

Katherine Warner, GIS Analyst
Ken Chen, Associate Planner
Lindsey Sarquilla, MESM, Senior Environmental Planner
Matthew Long, Senior Environmental Scientist
Skyler Murphy, Associate Planner
Susanne Huerta, Senior Environmental Planner
Terra Stephen, Document Production Specialist
Vanessa Villanueva, Associate Environmental Planner

Nelson Nygaard
Steve Boland, Senior Associate

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8.0 COMMENTS and RESPONSES

This section includes comments received during the circulation of the Draft Environmental Impact Report (EIR) for the City of West Covina 2016 General Plan Update and Downtown Plan and Code; responses to the comments on the Draft EIR; and corrections and information added to the Final EIR, where appropriate. Corrections or additional text discussed in the responses to comments are shown in this section in ~~strikethrough~~ (for deleted text) and underline (for added text) format. Other minor clarifications and corrections to typographical errors have also been made to the Final EIR, including corrections not based on responses to comments. These changes do not introduce new information or otherwise affect the analysis or conclusions of the EIR.

The Draft EIR was circulated for a 45-day public review period that began on September 13, 2016 and concluded on November 1, 2016. The City received seven comments addressing the Draft EIR during this review period (comments 1-7), including an acknowledgement from the State Clearinghouse that the City has complied with CEQA environmental review requirements; and two comments addressing the Draft EIR after this review period (comments 8 and 9). Comments are listed below by commenter, along with the page number on which the comment can be found.

	Comments	Date Submitted	Page #
1.	Scott Morgan, Director, State Clearinghouse, California Governor's Office of Planning and Research	11/2/16	324
2.	Gayle Totton, B.S., M.A., Ph.D, Associate Governmental Project Analyst, Native American Heritage Commission	10/27/16	326
3.	Diana Watson, IGR/CEQA Branch Chief, Department of Transportation, District 7, Office of Regional Planning	11/1/16	333
4.	Tom Weiner, Director of Community Development, City of Walnut	10/24/16	335
5.	Katrina Regan, Planning Supervisor, South East Region – Anaheim Planning & Engineering, SoCalGas	9/16/16	337
6.	James Flournoy, Secretary, Save Our Community SGV	10/31/16	339
7.	Fabiola Wong	11/1/16	359
8.	Adriana Raza, Customer Service Specialist, Facilities Planning Department, County Sanitation Districts of Los Angeles County	11/22/16	369
9.	Robert Torres	11/22/16	373

The comment and the City's responses follow. Each comment has been numbered sequentially and each separate issue raised by the commenter, if more than one, has also been assigned a number. The responses to each comment identify first the number of the comment, and then the number assigned to each issue (Response 2.1, for example, indicates that the response is for the first issue raised in Comment 2).

Letter 1

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

November 2, 2016

RECEIVED

NOV 07 2016

PLANNING DEPT.

Jeff Anderson
City of West Covina
1444 W. Garvey Avenue, Room 218
West Covina, CA 90406

Subject: City of West Covina 2016 General Plan Update and Downtown Master Plan and Code
SCH#: 2016021069

Dear Jeff Anderson:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on November 1, 2016, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Comment 1

COMMENTER: Scott Morgan, Director, State Clearinghouse, California Governor's Office of Planning and Research

DATE: November 2, 2016

RESPONSE:

The commenter states that the Draft EIR was distributed to state agencies for review as part of the State Clearinghouse's CEQA document process. The commenter confirms that the City has complied with the Clearinghouse's review requirements for Draft EIRs. The comment letter from the Native American Heritage Commission was transmitted from the State Clearinghouse with this letter; that letter and the City's responses are included in Comment 2.

Letter 2

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

Edmund G. Brown Jr., Governor

RECEIVED
OCT 31 2016
PLANNING DEPT.

October 27, 2016

Jeff Anderson
City of West Covina
1444 West Garvey Avenue South
West Covina, CA 91790

sent via e-mail:
jeff.anderson@westcovina.org

Re: SCH#2016021069, City of West Covina 2016 General Plan Update and Downtown Plan and Code Project, City of West Covina; Los Angeles County, California

Dear Mr. Anderson:

The Native American Heritage Commission (NAHC) has reviewed the Draft Environmental Impact Report prepared for the project referenced above. The review included the Project Description/Introduction, the Cultural Resources Section of the Executive Summary, and the Cultural Resources Section (4.4) prepared by the City of West Covina. We have the following concerns:

2.1
- There is no documentation of contact or consultation under SB-18 with Native American tribes traditionally and culturally affiliated to the project area or that mitigation measures were developed in consultation with the tribes.

2.2
- There is no Tribal Cultural Resources section or subsection in the Executive Summary as per California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," http://resources.ca.gov/ceqa/

2.3
- There are no mitigation measures specifically addressing Tribal Cultural Resources separately. Mitigation measures must take Tribal Cultural Resources into consideration as required under AB-52, with or without consultation occurring.

The California Environmental Quality Act (CEQA)[1], specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.[2] If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared.[3] In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

2.4
CEQA was amended in 2014 by Assembly Bill 52. (AB 52).[4] **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** AB 52 created a separate category for "tribal cultural resources"[5], that now includes "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.[6] Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.[7] Your project may also be subject to **Senate Bill 18 (SB 18)** (Burton, Chapter 905, Statutes of 2004), Government Code 65352.3, if it also involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space. **Both SB 18 and AB 52 have tribal consultation requirements**. Additionally, if your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966[8] may also apply.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

[1] Pub. Resources Code § 21000 et seq.
[2] Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b); CEQA Guidelines Section 15064.5 (b)
[3] Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1); CEQA Guidelines § 15064 (a)(1)
[4] Government Code 65352.3
[5] Pub. Resources Code § 21074
[6] Pub. Resources Code § 21084.2
[7] Pub. Resources Code § 21084.3 (a)
[8] 154 U.S.C. 300101, 36 C.F.R. § 800 et seq.

Agencies should be aware that AB 52 does not preclude agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52. For that reason, we urge you to continue to request Native American Tribal Consultation Lists and Sacred Lands File searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/. Additional information regarding AB 52 can be found online at http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf, entitled "Tribal Consultation Under AB 52: Requirements and Best Practices". 2.4

The NAHC recommends lead agencies consult with all California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources.

A brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments is also attached.

Please contact me at gayle.totton@nahc.ca.gov or call (916) 373-3710 if you have any questions.

Sincerely,

Gayle Totton, B.S., M.A., Ph.D
Associate Governmental Project Analyst

Attachment

cc: State Clearinghouse

Pertinent Statutory Information:

Under AB 52:

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice.

A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.[9] and **prior to the release of a negative declaration, mitigated negative declaration or environmental impact report**. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18).[10]

The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.
b. Recommended mitigation measures.
c. Significant effects.[11]

1. The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.

If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency.[12]

With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process **shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10.** Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.[13]

If a project may have a significant impact on a tribal cultural resource, **the lead agency's environmental document shall discuss** both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource.[14]

Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.[15]

Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 **shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program**, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable.[16]

If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, **the lead agency shall consider feasible mitigation** pursuant to Public Resources Code section 21084.3 (b).[17]

An environmental impact report **may not be certified**, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

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[9] Pub. Resources Code § 21080.3.1, subds. (d) and (e)
[10] Pub. Resources Code § 21080.3.1 (b)
[11] Pub. Resources Code § 21080.3.2 (a)
[12] Pub. Resources Code § 21080.3.2 (a)
[13] Pub. Resources Code § 21082.3 (c)(1)
[14] Pub. Resources Code § 21082.3 (b)
[15] Pub. Resources Code § 21080.3.2 (b)
[16] Pub. Resources Code § 21082.3 (a)
[17] Pub. Resources Code § 21082.3 (e)

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days.[18]

This process should be documented in the Tribal Cultural Resources section of your environmental document.

Under SB 18:

Government Code § 65352.3 (a) (1) requires consultation with Native Americans on general plan proposals for the purposes of "preserving or mitigating impacts to places, features, and objects described § 5097.9 and § 5091.993 of the Public Resources Code that are located within the city or county's jurisdiction. Government Code § 65560 (a), (b), and (c) provides for consultation with Native American tribes on the open-space element of a county or city general plan for the purposes of protecting places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code.

- SB 18 applies to **local governments** and requires them to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf
- Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.**[19]
- There is no Statutory Time Limit on Tribal Consultation under the law.
- Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research,[20] the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction.[21]
- Conclusion Tribal Consultation: Consultation should be concluded at the point in which:
    - The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    - Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation.[22]

NAHC Recommendations for Cultural Resources Assessments:

- Contact the NAHC for:
    - A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    - A Native American Tribal Contact List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
        - The request form can be found at http://nahc.ca.gov/resources/forms/.
- Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    - If part or the entire APE has been previously surveyed for cultural resources.
    - If any known cultural resources have been already been recorded on or adjacent to the APE.
    - If the probability is low, moderate, or high that cultural resources are located in the APE.
    - If a survey is required to determine whether previously unrecorded cultural resources are present.
- If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    - The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

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[18] Pub. Resources Code § 21082.3 (d)
[19] (Gov. Code § 65352.3 (a)(2)).
[20] pursuant to Gov. Code section 65040.2,
[21] (Gov. Code § 65352.3 (b)).
[22] (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Examples of Mitigation Measures That May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

- Avoidance and preservation of the resources in place, including, but not limited to:
  - Planning and construction to avoid the resources and protect the cultural and natural context.
  - Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - Protecting the cultural character and integrity of the resource.
  - Protecting the traditional use of the resource.
  - Protecting the confidentiality of the resource.
- Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed.[23]
- Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.[24]

The lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

- Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources.[25] In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
- Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

[23] (Civ. Code § 815.3 (c)).
[24] (Pub. Resources Code § 5097.991).
[25] per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)).

Comment 2

COMMENTER: Gayle Totton, B.S., M.A., Ph.D, Associate Governmental Project Analyst, Native American Heritage Commission

DATE: October 27, 2016

RESPONSE:

Response 2.1

The commenter states that there is no documentation of contact or consultation under SB-18 with Native American tribes traditionally and culturally affiliated with the Plan Area or that mitigation measures were developed in consultation with the tribes. The City sent the Notice of Preparation (NOP) for the Draft EIR to this commenter (Native American Heritage Commission, or NAHC), and received a response from the NAHC dated February 22, 2016. This comment letter from the NAHC did not include a tribal consultation list, but the City did include one tribal contact on the mailing list for the Notice of Preparation (NOP) of the Draft EIR. No comment on the Draft EIR has been received from this contact. Mitigation Measure CR-2 of the EIR requires the City to add a policy to the General Plan Update to comply with existing regulations relating to Native American resources. In response to this comment, Mitigation Measure CR-2 has been revised as shown below to clarify that potential impacts to tribal cultural resources must be assessed, avoided, and mitigated; and that these existing regulations include SB 18:

CR-2 *Add the following policies to the Our Creative Community Chapter of PlanWC:*

Assess, avoid, and mitigate potential impacts to archeological, ~~and~~ paleontological, and tribal cultural resources through the CEQA review process for development projects carried out within the City.

Comply with existing regulations relating to Native American resources, including California Environmental Quality Act Section 15064.5(d) and (e) and Public Resources Code §5097.98 concerning burial grounds, and Assembly Bill 52 and Senate Bill 18 for consultation with Native American tribes for development projects carried out within the City.

These policies would ensure that all tribal consultation requirements will be carried out for projects carried out under the General Plan Update and Downtown Plan and Code.

Response 2.2

The commenter states that there is no Tribal Cultural Resources section or subsection as per California Natural Resources Agency guidance. While the revisions to Appendix G of the *CEQA Guidelines* are now available online, as cited by the commenter, these revisions have only been finalized and made available in the last few months, and the environmental checklist for the proposed project was established well before that, with the Notice of Preparation (NOP) of a Draft EIR being publicized in February 2016. The requirements of AB 52 and SB 18 are

discussed on page 103 in Section 4.4.1c, *Regulatory Setting* of the EIR. As discussed in Response 2.1, no comments have been received indicating that tribal cultural resources exist in the Plan Area, either as part of the proposed project or previous projects.

Response 2.3

The commenter points out that there are no mitigation measures specifically and separately addressing tribal cultural resources. As shown in Response 2.1, Mitigation Measure CR-2 of the EIR has been revised to ensure that it is the City's policy to address potential impacts to tribal cultural resources within the City through the CEQA review process for development projects carried out within the City.

Response 2.4

The commenter cites various regulatory requirements related to cultural resources in this comment and subsequent attachments, but does not make any comment on the EIR.

Letter 3

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, OFFICE OF REGIONAL PLANNING
IGR/CEQA BRANCH
100 MAIN STREET, MS # 16
LOS ANGELES, CA 90012-3606
PHONE: (213) 897-0219
FAX: (213) 897-1337

Serious drought
Help save water!

November 1, 2016

Mr. Jeff Anderson
City of West Covina
1444 West Garvey Avenue South
West Covina, Ca 91790

Re: **City of West Covina 2016 General Plan Update and Downtown Plan and Code**
Vic: LA-39, 60, 57
GTS# LA-2016-00139ME-DEIR

Dear Mr. Jones:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the City of West Covina 2016 General Plan Update and Downtown Plan and Code.

The proposed project is a comprehensive update to the City's General Plan, which has not been updated since 1985. The General Plan Land Use Map will also be updated to reflect the community's vision to direct the majority of new growth to the Downtown area.

The nearest State facilities to the proposed project are State Routs-31, 57 and 60. Caltrans does not expect project approval to result into a direct adverse impact to the existing State transportation facilities

However, any transporting of heavy construction equipment and/or materials which require the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit. Caltrans recommends that large size truck trips be limited to off-peak commute periods.

If you have any questions regarding these comments, please contact project coordinator Ms. Miya Edmonson, at (213) 897-6536 and refer to GTS# LA-2016-00139ME.

Sincerely,

Melanie Bradford for

DIANNA WATSON
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Comment 3

COMMENTER: Diana Watson, IGR/CEQA Branch Chief, Department of Transportation, District 7, Office of Regional Planning

DATE: November 1, 2016

RESPONSE:

They name State highway facilities nearest to the Plan Area, and state that Caltrans does not expect the proposed project to result in any direct adverse impact to these facilities, that activities requiring the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit, and they recommend that large size truck trips be limited to off-peak commute periods. The City will consider this recommendation when carrying out and approving projects, but this is not a comment on the EIR itself.

Letter 4

P.O. Box 682, Walnut, CA 91788-0682
21201 La Puente Road
Walnut, CA 91789-2018
Telephone (909) 595-7543
FAX (909) 595-6095
www.ci.walnut.ca.us

CITY OF WALNUT

October 24, 2016

Jeff Anderson, Planning Director
City of West Covina
1444 West Garvey Avenue South
West Covina, CA 91790

RE: City of West Covina General Plan Update, Downtown Plan, and Code

Dear Mr. Anderson,

The City of Walnut thanks the City of West Covina for the opportunity to review and comment on your Draft Environmental Impact Report for the General Plan Update, Downtown Plan and Code, and revisions to the City's Municipal Code. As you are aware, the Cities of Walnut and West Covina share a common border and the proposed document(s) serve to identify the project's potential impact on the surrounding environment, which includes and is not limited to the western boundary of Walnut.

The City of Walnut reviewed the document along with the General Plan Land Use Map and has *no comments* at this time. Should there be any future proposals, both by the City of West Covina and/or private development within the City, to change/alter any existing land uses along the City of Walnut's western border as well as to any streets/roads that provide ingress/egress into/from the City of Walnut, please provide prior notification prior to adoption/approval so that we can collaboratively work together to minimize/mitigate any impacts to the residents of both jurisdictions.

Sincerely,

Tom Weiner
Director of Community Development

C. City Attorney
City Planner

Comment 4

COMMENTER: Tom Weiner, Director of Community Development, City of Walnut

DATE: October 24, 2016

RESPONSE:

The commenter states that the City of Walnut has no comments at this time, but requests to be informed prior to adoption or approval of any future proposals to change any land uses along the City of Walnut's western border, as well as any proposed changes to any streets or roads going into or out of that City, so to the two cities can work together to minimize and mitigate any potential impacts to residents of either City. The City of West Covina acknowledges these requests, but this is not a comment on the EIR itself.

Letter 5

1919 S. State College Blvd.
Anaheim, CA 92806-6114

September 16, 2016

1444 West Garvey Ave South
West Covina, CA 91790

Attn: Jeff Anderson

Subject: Environmental Impact Report for the City of West Covina General Plan Update and Downtown Plan and Code; SCH# 2016021069; 14-03

Thank you for providing the opportunity to respond to this Environmental Document. This letter is not to be interpreted as a contractual commitment to serve the proposed project but only as an information service. Its intent is to notify you that the Southern California Gas Company has facilities in the area where the above named project is proposed. Gas facilities within the service area of the project could be installed, altered or abandoned as necessary without any significant impact on the environment.

The availability of natural gas service is based upon conditions of gas supply and regulatory agencies. As a Public Utility, Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. Our ability to serve can also be affected by actions of federal regulatory agencies. Should these agencies take any action, which affect gas supply or the conditions under which service is available, gas service will be provided in accordance with the revised conditions.

This letter is also provided without considering any conditions or non-utility laws and regulations (such as environmental regulations), which could affect construction of a main and/or service line extension (i.e., if hazardous wastes were encountered in the process of installing the line). The regulations can only be determined around the time contractual arrangements are made and construction has begun.

Information regarding construction particulars and any costs associated with initiating service may be obtained by contacting our area Service Center at 800-427-2200.

Sincerely,

Katrina Regan
Planning Supervisor
SouthEast Region - Anaheim Planning & Engineering

KR/rl
EIR.doc

Comment 5

COMMENTER: Katrina Regan, Planning Supervisor, South East Region – Anaheim Planning & Engineering, SoCalGas

DATE: September 16, 2016

RESPONSE:

Although the commenter does not directly refer to the EIR, they state that "Gas facilities within the service area of the project could be installed, altered, or abandoned as necessary without any significant effect on the environment." This is consistent with Section 4.15, *Utilities and Service Systems* of the EIR, which determined that the proposed project would not have any significant impact related to utilities and service systems.

The commenter also states that their comment does not serve as a contractual commitment to provide service, and that the availability of natural gas may be affected by other factors outside their control such as potential future state and federal regulatory actions, and non-regulatory laws and regulations such as environmental regulations that may apply under certain conditions that must be determined around the time of contractual obligations and construction. The City acknowledges these comments, but they do not directly relate to the contents of the EIR.

Letter 6

SAVE OUR COMMUNITY SGV
c/o 8655 Landis View Lane
Rosemead Ca 91770
James Flournoy secretary

Comments on the West Covina General Plan and EIR
several of our members are West Covina residents)

Congratulations on Plan WC and the EIR
following are some comments meant to be constructive

Policies and Actions General Plan P 55
We take it you have Mansionaziation under control...

p65 Stops on West Covina??? do you mean West Covina Parkway???

C Parking recommendations
We do not recommend parking bonuses for housing- they just lead to more on street parking problems
WE do not recommend reducing off-street parking requirements

P80
The 2016 building code is likely to govern, is available now- will be mandatory Jan 2017
We recommend the adoption of the LOS ANGELES COUNTY version of the CBC with county amendments and LARUCP, a policy to require the updating of, for example, The Grading Code and Grading guidelines, The LA County DPW Manual for the preparation of Geotechnical Reports to the latest Building Code by project proponents.
Since the CBC is now a "reference" code we recommend that latest adopted referenced codes by required- for example ASCE-7-16 and FEMA, NEHRP, Wood and Concrete Codes, etc
6.1 We recommend working with and a Goal of the Adoption of the Southern California Earthquake Center (SCEC) Cybershake program for seismic data (under development with LA CITY- join the group)

I would remove any reference to any specific waste hauler-- i.e. Athens services- substitute Contractor or something specific company should not be in a General Plan
Is there a policy to go for commercial, (apartments, condos) recycling?

P85
A policy to survey the Sewer and Storm-water systems for resilience

94 Mention the Excellent Explorer program
Is there in place back up generator for communications, do Police and Fire have systems that talk with each other?
Does WCFD require fire sprinkler water line feeds and fire hydrant upgrades to the current codes?
A.6.14 we are very concerned about the resilience of water supplies, tanks and distribution
A 6.15a Change to West Covina Building Code add including the risk from thrust faults under the City and the long Period, long duration seismic hazard of the San Andreas and San Jacinto faults
A6.16 Change to City of West Covina building Code Require Seismic Hazard Mapping Act Reports complying with LACODPW GMED Manual (as updated to current Code by consultants)

Require Peer review of SHMA reports “Prior to the Approval of the Project” by the lead agency (that's the code)

A6.19 add water storage and distribution

A6.27 Minimize noise from funeral procession escorts

7 Water Replace Undersized and non ductile water distribution, seismic harden water storage

6.1 D Natural hazard p 14 Change A.6.15a to West Covina Building Code City to Adopt the LA County Building Code with local amendments, LARCUP, grading code etc
Add Seismic Hazards Mapping Act to comply with LACODPW GMED Manual for the preparation of Geologic reports (City to adopt with Building Code) Or City must develop their own)
also for P6.16
A6.16 Key thing missing here is “other recognized fault” Change CBC to WCBC
P6.18 add flooding from ruptured water tanks
P6.19 add water storage and distribution actually the most likely critical hazard
P6.20 A620b add water
Noise
add funeral procession escorts

EXCELLENT JOB

EIR COMMENTS

6.2 4.5 Geology and Soils - see also graphic of Cal Trans ARS tool at end of this note

6.3 c faulting add San Jose Fault
add Puente Hills Thrust Fault under the City as an Example

6.4 by the MW scale because the MW scale provides more useful information to design engineers
add short periods are expressed in accelerations (g), medium in Velocities and long periods in ground movement in feet per second, both horizontal and vertical. Current code has changed from average of two directions to “at the greatest direction”

p114

6.5 Whittier-Elsinore Fault zone branches near the Santa Ana River into the Chino/ Central Ave Fault and the Whittier Fault stricto senso where it runs along the southern base of the Puente/ Chino hills to the San Gabriel River where it changes direction to NNE becoming the East Montebello Fault then it is know as the Alhambra Wash Fault to its termination in South Pasadena near the Raymond Hill Fault. This length was recently confirmed in the CalTrans 710 Tunnel explorations making Whittier-Elsinore potentially more hazardous than the 7.5 figure used by LA County Department of public works for local Bridges CalTrans and others are now using 7.75-
The Whittier fault controls the East Side of the Whittier and Montebello Oil Fields and the Upper Elysian Park Fault. The Whittier Fault predates the uplift of the Montebello and Puente Chino Hills and as the hills were uplifted the San Gabriel River cut through the Fault at the location of Whittier

6.5 Narrows Dam
This fault zone has an expected maximum capability of a magnitude 7.75 earthquake. (6.8 is shown on maps showing only the Whittier segment from the Santa Ana River to the San Gabriel River excluding Elsinore and the NNE Extensions)

6.6 San Jacinto is east of the City (not north east)

6.7 A paragraph on the Puente Hills Thrust fault is needed both as a single segment 7.1 and as a multi-segment break 7.5 calculate the depth to the tangent of the thrust plane (See ARS at end of these comments)
show on a map where the thrust plane is 10 km deep vertical this line is used to calculate near fault effects mention the location of the fault tips and the slope of the fault plane
mention that it is relatively recent and cuts the Whittier, Raymond Hill and Sierra Madre and San Gabriel faults and extends under the San Gabriel Mountains to the San Andreas Fault
The LA basin is shortening North South and this shortening is taken up by the thrust fault and by uplift of the hills and San Gabriel Mountains

6.8 Recent Seismic Activity Whittier Narrows earthquake 5.9 on the Puente Hills thrust (Epicenter near SCE headquarters and WalMart in Rosemead (1987 a relatively minor event) and an "aftershock" (actually a triggered event) 5.0 on the Whittier Fault in South San Gabriel. Damage was greatest in line with the Whittier fault from Cal Tech/ San Gabriel Mission NNW to Whittier's Downtown and Quad Shopping Center SSE. Damage was considerably less toward Monterey Park and El Monte however near fault effects of a major event could be quite different.

6.9 P115 delete Thus
Thus, no fault rupture hazard is anticipated along the fault traces that pass through or near the City
Absence of AP zoning does not indicate no fault rupture hazard, just that CGS has not mapped yet
San Fernando, Sylmar and other recent earthquakes have been on faults not mapped as AP zones

6.10 p118
We recommend that the City adopt the LA COUNTY version of the CBC
There are "local amendments" that exceed the AP zone wording, especially for housing

6.11 Wording would be
The City's Building code and the Alquist....

6.12 revise There are no AP zones in the City therefore...conclusion
Just because the City is not (yet) zoned does not mean there are no hazards

6.13 ground-shaking
magnitude of the earthquake (the source parameters including direction of the rupture, the distance is modified by the "PATH" (the geology of the area between the "Source" and the "Site"
The Most likely event is a distant one of great magnitude on the San Andreas or San Jacinto Faults
Path effects would allow long period earthshaking, of long durations measured in minuets. Other Strong events on Whittier or Puente Hills thrust would be stronger at short periods and for short durations measured in seconds.

6.14 According to the Los Angeles Department of Public works GMED "MANUAL" liquefaction, lateral

6.14 spreading and landslides must not only be studied for the traditional short period short duration but for long period long duration (strong distant) events

6.15 Inundation from ruptured water tanks must be considered somewhere

6.16 Soil Erosion-- Loss Of Topsoil from grading activities must be considered (CEQA)

6.17 p121
Discuss the County ammendments to CBC
note that the IBC is a reference code
note that the latest ASCE 7 must be utilized (currently ASCE 7-16)
The city may require updated reference codes (Concrete, steel, masonary etc) as they are adopted

6.18 SHMA also requires independent peer review then approval by the lead agency "Prior to the Approval of a Project)

6.19 p122 this is the key phrase not A-P
"or based on other substantial evidence of a known fault "

6.20 clarify that loss of topsoil is not just erosion but grading

6.21 IMPACT GEO-1
City Building Code, GMED Manual, Grading Guidelines (you get all these if you adopt the County Building Code)
actually I do not think it is possible to reduce seismic ground-shaking to a less than significant level

6.22 Delete Seismic zone 4 and UBC

6.23 No mitigation measures are required if you have quantified the hazard of the Southern San Andreas (Terra Shake and Shakeout Scenarios) and the Puente Hills thrust and require consideration of these in site specific geotechnical reports and SHMA reports- CBC type magnitude-distence aka Next Generation Attenuation (NGA) does not consider Source or Path Effects, Basin Depth amplification, hilltop and hillside amplification etc, all of which must be considered

6.24 125
Grading and hauling off of topsoil or mixing it with bedrock is "loss of topsoil"
it would seem that mitigation is required

6.25 P167
I didn't see storm-water recapture, cisterns, gray water LID etc here
also where does the storm-water clean up go?
Does the City have a Recycle-Reuse policy?
Where do you cover Storm water clean up? Ah 173
173 must contain goals and a policy for Storm-water clean up how do you plan on funding?

6.26 167 b Groundwater and p 172 Pp1
Do you map groundwater pollution zones and superfund zones? (Discussed p 173

6.26 Is there any chance of a plume going toward West Covina- hopefully you can make a positive statement

6.27 P171 Flood Hazard zones 173
We would like to see if there are any changes if the USGS "ARKSTORM" Scenario is used for the "big flood" instead of a "100 year flood" or is this included in the "500 year " flood?

6.28 WE would like to see a map of water tank flood failure
Tanks failed in the moderate Northridge earthquake

6.29 Noise
do you cover noise from funeral procession's Escorts??

6.30 Fire
Does the WCFD maintain a list of URM, tilt-up, stiff heavy construction, tuck under parking, etc structures? Is there a policy to check these first during an emergency/ earthquake?
DOES WCFD maintain a map of undersized fire mains and hydrants?
Non ductile fire Mains, cast iron and asbestos concrete (transite) fire mains, non ductile tank connections, tank break away devices, back up power for fire pumps, back up power for communications, etc?

6.31 Does the WCFD have a flood map of potential water tank failures

6.32 I would suggest that the WCFD's EXCELLENT EXPLORER PROGRAM be tasked to check all the tanks for break away valves, ductile connections and type of hold downs and report back

6.33 Is there a policy to require the upgrading of water storage tanks?
-downs, anti- elephant footing, ductile connections

Is there a policy to replace all non ductile (brittle cast iron/ asbestos-concrete (transite) pipe?
Is there a policy to replace all undersized (for latest hydrant and residential sprinkler) pipe distribution requirements

6.34 These could be 20 year plans

6.35 Transportation and Circulation
Develop a plan for Bridge Failure during an earthquake (the 10 freeway Santa Monica in Northridge) Scenario

Utilities and Service Systems

6.36 SOC considers Utilities the Most at Risk for the City of West Covina

6.37 Does the San Gabriel Valley Water Company's over-pumping of the Aquifer have a potential to affect the City?

6.38 Is there a Policy to Recycle-Reuse water within the City? Gray Water, Cisterns, Storm-water etc?

6.39 Is there a policy to provide back up generators for fire pumps?

P270

6.40

West Covina's wastewater is treated and disposed of at the LACSD's San Jose Creek Water Reclamation Plant (SJCWRP) and/or the Whittier Narrows Reclamation Plant (WNRP). Located at 1965 Workman Mill Road in unincorporated Los Angeles County, the SJCWRP occupies approximately 39 acres north of the Pomona Freeway (SR 60) on both sides of the San Gabriel River Freeway(SR 605). The SJCWRP has a maximum permitted capacity of 100 million gallons of wastewater per day (MGD), serving a large residential population of approximately one million people. Currently, the SJCWRP treats an average flow of 67.83 MGD (SWRCB, 2016a). Located at 301 N. Rosemead Boulevard (SR 19) in the City of El Monte, WNRP occupies 27 acres south of SR 60. The WNRP has a maximum permitted capacity of 15 MGD and serves a population of approximately 150,000 people. Currently, the WNRP treats an average flow ofMGD (SWRCB, 2016b).

This paragraph is totally borked after "...treats an average flow of 67.83 MGD (SWRCB, 2016a).
WNRP
This is a different plant that does NOT service West Covina AFIK verify if West Covina utilizes

"Located at 301 N. Rosemead Boulevard (SR 19) in the City of El Monte, WNRP occupies 27 acres..
This plant is NOT in the City of El Monte but is also in Unincorporated Los Angeles County commonly called Whittier Narrows or South El Monte (sic) It's not in Incorporated South El Monte Either
If West Covina does not utilize then delete that part of the Paragraph if it does change the City name

6.41

Biological Resources
Is there a Policy for the removal of all foreign and invasive species (eucalyptus, alanthus (tree of heaven), Arundo (giant cane) Pampas grass, Russian thistle (tumbelweeds) scotch broom, etc or the prohibition of planting and selling within the City and a Policy of responsibility of spreading liability

CALCULATED SPECTRUM CalTrans OnLine ARS tool

apply Near Fault Adjustment To:

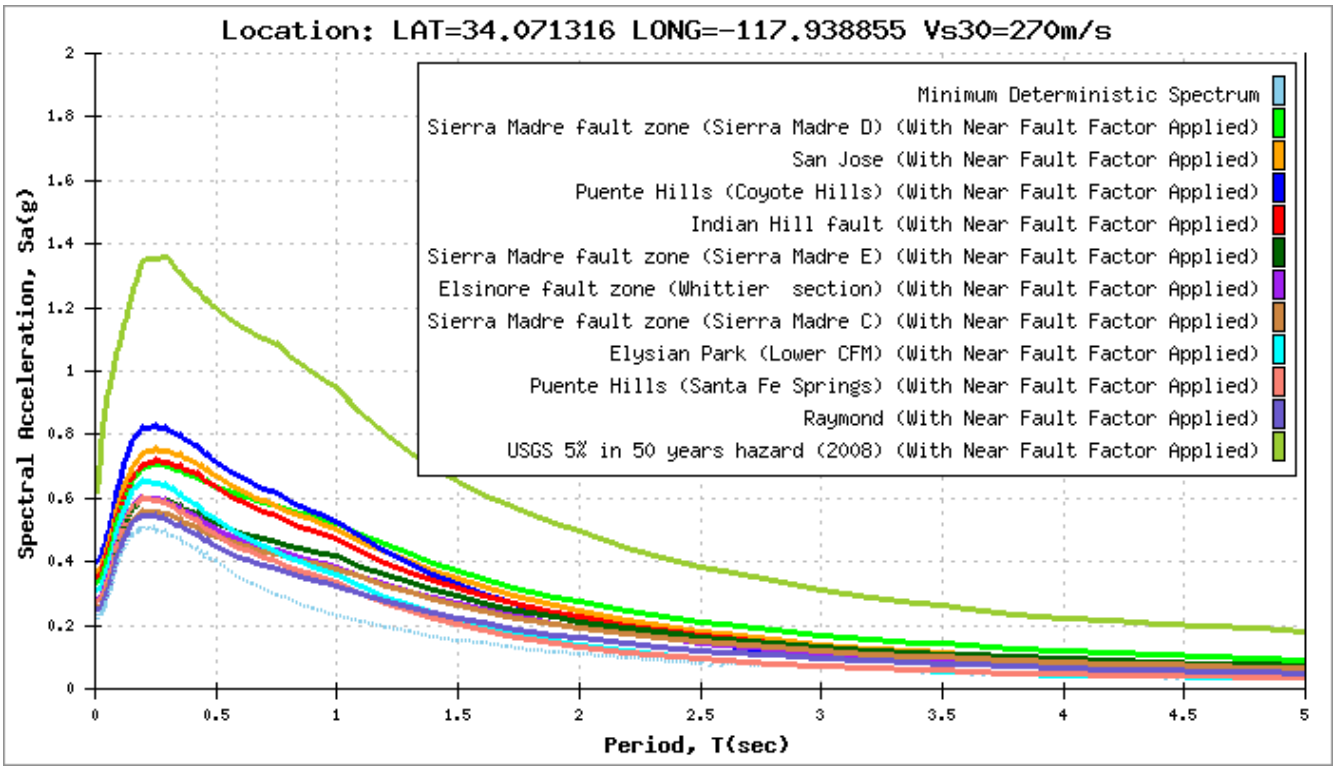
NOTE: Caltrans SDC requires application of a Near Fault Adjustment factor for sites less than 25 km (Rrup) from the causative fault.

Deterministic Spectrum Using

8.54 Km Sierra Madre fault zone (Sierra Madre D)
6.30 Km San Jose
11.99 Km Puente Hills (Coyote Hills)
4.77 Km Indian Hill fault
12.32 Km Sierra Madre fault zone (Sierra Madre E)
11.59 Km Elsinore fault zone (Whittier section)
14.10 Km Sierra Madre fault zone (Sierra Madre C)
16.75 Km Elysian Park (Lower CFM)
14.42 Km Puente Hills (Santa Fe Springs)
11.26 Km Raymond

- not shown Upper Elysian Park and local faults , Chino
- San Andreas Southern, and San Jacinto, Due East of West Covina
- San Andreas Mojave (1857) North of San Gabriel Mts

WEST COVINA CITY HALL



INCLUSION OF SAN ANDREAS AND SAN JACINTO WOULD GREATLY INCRESE HAZRD ON RIGHT HALF OF CURVE AND OUT TO T 10 SECONDS

Cal Trans tool is useful to find the distances to local faults

CalTrans ARS tool does NOT use the latest SCEC Community Velocity Model

CalTrans ARS tool does NOT include Basin Depth Amplification Modeling

CalTRans ARS tool does NOT include Hillside or Hilltop Amplification

CalTrans ARS tool does NOT utilize SOURCE or PATH effects

CalTras ARS tool does NOT include latest Fault data (Mm on Whittier, Puente Hills Etc

CALTrans ARS tool does NOT include multi-segment events

(here Whittier-Elsinore combined or Puente Hills Thrust Combined, Sierra Madre multi-segment)

CalTrans ARS tool is average not maximum rotated- not to current Building Code
CalTrans does NOT include the Greatest PROBABLE- Most Likely and Most often threat to West Covina- the Southern San Andreas
These differences must be addressed by Consultants
Only then can landslide and liquefaction and structural parameters be determined

THE USGS LOOK UP TOOL IS EVEN LESS USEFUL FOR SITE SPICIFIC STUDIES

Comment 6

COMMENTER: James Flournoy, Secretary, Save Our Community SGV

DATE: October 31, 2016

RESPONSE:

The commenter congratulates the City on "PlanWC and the EIR" and states that "following are some comments meant to be constructive." These comments are addressed below.

Response 6.1

All comments shown under Comment 6.1 recommend additions or other changes to the General Plan Update document, and are thus not comments on the Draft EIR, although many of the same issues are raised by the commenter in their subsequent comments, which are responded to below.

Response 6.2

The commenter asks that the City refer to the "graphic of Cal Trans ARS tool at the end of this note." This graphic used, as appropriate, in reviewing the commenter's subsequent comments relating to seismic risks.

Response 6.3

The commenter requests that the San Jose Fault and the Puente Hills Thrust Fault be added to the list of faults in Section 4.5.1c of the EIR. The San Jose Fault is already discussed in this section of the EIR, on page 115, and also shown on Figure 4.5-1, *Local Faults* on page 116. The Puente Hills Thrust Fault is a blind thrust fault zone (meaning there is no surface expression of the fault), generally depicted on maps of fault zones as covering a broad area underneath the Puente Hills, which are located south of and outside the City of West Covina, so it is not shown on Figure 4.5-1 of the EIR. The following description of the Puente Hills Thrust Fault has been added to the list of regional faults on page 114 of the EIR in order to acknowledge potential risks from this fault:

> ***Puente Hills Thrust Fault Zone*** *– This is a blind thrust fault zone (meaning it has no surface expression) that has recently been determined to be active, and is thought to be responsible for a 5.1-magnitude earthquake in the vicinity of La Habra in 2014, as well as the 5.9-magnitude Whittier Narrows earthquake in 1987. It is located, approximately, beneath the Puente Hills, to the southwest and outside of the City of West Covina. It has recently been estimated that this fault zone is capable of producing an earthquake of up to a magnitude of 7.5 on the Richter scale.*

Response 6.4

The commenter requests that additional text be added to the description of the Moment Magnitude (Mw) scale on page 112 of the EIR. The following text has been added to page 112 of the EIR:

> *The Richter Magnitude (M) scale has been replaced in most modern building codes by the MW scale because the MW scale provides more useful information to design engineers. Short period are expressed in accelerations (g), medium in Velocities and long periods in ground movement in feet per second, both horizontal and vertical. Current code has changed from average of two directions to "at the greatest direction."*

Response 6.5

The commenter provides additional detail on the Whittier-Elsinore fault Zone, which is already discussed under *Regional Faults* on page 114 of the EIR. The commenter does not directly explain what if any of this information they would like added to the EIR, but the most relevant information seems to be a greater potential earthquake magnitude for portions of the fault zone, so the following text has been added to the description of this fault zone on page 114 of the EIR:

> *This fault zone has an expected maximum capability of a magnitude 6.8~~6~~ earthquake on the segment of the fault zone closest to West Covina (from the San Gabriel River to the Santa Ana River), but an expected maximum capability of 7.75 outside of this area, including segments to the north and south.*

Response 6.6

The commenter states that the San Jacinto Fault is east, not northeast of the City. The following edit has been made to page 114 of the EIR to address this comment:

Response 6.7

The commenter provides more information on the Puente Hills Thrust fault and asks that it be added to the EIR. A description of this fault zone has already been added to page 114 of the EIR (see Response 6.3). Comment 6.7 does not provide additional useful information beyond that already added to the EIR in Response 6.3.

Response 6.8

The commenter provides information on two recent earthquakes in the area, the "Whittier Narrows 5.9 on the Puente Hills thrust…(1987 a relatively minor event) and an 'aftershock' (actually a triggered event) 5.0 on the Whittier Fault in South San Gabriel." The 1987 Whittier Narrows earthquake is already listed under *Recent Seismic Activity* on page 115 of the EIR. Although the commenter does not list a year for the 5.0 earthquake on the Whittier Fault in

South San Gabriel, the fact that they refer to it as an aftershock or triggered event suggests that they may be referring to the 1988 5.0-magnitude Pasadena earthquake, which is also listed in the same discussion of recent seismic activity on page 115 of the EIR. The commenter then goes on to describe where damage from these earthquakes was greatest, but describes areas outside West Covina.

The following edits have been made to page 115 of the EIR in order to correct the name of the fault that caused the 1987 Whittier Narrows earthquake, which is now known as the Puente Hills Thrust Fault Zone, not the Elysian Park Thrust Fault:

> *Historically, earthquakes have caused substantial groundshaking in the Southern California region, and include the following: the 1933 Long Beach earthquake (magnitude 6.4 on Richter scale), along the Newport-Inglewood Fault Zone; the 1971 San Fernando earthquake (magnitude 6.7), along the San Fernando-Sierra Madre Fault; the 1987 Whittier Narrows earthquake (magnitude 5.9), along the ~~Elysian Park~~ Puente Hills Thrust Fault Zone; the 1988 Pasadena earthquake (magnitude 5.0)…*

Response 6.9

The commenter requests that the word "Thus" from the following statement on page 115 of the EIR: "None of the nearby local faults have been placed in an Alquist-Priolo Earthquake Fault Zone (CGS, 2016). Thus, no fault hazard rupture is anticipated along the fault traces that pass through or near the City." The commenter states that the absence of an Alquist-Priolo (AP) Earthquake Fault Zone "does not indicate no fault rupture hazard", citing the San Fernando, Sylmar, and other recent earthquakes on faults that were not on faults mapped as AP fault zones. The statement on page 115 of the EIR was meant to convey that there is no *surface* fault hazard rupture in West Covina. As explained under *Surface Rupture* on page 118 of the EIR, AP fault zones "…are delineated and defined by the State Geologist and identify areas where potential surface rupture along a fault could occur." The following edits have been made to page 115 of the EIR to clarify this statement:

> *None of the nearby local faults have been placed in an Alquist-Priolo Earthquake Fault Zone (CGS, 2016), which, as discussed under Surface Rupture in Section d below, are delineated and defined by the State Geologist and identify areas where potential surface rupture along a fault could occur. Thus, no surface fault rupture hazard is anticipated along the fault traces that pass through or near the City.*

Response 6.10

The commenter recommends that the City adopt the Los Angeles County version of the California Building Code (CBC), stating that there are "local amendments" that "exceed the AP zone wording, especially for housing. This is not a comment on the EIR itself, and the City has historically adopted the CBC, not the LA County version, and adopted the latest version of the CBC earlier this year.

Response 6.11

The commenter states that "Wording would be…The City's Building code and the Alquist…" The meaning of this comment is not completely clear, but may relate to the commenter's earlier comments relating to AP fault zones (see Response 6.9).

Response 6.12

The commenter states, as in Comment 6.9, that the fact that there are no AP fault zones in the City does not mean that there are no hazards. Page 118 of the EIR, to which the commenter is apparently referring, contains no such statement. As explained in Response 6.9, edits have been made to page 115 of the EIR to clarify that the AP fault zone maps show faults with the potential for *surface* rupture, and because no AP fault zones are mapped within the City of West Covina, no *surface* fault rupture hazard is anticipated within the City.

Response 6.13

The commenter provides information related to factors affecting the magnitude of shaking from any earthquake from a given source at a given site, but does not directly relate this information to the analysis in the EIR, or request that it be directly incorporated into the EIR. The commenter also states that "The most likely event is a distant one of great magnitude on the San Andreas or San Jacinto Faults", that "Path effects would allow long period earthshaking, of long duration measured in minutes", and that other strong events on faults closer to the Plan Area such as the Whittier or Puente Hills Thrust faults "would be stronger at short periods and for short durations measured in seconds." While this information will be incorporated into the EIR through inclusion of this comment letter, the EIR already discusses potential hazards from all the faults mentioned in the comment, and no further explanation is necessary in the EIR for the reader to be adequately informed of overall seismic shaking hazards in the City.

Response 6.14

The commenter states that "According to the Los Angeles Department of Public works GMED "MANUAL" liquefaction, lateral spreading and landslides must not only be studied for the traditional short period short duration but for long period long duration (strong distant) events." While this information will be incorporated into the EIR through inclusion of this comment letter, the EIR already explains liquefaction hazards on page 118, and analyzes potential liquefaction hazards related to the proposed project under Impact GEO-1. No further explanation is necessary in the EIR for the reader to be adequately informed of overall liquefaction hazards in the City.

Response 6.15

greatest extent feasible, and policies and actions in the General Plan Update require compliance with the latest CBC design and engineering standards, and require CEQA environmental review to analyze and as necessary mitigate potential natural hazards on a site-specific basis.

Response 6.16

The commenter states that soil erosion and loss of topsoil from grading activities must be considered under CEQA. Soil erosion and loss of topsoil are discussed in the following locations in Section 4.5, *Geology and Soils* in the EIR: under *Soil Erosion* on page 119, and under Impact GEO-2 starting on page 125. Impact GEO-2 discusses potential soil erosion impacts from both construction and operation of new development that could be carried out under the new General Plan (see also Response 6.20).

Response 6.17

The commenter asks the City to discuss the County amendments to the CBC, note that the IBC is a reference code, note that the latest ASCE 7 must be utilized, and that the City may require updated reference codes (concrete, masonry, steel, etc.) as they are adopted. As explained in Response 6.10, the City has historically adopted the CBC, not the LA County version, and adopted the latest version of the CBC earlier this year. While it is true that the IBC is a reference code, the latest version of the ASCE 7 is utilized by the City, and the City may require updated reference codes as they are adopted, this technical information is not sufficiently germane to the environmental analysis in the EIR to justify revisions to the EIR to include it. This information will be included in the EIR as part of this *Comments and Responses* section.

Response 6.18

This comment refers to the "SHMA", but does not define this acronym, the meaning of which is unclear (online searches for this phrase returned no results). The commenter states that the SHMA "…requires independent peer review then approval by the lead agency" prior to the approval of a project. While this cannot be confirmed without a better understanding of what regulation this acronym refers to, the EIR already explains that development carried out under the General Plan will be required to conform with all applicable regulations.

Response 6.19

The commenter states that the key phrase in the significance thresholds relating to rupture of a known earthquake fault is "or based on other substantial evidence of a known fault", not just AP fault zones. As noted in Section 4.5, *Geology and Soils* of the EIR and in previous responses to this commenter, there are not AP fault zones in the City. Section 4.5 of the EIR correctly interprets this to conclude that there is no known, significant risk of surface rupture from seismic events in the City, but also describes and analyzes potential seismic hazards from seismic ground shaking associated with any of the local and regional faults in and around West Covina. In order to further clarify this point, the following edits have been made to the explanation of which impacts are and are not discussed in this EIR section on page 122 of the EIR:

> *As discussed previously, there are no known active faults or Alquist-Priolo Earthquake Fault Zones within the City that would result in surface rupture. Therefore, implementation of the proposed project would have* ***no impact*** *associated with exposing people or structures to surface rupture of a known earthquake fault and no further discussion of surface rupture is included in this document.*

Response 6.20

The commenter requests that the EIR clarify that loss of topsoil can occur not just from erosion, but also from grading. Under the heading of *Construction* in Impact GEO-2 on page 125 of the EIR, grading is mentioned as a potential source of erosion, and various regulatory requirements associated with or tied to issuance of grading permits are discussed. The fact that this erosion could lead to loss of topsoil has been clarified by the following edits to the end of the first paragraph under *Construction* on page 125 of the EIR:

> *Development under the proposed project would involve construction activities such as stockpiling, grading, excavation, paving, and other earth-disturbing activities. Loose and disturbed soils are more prone to erosion and loss of topsoil by wind and water.*

Response 6.21

The commenter cites various codes, manuals, and guidelines, and states that "you get all these if you adopt the County Building Code." This is not a comment on the EIR itself, and the City has historically adopted the CBC, not the LA County version, adopting the latest version of the CBC earlier this year. The commenter does not explain why it would be necessary to "get" these codes, manuals, and guidelines, or how not having them relates to any environmental impact analyzed in the EIR.

The commenter then states that he does not think it is possible to reduce seismic ground-shaking impacts to a less than significant level, but offers no reason why. The EIR analyzes this impact under Impact GEO-1, which concludes that compliance with the extensive regulations and codes governing building in California, which take into account seismic risk zones that account for localized risks, would reduce this impact to a less than significant level.

Response 6.22

The commenter requests that references to "Seismic zone 4 and UBC" be deleted from the first paragraph of Impact GEO-1. This paragraph has been edited in the following way to address this comment:

> As discussed in Section 4.5.1, *Physical Setting*, ~~previously,~~ there are a number of potentially active and active fault systems located within and near West Covina, and ~~. T~~the City is subject to seismic effects from large magnitude earthquakes ~~and is located within Seismic Zone 4, which has the highest seismic potential (Uniform Building Code, 1997)~~.

Response 6.23

The commenter describes analysis that they believe is necessary in order to avoid the need for mitigation measures for seismic hazards. They state that the CBC "does not consider Source or Path Effects, Basin Depth amplification, hilltop and hillside amplification etc, all of which must be considered." As explained in Response 6.10, the City has historically adopted the CBC, not the LA County version, and adopted the latest version of the CBC earlier this year. This action is separate from the proposed project, and the commenter does not explain why these impacts are not adequately addressed in the CBC, or how they would result in a significant impact in relation to the proposed project.

Response 6.24

The commenter states that grading and hauling off of topsoil or mixing it with bedrock is "loss of topsoil", and that mitigation is required. Under the heading of *Construction* in Impact GEO-2 on page 125 of the EIR, grading is mentioned as a potential source of erosion, and various regulatory requirements associated with or tied to issuance of grading permits are discussed. These regulatory requirements would apply to specific projects carried out under the General Plan Update and Downtown Plan, and would specify measures to prevent erosion and loss of topsoil that would have significant environmental effects. There is no evidence that projects carried out under the General Plan Update and Downtown Plan would result in significant impacts relating to loss of topsoil, and the conclusion in Impact GEO-2 that no mitigation is required remains valid.

Response 6.25

The commenter asks various questions relating to storm water flow, recapture, and clean-up; and also asks if the City has a Recycle-Reuse policy. As the commenter later notes in this comment, storm water runoff is discussed on page 173 of the EIR, which notes that storm water runoff may contain pollutants. The flow of storm water in the City is accurately characterized in this section of the EIR as flowing through local channels towards the San Gabriel River and then the Pacific Ocean. The commenter states that page 173 of the EIR must contain goals and policies for storm-water cleanup, and asks how these would be funded. As discussed under Impact HYD-1, storm water flows are subject to extensive regulatory requirements that govern discharges to storm water from construction and operation of projects that would be carried out under the General Plan Update and Downtown Plan and Code, which includes policies and actions designed to minimize storm water runoff and support groundwater recharge. No additional mitigation or goals or policies are necessary, and enforcement of existing regulatory requirements related to storm water are already funded through existing sources such as permit fees.

Response 6.26

The commenter asks if the EIR maps groundwater pollution zones and superfund zones, and if there is any chance of a plume going towards West Covina. As explained in Section 4.8.1b, *Groundwater* on page 168 of the EIR, West Covina is underlain by the San Gabriel Valley Groundwater Basin (Basin). The extent of the Basin is shown in Figure 4.8-2 on page 170 of the

EIR. The EIR then goes on to explain on page 172 of this section that groundwater contamination is widespread throughout the Basin, with volatile organic compounds (VOCs) being the most prevalent form of contamination. As explained in Section 4.8.1d, *Drinking Water* on page 173 of the EIR, four Superfund sites have been identified in the Basin. Cleanup of these sites began in 1992 and remains in progress today. However, despite these longstanding contamination issues in the Basin, the quality of the drinking water sourced from the Basin is high because water suppliers strategically avoid contaminant plumes and implement a rigorous water quality testing program to ensure that drinking water supplies are clean.

Water is supplied to the City by a variety of local water suppliers that are independent of the City. The quality of water provided to the City by local water providers is monitored by the City's water providers, who are responsible for ensuring that its quality is maintained. These providers track current sources of contamination in the area, and would be responsible for tracking any potential movement of contaminant plumes. Based on information provided in the latest water quality report for the largest water purveyor in the City (Suburban Water Systems), the water supply meets or exceeds all current drinking water regulations and standards. This information adequately demonstrates the quality of groundwater available to the City through its water suppliers, and separate mapping of groundwater pollution zones, including Superfund sites, is not necessary.

Response 6.27

The commenter states that they would like to see the USGS "ARKSTORM" Scenario used in the analysis of potential flood hazards in Section 4.8, *Hydrology and Water Quality* of the EIR instead of FEMA flood zones. The thresholds used in the analysis of potential flood impacts in this section are based on the impact criteria contained in Appendix G of the State *CEQA Guidelines*, which specifically cite FEMA's Flood Hazard Boundary and Flood Insurance Rate Maps, which show flood zones for "100 year" and "500 year floods." Use of these maps is therefore standard practice, and the commenter gives no reason why the USGS "ARKSTORM" scenario would be superior to use of FEMA flood maps. The EIR already adequately maps (see Figure 4.8-3) and analyzes potential areas of flooding in West Covina, and additional analysis is not necessary.

Response 6.28

The commenter states that they would like to see a map of "water tank flood failure", adding that water tanks failed in the Northridge earthquake. Seismic hazards are analyzed in Section 4.5, *Geology and Soils* of the EIR, which discusses general seismic hazards facing the City, and explains that existing regulations such as building codes require that seismic hazards be properly analyzed and taken into account for all new construction. Flooding from water tank failure in an earthquake is not a hazard that is specifically related to the proposed General Plan Update and Downtown Code, and analysis of this specific seismic-related hazard is not necessary in this EIR.

Response 6.29

The commenter asks, "do you cover noise from funeral procession's Escorts??" This specific noise source is not discussed in the EIR or the General Plan Update and Downtown Code. No

evidence was found in the analysis reflected in Section 4.10, *Noise* of the EIR that this is a major noise source in the community.

Response 6.30

The commenter asks if the West Covina Fire Department (WCFD) maintains lists of various structure types, if there is a policy to check these first during an emergency/earthquake, and if the WCFD maintains maps of undersized fire mains, hydrants, and other related devices. The WCFD does not maintain such lists and maps.

Response 6.31

The commenter asks if the WCFD has a flood map of potential water tank failures. The WCFD does not have such mapping. As explained in Response 6.28, Section 4.5, *Geology and Soils* of the EIR, discusses general seismic hazards facing the City, and explains that existing regulations such as building codes require that seismic hazards be properly analyzed and taken into account for all new construction. Flooding from water tank failure in an earthquake is not a hazard that is specifically related to the proposed General Plan Update and Downtown Code, and analysis of this specific seismic-related hazard is not necessary in this EIR.

Response 6.32

The commenter suggests that the WCFD's Explorer Program be tasked with checking all water tanks for breakaway valves, ductile connections, and type of hold-downs, and "report back." The City and WCFD will consider this request, but this is not a direct comment on the EIR, and, as explained in Response 6.31, does not directly relate to any hazard specifically related to the proposed General Plan Update and Downtown Code.

Response 6.33

The commenter asks if there are policies requiring upgrading of water storage tanks, replacing non ductile pipe, or replacing undersize pipes. Neither the General Plan Update nor the Downtown Plan and Code contain such policies. As discussed in previous responses including Response 6.31, general seismic risk facing the City is already adequately analyzed in the EIR. Flooding from water tank failure in an earthquake is not a hazard that is specifically related to the proposed General Plan Update and Downtown Code, and analysis of this specific seismic-related hazard is not necessary in this EIR.

Response 6.34

The commenter states that "These could be 20 year plans." In fact, both the General Plan Update and the Downtown Plan and Code are 20 year plans. As stated on page 29 in Section 2.0, *Project Description* of the EIR, the General Plan Update "establishes the community's vision for future development of the City over the next 20 years." The Downtown Plan and Code has the same planning horizon, but in order to make this more clear, the following edits have been made to the second sentence of the first paragraph of Section 2.2, *Downtown Plan and Code* of the EIR:

The Downtown Plan and Code will guide public funding and seek to attract private investments over the next 20 years.

Response 6.35

The commenter asks the City to develop a plan for bridge failure during an earthquake, such as occurred to the I-10 freeway in Santa Monica during the Northridge Earthquake. While the City will consider this request, this is not a comment on the EIR, and no edits to the EIR or the General Plan and Downtown Code are requested in this comment or necessary in response to this comment.

Response 6.36

The commenter states that they consider "Utilities the Most at Risk for the City of West Covina." While this comment probably refers to the commenter's earlier comments on utilities-related topics such as water tanks and water pipes, those comments have already been addressed. Comment 6.36 offers no additional information relating to the EIR or the proposed project, and no additional response is required.

Response 6.37

The commenter asks if the San Gabriel Valley Water Company's over-pumping of the aquifer have a potential effect on the City. As explained in Section 4.8.1b, *Groundwater* starting on page 168 of the EIR, groundwater levels in the San Gabriel Valley Groundwater Basin have fluctuated historically more than 95 feet in elevation. Concerns about the sustainability of groundwater supply in the basin led to the adjudication of water rights and the establishment of a Main San Gabriel Basin Watermaster in 1973. At that time, the Watermaster estimated that the basin contained approximately 7.85 million acre-feet of water in storage, 73% of the Basin's estimated 10.7 million acre-feet storage capacity. The Watermaster estimated the amount of water in storage in 2015 at 7.45 million acre-feet, and attributed the decline compared to historic levels to the effects of the current drought.

Because the Basin is adjudicated, it is managed in order to avoid overdraft and excessive contamination that would endanger the supply of usable groundwater. The commenter offers no evidence that the San Gabriel Valley Water Company is over-pumping the aquifer, but even if it were, the City does not have any authority over groundwater pumping from the aquifer, which is carried out by separate entities (water providers) overseen the Watermaster. As discussed in Impact HYD-1 and HYD-2 of the EIR, the proposed General Plan Update does include policies to encourage groundwater recharge. For all these reasons, there is no evidence that there currently existing any over-pumping of the aquifer that would have a potentially significant effect on the City's water supply.

Response 6.38

The commenter asks if there is a policy to recycle-reuse water within the City, such as gray water, cisterns, storm-water, etc. While there are no policies in the General Plan Update or the Downtown Plan and Code specifically calling for use of recycled water, as explained in Section B.3, *Recycled Water* of the General Plan Update, the City has already, in partnership with

Suburban Water Systems and the Upper San Gabriel Valley Municipal Water District, retro-fitted park facilities, landscaped medians, and several City maintained paseos to use recycled water. In West Covina, this system includes 14 miles of pipeline, a 2-million gallon reservoir, a pump station, and a pressure-reducing station producing more than 440 million gallons of recycled water per year and saving enough drinking water per year to supply approximately 2,700 homes. Currently, Cameron Park, Cortez Park, Friendship Park, Shadow Oak Park, and Woodgrove Park are being irrigated with recycled water. Additionally, the landfill site, several school districts, and the Big League Dreams facility within the City have retrofitted sport fields and landscape areas to use recycled water. Additionally, as explained in Section B.7, *Water* on page 84 of the General Plan Update, the City is working with the Upper District to conduct more detailed analyses to determine if it would be cost beneficial to extend the recycled water system to serve Aroma Parkette, Gingrich Park, Galster Park and other paseos (currently using potable water) in the southern part of City. Implementation will depend on availability of federal and state grants, and no City Council policy or action has been taken.

Response 6.39

The commenter asks if there is a policy to provide backup generators for fire pumps. Neither the General Plan Update nor the Downtown Plan and Code contain any such policy.

Response 6.40

The commenter claims that the Whittier Narrows Reclamation Plant (WNRP) does not serve West Covina as stated in Section 4.15, *Utilities and Service Systems* of the EIR. The commenter also states that the WNRP is not in the City of El Monte as stated in the EIR, but is actually in an unincorporated area "commonly called Whittier Narrows or South El Monte (sic)."

Information regarding wastewater treatment facilities in the EIR was obtained from the Los Angeles County Sanitation District (LACSD), including direct conversations and emails with LACSD staff. In these conversations, LACSD staff never stated that no wastewater from West Covina flows to the WNRP. Additionally, even if that were the case, the total anticipated wastewater flow from the amount of development projected to occur under the proposed project is 505,600 gallons per day, which is well within the 8.09 million gallons per day (MGD) available capacity of the WNRP, as well as the 32.17 MGD available capacity of the San Jose Creek Water Reclamation Plan (SJCWRP).

The commenter is correct that the EIR is in error when it states that the WNRP is in the City of El Monte, although the EIR does cite the correct address for the WNRP. To correct this error, the following edits have been made to the third paragraph on page 270 of the EIR:

> *Located at 301 N. Rosemead Boulevard (SR 19) in ~~the City of El Monte~~ an unincorporated area commonly known as Whittier Narrows or South El Monte, WNRP occupies 27 acres south of SR 60.*

Response 6.41

The commenter asks if there are policies for the removal of all foreign and invasive species (and cites several examples of such species), the prohibition of planting and selling such species with

the City, and "a Policy of responsibility of spreading liability." Neither the General Plan Update nor the Downtown Plan and Code contain such policies. It is not clear how such policies relate to the proposed project, and the commenter does not make any connection between this request and the contents of the EIR.

Letter 7

RECEIVED

NOV 01 2016

PLANNING DEPT.

November 1, 2016

Mr. Jeff Anderson
Planning Director
City of West Covina
1444 W. Garvey Avenue
West Covina, CA 91790

Dear Mr. Anderson:

I am writing to provide comments on my concerns regarding the City of West Covina Draft Environmental Impact Report (DEIR) prepared for the City's General Plan update. I am concerned that the Program EIR does not provide data and analysis suited to consideration of the Downtown and foreseeable impact of zoning changes and amount of growth envisioned in the General Plan and Development Code, to sufficiently inform the public and decision-makers and to establish explicit, measurable mitigations to guide tiered project and infill-exemption eligibility. The DEIR attempts to provide "a self-mitigated General Plan" perspective of the Project even when ground level view and review is needed.

Section 15064(d) of the CEQA Guidelines states that, "In evaluating the significance of the environmental effect of a project, the lead agency shall consider direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project." The "programmatic" nature of this DEIR should not allow for a lack of detailed analyses. CEQA requires that a program EIR provides an in-depth analysis of a large project, looking at effects "as specifically and comprehensively as possible" (CEQA Guidelines Section 15168(a), (c)(5)). Because it looks at the big picture, a program level EIR must provide "more exhaustive consideration" of effect and alternative than an EIR for an individual action and must consider "cumulative impacts that might be slighted by a case-by-case analysis." CEQA Guidelines Sections 15168(b)(1) and (2). It is especially important the environmental review of a general plan be thorough because CEQA specifically exempts future projects from CEQA review to the extent they are consistent with the general plan, refer to CEQA Guidelines Section 15183(1). A "program" or "first tier" EIR is expressly not a device to be used for deferring analysis of significant impacts. It is instead an opportunity to analyze impacts common to a series of smaller project in order to avoid repetitious analyses. Therefore, it is particular important that the DEIR for this Project analyze the overall impact for the complete level of development it would authorize under the General Plan, rather than when specific, individual projects are proposed at a later time.

7.1

I believe that DEIR should be revised to accurately disclose the impact of the maximum intensity and density allowed by the General Plan and Development Code it proposes to adopt. The Draft EIR does not identify and analyze numerous potential impacts and in most of the cases, defers that analysis to future study as part of project review and permitting. The approach improperly defer analysis to future mitigation. While this approach may be necessary in case where it is not possible to assess impacts at the program level, such analysis is possible in these case and, therefore, required. Even at the program level, the EIR preparers can anticipate that these impacts could occur, quantify the impacts, and identify detailed mitigation measures. Otherwise, the DEIR does not conduct the necessary evaluations and impermissibly defers them will likely deprive the public of any opportunity to review these impacts.

Air Quality

7.2 The General Plan includes policies designed specifically to address a variety of air quality impacts through measures that reduce vehicle and other operational-related air quality emissions. However, the EIR relies solely on those policies included in the General Plan to mitigate all impacts related to air quality. The EIR does not provide analysis based on a criteria pollutant modeling that take into account all the emissions related to the "reasonably expected/maximum development scenario." It does not substantiate in any way what would be the expected cumulative impacts

7.3 The GHG related policies do not demonstrate how those policies will implement Governor's Executive Order B-30-15 (April 29, 2015), which established "[a] new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2020." In order to achieve that target, he ordered State agencies to "take climate change into account in their planning and investment decisions" (Section 6), while requiring those planning and investment actions to "to protect the state's most vulnerable populations" (Section 7). In addition to analyzing consistency with new Executive Order, the EIR should analyze an alternative that would significantly reduce GHG emissions due to vehicle travel.

7.4 CO_2 emissions and traffic congestion have significant effect on air quality. The Draft EIR does not include a clear analysis/measurable policy that demonstrate how the identified mitigations to be implemented would lessen and improve not only traffic along the studied intersections, but also air quality. Most of the entire Downtown as well as north of the I-10 Freeway are a Disadvantaged Community as defined by the California Environmental Protection Agency (pursuant to Senate Bill 535 (De León, Chapter 830, Statutes of 2012 – Government Code Section 65302). Exposure to air pollution can lead to health impacts including respiratory disease (including chronic conditions such as asthma), reduced lung capacity in children, heart disease, cancer and premature mortality. (Additional comments under Traffic).

AQ4- defers CO hotspots analyses as part of future projects. The Traffic Study indicates that at least seven intersections will have significant impacts, which includes some of the intersections having significant and unavoidable impacts. The DEIR disclose information establishing that the Project would have a significant impact related to Level of Service at several intersections, as determined by the DEIR's own significance thresholds – but no Statement of Overriding Considerations are included in the DEIR. It is unclear how these general policies will result in a less than significant impact on CO hotspots. Development under the General Plan will result in more vehicle trips and more service vehicles that may idle. These general policies are not enforceable enough to reduce impacts to a less than significant level.

Greenhouse Gas Emissions

7.5 Analysis of greenhouse gas emissions is particularly important with regard to climate change. Even seemingly small additions of GHG emissions into the atmosphere must be considered cumulatively considerable. As stated above, CO hotspots are not analyzed as well as other aspects of air quality that contributes to GHG emissions.

7.6 The DEIR does not establish a baseline emissions inventory. However, it concludes that all related GHG emission impacts will be less than significant and all future projects will be consistent with the major initiatives contained in SCAG's 2016-2040 RTP/SCS to reduce GHG emissions per capita by eight percent by 2020, 18 percent by 2015, and 21 percent by 2040, all compared to 2005 levels. There is no

7.6 information or analyses provided to conclude such consistencies with those major initiatives contained in the SCAG's 2016-2040 RTP/SCS. The DEIR fails to provide measurable standards that will yield such reductions in GHG emissions.

Utilities and Services

The DEIR states that the "City has found that sewer systems within the Downtown area are operating at 65 percent capacity and are in good conditions." It also states that "development facilitated by the proposed project, however, could potentially lead to additional wastewater flows in excess of the current capacities of West Covina and LACSD sewer lines within the City, necessitating sewer line
7.7 replacement."

The DEIR fails to provide how it was concluded that the Downtown sewer systems are operating at 65 percent capacity and a program that plans how improvements can be implemented a part of the project. Infrastructure should not be paid by one project proponent but rather be based on "rough-proportionality." No measurable and enforceable mitigations are included in the DEIR to address impacts associated with the Project.

Traffic

The Traffic Study prepared for the DEIR identifies seven intersections that will have significant traffic impacts:

- Vincent and Plaza/Lakes
- West Covina Parkway and Vincent
- West Covina Parkway and Sunset
- Sunset and Merced
- Azusa and Workman
- Azusa and Cameron
- Lark Ellen and Cameron

Impact T-1 states that "New development facilitated by the proposed project may increase traffic at certain locations in West Covina. This traffic may have the potential to conflict with policies and
7.8 thresholds for the performance of the circulation system and applicable congestion management programs. While mitigation measures would reduce this impact to a less than significant level at City controlled intersections, potential impacts at Caltrans'-controlled intersections would remain *significant and unavoidable"*.

Where all available and feasible mitigation measures have been proposed but are inadequate to reduce an environmental impact to a less-than-significant level, an EIR may conclude that the impact is significant and unavoidable (Section 15126.2 of the CEQA Guidelines). If supported by substantial evidence, the lead agency may make findings of overriding consideration and approve the project in spite of its significant and unavoidable impact. However, stating that a certain intersection is not under the control of Caltrans and not provide a discussion on how improvements on other intersections would not be feasible due to "property takings, and to the extent reconfiguration served to degrade conditions for pedestrians and cyclists, it would be inconsistent with General Plan Direction". The analysis must clearly provide the basis on how the impact outweighs the benefit of the project. If the analysis concluded that there impacts cannot mitigated and are significant and unavoidable, then the lead agency must adopt a statement of overriding consideration.

7.8 Finally, to the extent the DEIR attempts to rely on these General Plan policies as informal mitigation of the Project's environmental impacts is flawed. Determining whether or not a project may result in a significant adverse environmental impact is a key aspect of CEQA. CEQA requires recirculation of an EIR when significant new information is added to the document after notice and opportunity for public review was provided. "Significant new information" includes (1) information showing a new, substantial environmental impact resulting either from the project or from a mitigation measure; (2) information showing a substantial increase in the severity of an environmental impact not mitigated to a level of insignificance; (3) information showing a feasible alternative or mitigation measure that clearly would lessen the environmental impacts of a project and the project proponent declines to adopt the mitigation measure; or (4) instances where the Draft EIR was so fundamentally and basically inadequate and conclusory in nature that public comment on the draft EIR was essentially meaningless.

Suggestion

7.9 Prepare the EIR that includes the "reasonably expected/maximum development scenario." Analyze all impacts related to the "reasonably expected/maximum development scenario" such as air quality, greenhouse gas emissions (including, construction and operational emissions from mobile and non-mobile sources) based off the "reasonably maximum development scenario." An EIR that analyzes "reasonably expected/maximum development scenario" would allow the lead agency (City of West Covina) make a determination whether a Project is within the scope of the EIR. Adopt mitigations that clearly would reduce impacts by providing the required analysis to arrive to such conclusion. Prepare statement of overriding consideration if an impact cannot be mitigated.

General Plan Comments

The General Plan Update should include the repeal of existing plans such as the West End Specific Plan and East Hill Master Plan.

7.10 Address Environmental Justice in the General Plan. Environmental justice is not a mandatory element of the general plan however; State law requires general plans to include consideration of environmental justice in preparing policies and implementation programs, and in creating the physical framework for development. The issues of environmental justice that the general plan can address can include procedural and geographic inequities.

Thank you for the opportunity to review and provide comments on draft EIR for the General Plan and Development Code.

Sincerely,

Fabiola Wong

Comment 7

COMMENTER: Fabiola Wong

DATE: November 1, 2016

RESPONSE:

Response 7.1

The commenter states that the EIR does not provide enough data and analysis to sufficiently inform the public and decision-makers, and that it fails to establish explicit, measurable mitigations to guide tiered project and infill-exemption eligibility. The commenter also claims that the EIR improperly uses its "programmatic" nature to allow for a lack of detailed analysis, and to defer analysis to a later time when specific, individual projects are proposed.

To support this argument, the commenter lists various sections of Section 15168, *Program EIR* of the State CEQA Guidelines, suggesting that they list requirements for Program EIRs. In fact, these sections (15168(b) through 15168(d)) discuss the following: Advantages to using program EIRs, Use with Later Activities, and Use with Subsequent EIRs and Negative Declarations, but do not contain the requirements for Program EIRs that the commenter claims they do. For example, the commenter claims that Sections 15168(b)(1) and (2) require that Program EIRs must provide "more exhaustive consideration" of effects and alternatives than an EIR for an individual action and must consider "cumulative impacts that might be slighted by a case-by-case analysis." In fact, these sections of the CEQA Guidelines list these as potential advantages of Program EIRs, not requirements. Similarly, Section 15168(c)(5) states the following:

> *A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.*

The commenter cites this section to support their argument that "CEQA requires that a program EIR provides an in-depth analysis of a large project, looking at effects "as specifically and comprehensively as possible."" In fact, the appropriate level of detail in a Program EIR may be determined by the lead agency based on the amount of detail provided in the program-level document(s) being analyzed (in this case, the proposed General Plan Update and Downtown Plan and Code EIR), and the extent to which the lead agency desires to avoid further environmental review, among other considerations. The requirements and potential advantages of a Program EIR are already adequately described in Section 1.2, *Legal Authority* of the EIR. The beginning of the third paragraph of this section has been revised in the following way to better explain this issue:

> *Once a Program EIR has been prepared, subsequent activities within the program must be evaluated to determine what, if any, additional CEQA documentation needs to be prepared. In the case of the proposed project, future individual projects are generally expected to be required to undergo further environmental review, although the proper*

> *level of environmental review for subsequent projects must be determined on a case-by-case basis. If the Program EIR addresses the program's effects as specifically and comprehensively as possible, many subsequent activities could be found to be within the Program EIR scope and additional environmental documents may not be required (CEQA Guidelines Section 15168(c)).*

The commenter then states that the Draft EIR should be revised "to accurately disclose the impact of the maximum intensity and density allowed by the General Plan and Development Code it proposes to adopt", claiming that the Draft EIR "does not identify and analyze numerous potential impacts and in most the cases, defers that analysis to future study as part of project review and permitting." The commenter claims that this represents improper deferral of potential environmental impacts that could and should be analyzed in the current EIR. The commenter's specific claims of improper deferral or inadequate analysis in the EIR are contained in their subsequent comments, which are replied to below.

Response 7.2

The commenter claims that the EIR improperly relies on policies in the General Plan that specifically address a variety of air quality impacts through measures that reduce vehicle and other operational air quality emissions, rather than providing an analysis based on criteria pollutant modeling that takes into account all emissions from the "reasonably expected/ maximum development scenario." The commenter states that this analysis "does not substantiate in any way what would be the expected cumulative impacts." However, the commenter does not explain why criteria pollutant modeling would be superior to analyzing the potential air quality impacts of the proposed project at the policy level, other than their argument in Comment 7.1 that the most detailed analysis possible is required under CEQA for Program EIRs. As explained in the first paragraph of Impact AQ-2 on page 74 of the EIR,

> *Emissions associated with individual projects, depending on project type and size, could exceed project-specific thresholds established by the SCAQMD. However, such projects would be required to undergo independent project-level CEQA review and to include mitigation measures to address potentially significant project-level impacts. As discussed under Impact AQ-1, overall growth within West Covina would be within SCAG regional growth forecasts upon which regional air quality planning is based.*

Criteria pollutant modeling for all development expected to occur in West Covina over the next 20 years, based on current technologies and current emissions levels for various emissions sources, would be speculative and misleading. As explained in Section 4.2.2c, *Cumulative Impacts*, By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within a city's plan area. Therefore, the analysis of project impacts also constitutes the cumulative analysis.

Response 7.3

The commenter states that "The GHG related policies do not demonstrate how those policies will implement Governor's Executive Order B-30-15 (April 29, 2015)." This Executive Order established a new interim statewide greenhouse gas (GHG) emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2020. Impact GHG-1 of the EIR analyzes this

potential impact, and finds that the proposed project would contribute to long-term reductions in per capita GHG emissions consistent with SCAG's 2016-2040 RTP/SCS because of the proposed project's focus on compact, mixed-use, infill development, and policies in the General Plan Update and Downtown Plan that would:

- Promote transit-oriented development
- Promote alternative transportation modes and the use of energy-efficient vehicles
- Provide incentives for high-performance buildings and infrastructure
- Reduce vehicle miles traveled (VMT) by supporting "Downtown first" infill development in proximity to high-capacity corridor transit routes

Impact GHG-2 concludes that policies contained in PlanWC and the Downtown Plan would limit GHG emissions, that individual development projects that could occur would be required to undergo CEQA review and would be subject to policies contained in PlanWC and the Downtown Plan to reduce GHG impacts, and that no mitigation measures outside of adherence to these policies would be required. Consistency with SCAG's 2016-2040 RTP/SCS will ensure that the proposed project will be consistent with the regional as a whole attaining its share of GHG reduction targets.

Response 7.4

The commenter states that the EIRs analysis of carbon monoxide (CO) hotspots and other localized air quality impacts is inadequate. They point out that some parts of West Covina are a Disadvantaged Community as defined by the California Environmental Protection Agency (Cal EPA), and claim that the proposed project may have localized air quality impacts, especially in these areas and in locations identified as having a significant and unavoidable impact related to level of service (LOS). The commenter then states, as in Comment 7.2 and Comment 7.3, that it is unclear how compliance with general policies would reduce these impacts to a less than significant level. As explained in Response 7.2, emissions associated with individual projects, depending on project type and size, could exceed project-specific thresholds established by the SCAQMD. However, such projects would be required to undergo independent project-level CEQA review and to include mitigation measures to address potentially significant project-level impacts. Additionally, Mitigation Measure T-1(c) requires that future projects generating more than 100 vehicle trips per day, as determined by the City Traffic Engineer or their designee, shall require submittal of a Traffic Impact Study (TIS) to determine if that project may have a significant impact that would exceed the City's traffic-related thresholds of significance existing at the time of the project application, as well as any potential secondary safety or localized air quality impacts (such as CO hotspots) potentially resulting from that project. This mitigation measure also requires the TIS to identify mitigation measures that would reduce any identified impacts to a less than significant level according to the City's adopted thresholds of significance at that time, in a manner consistent with PlanWC and the Downtown Plan and Code. For these reasons, potential localized air quality impacts are already analyzed and mitigated to the extent possible at the programmatic level of a General Plan and Downtown Code, and no further analysis is necessary.

The commenter also mentions that a Statement of Overriding Considerations (SOC) is required under CEQA for any significant and unavoidable impacts of the proposed project, but no SOC is included in the EIR. While it is correct that an SOC is required under CEQA for any such impacts, an SOC is a separate document that does not need to be and is not typically included in the EIR. Rather, it is typically presented to the lead agency decision-makers when they are considering whether or not to approve the project and certify the EIR. The requirement for an SOC is described in several places in the EIR, including page 4, page 28, and page 47. In order to further clarify which impacts would require an SOC, the following revisions have been made to the concluding paragraph of Impact T-1 on page 261 of the EIR:

> *Because the I-10 ramps are a State facility controlled by Caltrans, the City cannot guarantee that improvements, if necessary, would be carried out at this intersection, and this impact would remain significant and unavoidable, and require the City to adopt a Statement of Overriding Considerations for this impact.*

Response 7.5

The commenter states that "CO hotspots are not analyzed as well as and other aspects of air quality that contributes to GHG emissions." The claim that CO hotspots are not properly analyzed has already been addressed in Response 7.4. Additionally, CO hotspots are part of the overall emissions of a project, and do not make a contribution to GHG emissions or climate change that is distinct from these other emissions (including total CO emissions). Therefore, CO hotspots are only separately analyzed from other emissions for their potential to produce localized air quality impacts, not GHG emissions.

Response 7.6

The commenter states that the EIR does not properly support its conclusion that the proposed project would be consistent with SCAG's 2016-2040 RTP/SCS and its initiatives to reduce GHG emissions in compliance with State mandates because it does not include a baseline emissions inventory. However, the commenter does not explain why a baseline emissions inventory is necessary in order to properly analyze this impact. As explained in Response 7.3, Impact GHG-1 of the EIR analyzes the proposed project's consistency with SCAG's 2016-2040 RTP/SCS, and finds, based on the features of the proposed project, including policies that would help reduce GHG emissions, that it would contribute to long-term reductions in per capita GHG emissions consistent with SCAG's 2016-2040 RTP/SCS.

Response 7.7

The commenter states that the EIR fails to provide adequate justification for its statement in Impact U-1 on page 278 of the EIR that sewer systems in the Downtown area are operating at 65 percent capacity and are in good condition. This information was obtained from the City's Public Works Department during development of the proposed General Plan Update, and was incorporated into the discussion of sewers on page 81 of the General Plan Update. In order to clarify this statement in the EIR and make it more consistent with the description on page 81 of the General Plan, the following revisions have been made to the last paragraph on page 278 of the EIR:

> *According to PlanWC, generally, the City has found that sewer systems within the Downtown area are operating at 65 percent capacity and are in good condition, but some sewers are operating above 65 percent capacity and will need to be assessed and replaced to accommodate new growth.*

The commenter also states that the EIR fails to provide a program of planned improvements to the sewer system that could be implemented as part of the proposed project. Impact U-1 states that "potential impacts of future development on the West Covina sewer system and LACSD trunk sewer lines should be analyzed on an individual project basis." As discussed in Response 7.1, a revision has been made to the EIR to clarify that future projects carried out under the General Plan Update and Downtown Plan and Code are generally expected to be required to undergo further environmental review, although the proper level of environmental review for subsequent projects must be determined on a case-by-case basis. Given the programmatic nature of the currently proposed project, providing a program of planned improvements to the sewer system as part of this EIR would not be appropriate, although it could be pursued separately by the City.

Response 7.8

The commenter states that the EIR fails to provide adequate substantiation for its conclusion that Impact T-1 would be significant and unavoidable at the intersection of West Covina Parkway and the westbound Interstate 10 ramps, apparently disagreeing with the EIR's conclusion that the fact that the intersection is not under the City's jurisdiction would make this impact potentially unavoidable. However, the commenter asks for no specific substantiation other than a statement that "The analysis must clearly provide the basis on how the impact outweighs the benefit of the project." As explained in Response 7.4, this information is required to part of the SOC for the project, and not necessarily contained in the EIR itself. The SOC will be produced and considered by the lead agency decision makers before they take action on the proposed project.

The commenter suggests that the EIR be revised to include a "reasonably expected/maximum development scenario." However, other than the commenter's previous comments, which have all been adequately addressed in these responses, the commenter does not explain how this scenario would be different than the development scenario analyzed in the current EIR, which projects the following amount of new development in West Covina over the next 20 years, consistent with the information provided in the General Plan Update and Downtown Plan and Code:

- 2,100 residential units
- 400,000 square feet (sf) of office
- 200,000 sf of retail commercial
- 600 hotel rooms

The commenter also requests that the EIR adopt mitigations that clearly mitigate impacts to a less than significant level, and that an SOC be prepared for any significant and unavoidable impacts. As discussed in all previous responses to this commenter, the EIR already includes

mitigation measures that would mitigate impacts to a less than significant level, and an SOC will be prepared for the project's significant and unavoidable impacts prior to the lead agency's decision on whether or not to certify the EIR.

Response 7.10

The commenter provides comments on the General Plan, but as these comments are not on the contents of the EIR, no further response is necessary.

Letter 8

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON HYDE
Chief Engineer and General Manager

November 22, 2016

Ref. Doc. No.: 3871440

Mr. Jeff Anderson, Planning Director
City of West Covina
1444 West Garvey Avenue
West Covina, CA 91970

Dear Mr. Anderson:

Response to DEIR for the West Covina 2016
General Plan Update and Downtown Plan and Code

The County Sanitation Districts of Los Angeles County (Districts) received a Draft Environmental Impact Report (DEIR) for the subject project on September 13, 2016. The City of West Covina is located within the jurisdictional boundaries of Districts Nos. 15, 21 and 22. We offer the following comments:

8.1 1. **Section 4.15 Utilities and Service Systems**, *page 268*, top of page – The paragraph states the San Jose Creek Water Reclamation Plant has a capacity of approximately 42 million gallons per day. The San Jose Creek Water Reclamation Plant has a capacity of 100 million gallons per day.

8.2 2. **Section 4.15 Utilities and Service Systems**, *page 270*, second paragraph under Treatment System – The SJCWRP currently processes an average flow of 65.7 million gallons per day (mgd), and the WNWRP currently processes an average flow of 7.3 mgd.

8.3 3. **Section 4.15 Utilities and Service Systems**, *page 271*, Table 4.15-2 – The Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or for increasing the strength or quantity of wastewater discharged from connected facilities. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project and may be subject to change. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For more information and a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Wastewater & Sewer Systems, click on Will Serve Program, and search for the appropriate link. In determining the impact to the Sewerage System and applicable connection fees, the Districts' Chief Engineer will determine the user category (e.g. Condominium, Single Family home, etc.) that best represents the actual or anticipated use of the parcel or facilities on the parcel. For more specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at (562) 908-4288, extension 2727.

DOC: #3951275.D221521

4. All other information concerning Districts' facilities and sewerage service contained in the document is current.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

DOC: #3951275.D221521

Comment 8

COMMENTER: Adriana Raza, Customer Service Specialist, Facilities Planning Department, County Sanitation Districts of Los Angeles County

DATE: November 22, 2016

RESPONSE:

Response 8.1

The commenter states that the first paragraph of page 268 of the EIR misstates the capacity of the San Jose Creek Water Reclamation Plant (SJCWRP), and provides correct capacity numbers for the SJCWRP. The following revisions have been made to the first paragraph on page 268 of the EIR to incorporate these corrections:

> *The San Jose Creek Water Reclamation Plant has a capacity of approximately ~~42~~ 100 million gallons per day (Sanitation Districts of Los Angeles County, 2016).*

This revision is consistent with the capacity of the SJCWRP as stated throughout the rest of Section 4.15, *Utilities and Service Systems* of the EIR, including the analysis in Impact U-1, so this correction does not affect the conclusions of this analysis.

Response 8.2

The commenter states that second paragraph on page 270 of the EIR misstates the currently average processed flow of the SJCWRP and the Whittier Narrows Reclamation Plant (WNRP), and provides correct average processed flow numbers for these facilities. The following revisions have been made to the second paragraph on page 270 of the EIR to incorporate these corrections:

> *Currently, the SJCWRP treats an average flow of ~~67.83~~ 65.7 MGD (SWRCB, 2016a). Located at 301 N. Rosemead Boulevard (SR 19) in the City of El Monte, WNRP occupies 27 acres south of SR 60. The WNRP has a maximum permitted capacity of 15 MGD and serves a population of approximately 150,000 people. Currently, the WNRP treats an average flow of ~~6.91~~ 7.3 MGD (SWRCB, 2016b).*

This correction slightly affects the calculations discussed in Impact U-1, so the following revisions have been made to the first and second paragraphs of page 278 of the EIR:

> *Development facilitated by the proposed project would increase wastewater generation. As described previously, wastewater from the City is treated and disposed of at the LACSD's SJCWRP, and/or the WNRP. The SJCWRP maintains a maximum permitted capacity of 100 MGD and currently treats an average flow of ~~67.83~~ 65.7 MGD (SWRCB, 2016a), leaving an available capacity of ~~32.17~~ 34.3 MGD. The WNRP maintains a design capacity of 15 MGD and currently treats and average flow of ~~6.91~~ 7.3 MGD (SWRCB, 2016b), leaving an available capacity of ~~8.09~~ 7.7 MGD. Combined, the two plants have a total available capacity of ~~40.26~~ 42.0 MGD.*

> *As discussed in Section 2.0, Project Description, the proposed project would facilitate development of approximately 2,100 residential units, 400,000 square feet of office space, 200,000 square feet of retail, 15,000 square feet of industrial, and 600 hotel rooms. To estimate the amount of wastewater generated from different land uses, LACSD uses wastewater generation rates (LACSD, 2016). Table 4.15-4 shows that the total anticipated wastewater flow from the amount of development projected to occur under the proposed project is 505,600 gallons per day. As discussed above, the combined remaining of WNRP and SJCWRP is ~~40.26~~ 42.0 MGD. Therefore, these two wastewater treatment facilities would have adequate capacity to accommodate the wastewater generated from development facilitated by the proposed project.*

These corrections result in a greater combined remaining capacity for the WNRP and SJCWRP, and therefore the conclusion that these facilities would have adequate capacity to accommodate the wastewater generated from development facilitated by the proposed project remains valid.

Response 8.3

The commenter explains their statutory rights to charge fees for the privilege of connecting to or increasing flows to their sewerage system. This information is now included in the EIR through inclusion of this comment, but requires no revisions to the EIR.

Letter 9

From: Jeff Anderson
To: Greg Martin
Subject: FW: General and Downtown Plan Draft EIR_Public Hearing 11-22-16
Date: Monday, November 28, 2016 5:08:52 PM

Greg,

FYI – Comments from resident on EIR.

Jeff

From: ROBERT TORRES [mailto:roberthtorres@yahoo.com]
Sent: Tuesday, November 22, 2016 4:10 PM
To: Jeff Anderson <Jeff.Anderson@westcovina.org>
Cc: Ron Garcia <Ron.Garcia@westcovina.org>; Chris Freeland <Chris.Freeland@westcovina.org>; James Toma <James.Toma@westcovina.org>; Corey Warshaw <Corey.Warshaw@westcovina.org>; Councilman Mike Spence <westcovina@mikespence.com>; Lloyd Johnson <Lloyd.Johnson@westcovina.org>; Tony Wu <Tony.Wu@westcovina.org>
Subject: General and Downtown Plan Draft EIR_Public Hearing 11-22-16

Good Afternoon Jeff,

I briefly reviewed the Draft Environmental Impact Report (EIR) for the General and Downtown Plan and your staff report for tonight's Planning Commission meeting. I have the following questions and concerns for your and the Planning Commission's review:

Specific Questions/Comments:

9.1

I live near the West Covina Parkway and Westbound 1-10 Freeway off/on-ramp and I typically use it once a day or more, so I am concerned that the Draft EIR has identified it as an intersection that will be significantly impacted, and potentially unmitigated, as a result of the adoption of the General and Downtown Plan.

To me this translates to "regardless of how bad traffic becomes at this intersection as a result of future development projects the city approves, there will potentially be no improvements at this intersection in order to elevate increased congestion." Say for example if the K-mart site is developed and generates a signifcant amount of traffic a this intersection that goes unmitigated. This concerns me simply because traffic and air quality will most likely significantly worsen at this intersection and within the surrounding community.

I realize that the nexus for allowing traffic to potentially worsen at this intersection, without mitigation, is directly related to the fact that Caltrans maintains and operates the traffic signal, but I am still puzzled as to why appropriate mitigation measures cannot be included within the General and Downtown Plan EIR to reduce impacts at this intersection to an less than significant level (i.e. widening, additional turn lanes, etc.)?

It seems reasonable that if during the approval of future city development projects Caltrans refuses to participate or allow for any modification to their signal, then the waiving of appropriate mitigation measures via a Statement of Overriding Consideration (SOC) can be considered at that time.

9.1 Until that point, we should assume full Caltrans cooperation and include the necessary mitigations for this intersection within the EIR.

9.2 The EIR also states that any type of mitigation that requires the widening of roadway contradicts the goals of the Downtown Plan in regard to being more pedestrian and cyclist friendly. However, another the goal of the Downtown plan is to also reduce traffic related emission, which conflicts with allowing an intersection to become overly congested without mitigation. I don't believe the General and Downtown plan goals should be interpreted to limit necessary mitigations.

General Questions/Comments:

If the primary reasoning behind approving an EIR for the General and Downtown Plan is to eliminate the need for future developers to prepare their own independent project EIR, I am not sure why we are doing it if most developers will likely have to prepare their own EIR due to the generality of the current Draft EIR? It seems as though most the the EIR analysis is being deferred, therefore defeating the primary purpose of the EIR, which is to streamline developments in line with the General and Downtown plan. The EIR seems to be duplicating the Draft General Plan policies and actions rather than analyzing environmental impacts.

It is fair to assume that almost all future developers will want to lean heavily on the city approved EIR when processing their projects in order to minimize their environmental review costs, so wouldn't we want to make sure it's as comprehensive as necessary?

9.3 As the Draft EIR is written, with respect to its interpretation to of the General and Downtown Plan, its subsequent general dependence on the General and Downtown Plan's policies and goals, and it's generality that will require significant additional environmental review by developers, I don't believed the EIR will serve its purpose in streamlining projects.

Additionally, given the nature of the environmental review process and the potential for legal challenges, it is concerning that we will be liable for and must defend the validity of an EIR that seems to be very broad. I understand our inability to predict every future development scenario is the primary reasoning for limiting the Draft EIR with respect to significant impacts and potential mitigations, but I believe this approach may be troublesome for all the aforementioned reasons.

It seems that a better approach may be to modify the Draft EIR to be more specific with respect to impacts and mitigations and allow future developers to determine if they wish to deviate and therefore provide a separate project specific EIR.

Thank you Jeff

RobertTorres
West Covina Resident

Comment 9

COMMENTER: Robert Torres

DATE: November 22, 2016

RESPONSE:

Response 9.1

The commenter states that he is concerned that West Covina Parkway and the Westbound I-10 Freeway off/on ramp is identified in the EIR as an intersection that will have potentially significant and unavoidable impacts related to traffic congestion as a result of the adoption of the General Plan Update and Downtown Plan and Code. He states that he believes this means that "regardless of how bad traffic becomes at this intersection as a result of future development projects the city approves, there will potentially be no improvements at this intersection in order to elevate [alleviate] increased congestion." He then questions why mitigation measures are not included in the EIR to reduce impacts at this intersection to a less than significant level, and suggests that if such mitigation measures were included in this EIR, then a Statement of Overriding Considerations (SOC) could be considered for individual future development projects if Caltrans refuses to participate in or allow for necessary mitigations involving their facilities. He concludes by stating that until that point, the City "should assume full Caltrans cooperation and include the necessary mitigations for this intersection within the EIR."

Section 15126.4(a)(5) of the State *CEQA Guidelines* states that "If the lead agency determines that a mitigation measure cannot be legally imposed, the measure need not be proposed or analyzed. Instead, the EIR may simply reference that fact and briefly explain the reasons underlying the lead agency's determination." As explained in the *Significance After Mitigation* section at the end of Impact T-1 of the EIR, the City cannot guarantee that improvements at this intersection, if necessary, would be carried out, because the I-10 ramps are a State facility controlled by Caltrans. Therefore, the City cannot legally impose specific mitigation measures at this intersection that rely on an assumption of full Caltrans cooperation. The development scenario analyzed in Section 4.14, *Transportation and Circulation* of the EIR, while based on a reasonable analysis of potential future development under the proposed General Plan Update and Downtown Plan and Code, is hypothetical. The type and sequencing of improvements necessary to alleviate traffic congestion at this intersection will be dependent on actual future development in the City and the region, and the City has determined that it is more appropriate to determine the design of potential future improvements at this intersection as future development is proposed and its traffic impacts are analyzed (as required under Mitigation Measure T-1(c)), than to determine a specific design solution at this time.

Response 9.2

The commenter states that the last sentence of Mitigation Measure T-1(c), which stipulates that future mitigation measures "shall not include expansion of the total size of the roadway or the portion of the roadway dedicates solely to motor vehicles," conflicts with a goal of the Downtown Plan to reduce traffic related emissions. The commenter seems to suggest that this provision of Mitigation Measure T-1(c) is tantamount to "allowing an intersection to become

overly congested without mitigation," and states that he does not believe that "the General and Downtown plan goals should be interpreted to limit necessary mitigations."

In fact, this provision of Mitigation Measure T-1(c) would not simply allow an intersection to become overly congested without mitigation. Rather, Mitigation Measure T-1(c) requires that any future proposed project generating more than 100 vehicle trips per day shall require submittal of a Traffic Impact Study (TIS) to determine its traffic-related impacts (including potential impacts related to air quality) and identify mitigation measures that would reduce any identified impacts to a less than significant level, but that these mitigation measures be consistent with the General Plan Update and Downtown Plan and Code.

Response 9.3

The commenter states that "It seems as though most of the EIR analysis is being deferred, therefore defeating the primary purpose of the EIR, which is to streamline developments in line with the General and Downtown plan." The commenter also claims that this approach is overly broad and may be subject to legal challenges, and then concludes by suggesting that the Draft EIR be revised to "be more specific with respect to impacts and mitigations and allow future developers to determine if they wish to deviate and therefore provide a separate project specific EIR."

As discussed at more length in Response 7.1, the appropriate level of detail in a Program EIR may be determined by the lead agency based on the amount of detail provided in the program-level document(s) being analyzed (in this case, the proposed General Plan Update and Downtown Plan and Code EIR), and the extent to which the lead agency desires to avoid further environmental review, among other considerations. The requirements and potential advantages of a Program EIR are already adequately described in Section 1.2, *Legal Authority* of the EIR, but the beginning of the third paragraph of this section has been revised as shown in Response 7.1 to better explain this issue.

Appendix A

NOP and Scoping Meeting Materials

City of West Covina
2016 General Plan Update and Downtown Master Plan and Code

Notice of Preparation of a Draft Environmental Impact Report

The City of West Covina will be the Lead Agency for the preparation of an Environmental Impact Report (EIR) that will analyze the environmental impacts associated with a proposed update to the West Covina General Plan and adoption of a Downtown Master Plan and Code. These two related actions are described below. More information on the Downtown Master Plan and Code are available on the project website at: http://www.planwc.org/index.html.

2016 General Plan Update (PlanWC)

The proposed project is a comprehensive update of the City's General Plan, which has not been comprehensively updated since 1985. The General Plan will be reorganized and reformatted, with updated goals and policies that reflect the community's vision of West Covina that the General Plan seeks to achieve. The General Plan Land Use Map will also be updated. The General Plan Land Use map (see attached) reflects the community's vision to direct the majority of new growth to the Downtown area where the development pressures are the greatest and change is desired. Housing and job growth is targeted to strategic areas along the corridors and neighborhood centers.

The Draft 2016 General Plan includes the following eight Elements:

- Our Natural Community
- Our Prosperous Community
- Our Well Planned Community
- Our Accessible Community
- Our Resilient Community
- Our Healthy and Safe Community
- Our Active Community
- Our Creative Community

Among the goals of PlanWC and the Downtown Master Plan and Code are the following:

- Direct new growth to the downtown area where development pressures are the greatest and change is desired, while protecting stable residential areas. This strategy is referred to as "Downtown First."
- Target housing and job growth in strategic areas along key transportation corridors.
- Encourage pedestrian-oriented mixed-use development in Downtown, while providing vibrant public spaces and gathering places.
- Preserve existing open spaces, improve the quality of natural resources, and improve access to open space.
- Maintain and monitor West Covina's fiscal health by reinforcing West Covina's brand as a great place to Live, Work and Play in the San Gabriel Valley, and nurturing local businesses and attracting non-retail jobs.
- Design streets that provide safe access for all users—pedestrians, cyclists, public transit users, and motorists—of all ages and abilities, while also being in harmony with the area's history, environmental resources, and overall aesthetic.
- Support development patterns and support systems that yield a resilient low-carbon built environment.
- Create environments that encourage safe and healthy lifestyles and maximize the opportunities for physical activity.
- Become a vibrant cultural center by weaving the arts and local heritage into everyday life.
- Enhance the value of fitness and celebrate healthy living; improve the existing condition of public open spaces and facilities to encourage use; and acquire, develop, and maintain quality public open spaces and trails.

West Covina includes many different kinds of places, with very different characters. Accommodating new growth requires either designing changes to match the character of the area or carefully and intentionally changing the character of key locations.

Plan WC contains a description of the different land use planning designations for West Covina, and the equivalent transect zone. The transect zones provide a framework to describe a broad but continuous range of environments for human habitation and activity. The transect zones reflect how intensely land is used, and how placement and scale of buildings, the type of streets, presence and width of sidewalks should reinforce the character of the area.

The allocation of separate land use designations evolves to a geography of places that address "form and character" of the place. Plan WC informs the nature of intended change in different areas. The basic organizing place types for areas designated for growth are neighborhoods, districts and corridors. The majority of new growth will be directed to the downtown district and the corridors. The level of change ranges from reinvestment in existing buildings and

minor improvements to utility infrastructure and the public realm, to the occasional infill development that completes the prevalent development pattern.

This rigorous and principled approach to planning establishes the regulatory geography and sets the stage for coding. The Downtown Plan and Code's regulatory framework seamlessly carries the logic of good design and sound planning from the scale of a building, lot and block to the scale of neighborhood, community, and city.

Downtown Master Plan and Code

The Downtown Plan and accompanying form-based code seeks to form consensus around and establish a common image for Downtown West Covina as a livable, healthy and economically vibrant center for the community. The Downtown Master Plan and Code will guide public funding and seek to attract private investments. The central theme of PlanWC is Downtown First. As the Downtown Master Plan and Code and PlanWC were prepared and adopted simultaneously, the two documents are entirely consistent with each other.

The Development Code implements the Downtown Vision and Goals and Policies. The prescriptive standards in the Development Code ensure that new development projects exhibit the highest standards of urban design, architecture, and landscaping at the scale of neighborhood, block, lot, and building according to the Transect. The Downtown vision's form is compact, walkable, and mixed use. The urban form is intended to be inviting, comfortable, safe, and ecologically resilient. The Development Code allows a mix of uses within a walkable environment so driving is an option, not a necessity to meet every day needs.

The Downtown Code provides all requirements for development and land use activity within the boundaries identified in the Code (see attached). Except as specifically referenced within the Downtown Code, the West Covina Municipal Code requirements in place prior to the adoption of the Downtown Code would be replaced by the requirements of the Downtown Code within these boundaries.

Environmental Impact Report

The Draft EIR will be a program EIR. Per the *CEQA Guidelines*, a program EIR is an EIR that may be prepared on a series of actions that can be characterized as one large project. The purpose of a program EIR is to allow the lead agency to consider broad policy alternatives and programwide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts.

The EIR will examine each of the issue areas on the City's environmental checklist. Issues to be discussed include:

- Aesthetics
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities/Service Systems
- Mandatory Findings of Significance

In addition to the CEQA-required "no project" alternative, the EIR will examine a range of land use scenarios that address one or more of the projects' potential environmental effects.

The City of West Covina would like to know the views of your organization as to the scope and content of the environmental information that should be addressed in connection with the proposed project. Public agencies may need to use the EIR prepared by the City of West Covina when considering permits or other approvals regarding certain aspects of the proposed actions. Due to time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Jeff Anderson, Planning Director, at

City of West Covina
Planning Department
1444 West Garvey Avenue South
West Covina, California 91790

Mr. Anderson can be reached at (626) 939-8422. Mr. Anderson's email address is Jeff.Anderson@westcovina.org. Please provide the name for a contact person in your agency.

The City of West Covina will hold an EIR scoping meeting to provide an additional opportunity for input on the scope and content of the EIR. The scoping meeting is scheduled for Monday, February 29, at 6:00 p.m., in the Community Room at West Covina City Hall, located at 1444 West Garvey Avenue South.

Project Title: City of West Covina 2016 General Plan Update and Downtown Master Plan and Code

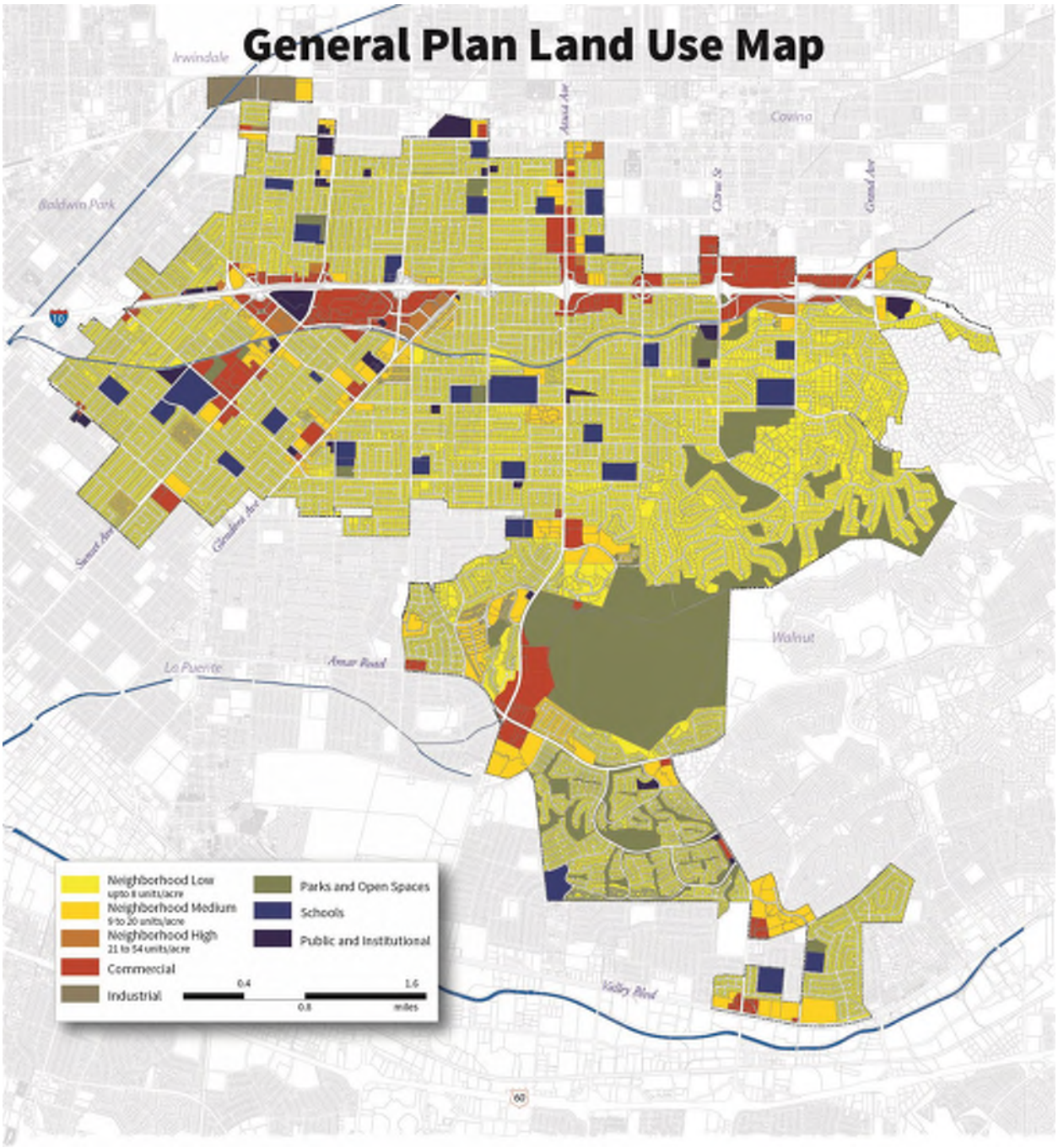
Project Sponsor: City of West Covina

Date February 16, 2016

Signature

Title Planning Director

Telephone (626) 939-8422


General Plan Land Use Map
Irwindale
Baldwin Park
Covina
Azusa Ave
Citrus St
Grand Ave
Sunset Ave
Glendora Ave
La Puente
Amar Road
Walnut
Valley Blvd
Neighborhood Low
upto 8 units/acre
Neighborhood Medium
9 to 20 units/acre
Neighborhood High
21 to 54 units/acre
Commercial
Industrial
Parks and Open Spaces
Schools
Public and Institutional
0.4
0.8
1.6
miles

Downtown Plan Area

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

Edmund G. Brown Jr., Governor

RECEIVED

MAR 01 2016

PLANNING DEPT.

February 22, 2016

Jaff Anderson
City of West Covina
1444 W. Garvey Avenue, Room 218
West Covina, Ca 90406

RE: SCH# 2016021089, City of Wast Covina 2016 General Plan Update and Downtown Master Plan and Code Project, City of West Covina, Los Angelas County, California

Dear Mr. Anderson:

The Native American Haritage Commission has receivad the DEIR Notice of Preparation (NOP) for the project referencad above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et saq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resourca is a project that may have a significant affect on the environment. (Pub. Rasources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agancy, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prapared. (Pub. Rasourcas Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In ordar to determina whather a project will causa a substantial adverse changa in the significance of a historical resourca, a lead agency will nead to datermina whether thare are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Rasources Code § 21074) and providas that a project with an affect that may cause a substantiel adverse change in the significance of a tribal cultural resourca is a project that may have a significant effect on the environmant. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Coda § 21084.3 (a)). **AB 52 applies to eny project for which a notice of preparation or a notice of negative declaration or mitigeted negative daclaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designetion of opan space, on or aftar March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal conaultation requirements.** If your project is also subject to tha federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), tha tribal consultation requirmants of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as aarly as possible in ordar to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Conault your legal counsel abaut compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourtaan Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of datermining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agancy shall provide formal notification to a designated contact of, or tribal rapresentative of, traditionally and culturally affiliated California Native Amarican tribes that have requasted notice, to be accomplished by at laast one written notice that includas:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resourcas Code § 21080.3.1 (d)).
    d. A "California Nativa American tribe" is dafined as a Native Amarican tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Coda § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Raquest for Consultation and Before Relaasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agancy shall begin the consultation procass within 30 days of receiving a raquest for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a nagative declaration, mitigated negative declaration or anvironmental impact report. (Pub. Resources Coda § 21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same maaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Rasources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Triba: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
       i. Planning and construction to avoid the resources and protect the cultural and natural context.
       ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
       i. Protecting the cultural character and integrity of the resource.
       ii. Protecting the traditional use of the resource.
       iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

    This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5,

subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton
Associate Government Planning Analyst

cc: State Clearinghouse

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION
320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013

March 10, 2016

Jeff Anderson
City of West Covina
1444 W. Garvey Avenue, Room 218
West Covina, CA 90406

Dear Jeff:

Re: SCH 2016021069 West Covina (LOS ANGELES) 2016 General Plan Update - NOP

The California Public Utilities Commission (Commission) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires Commission approval for the construction or alteration of crossings and grants the Commission exclusive power on the design, alteration, and closure of crossings in California. The Commission's Rail Crossings and Engineering Branch (RCEB) has received the *Notice of Preparation (NOP)* from the State Clearinghouse for the proposed City of West Covina (City) 2016 General Plan Update.

According to the NOP, the project area includes active railroad tracks. RCEB recommends that the City add language to the General Plan Update so that any future development adjacent to or near the rail right-of-way (ROW) is planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade crossings. This includes considering pedestrian circulation patterns or destinations with respect to railroad ROW and compliance with the Americans with Disabilities Act. Mitigation measures to consider include the planning for grade separations for major thoroughfares, improvements to existing at-grade crossings due to increase in traffic volumes, and continuous vandal resistant fencing or other appropriate barriers to prevent trespassers onto the railroad ROW.

If you have any questions in this matter, please contact me at (213) 576-7076, ykc@cpuc.ca.gov.

Sincerely,

Ken Chiang, P.E.
Utilities Engineer
Rail Crossings and Engineering Branch
Safety and Enforcement Division

C: State Clearinghouse

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

February 19, 2016

RECEIVED

MAR 01 2016

PLANNING DEPT.

Jeff Anderson, Planning Director
City of West Covina, Planning Department
1444 West Garvey Avenue South
West Covina, CA 91790

Notice of Preparation of a CEQA Document for the
City of West Covina 2016 General Plan Update and Downtown Master Plan and Code Project

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The SCAQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft CEQA document. Please send the SCAQMD a copy of the CEQA document upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to the SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address in our letterhead. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files. These include original emission calculation spreadsheets and modeling files (not Adobe PDF files). Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. More recent guidance developed since this Handbook was published is also available on SCAQMD's website here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). SCAQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD staff requests that the lead agency quantify criteria pollutant emissions and compare the results to the recommended regional significance thresholds found here: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. In addition to analyzing regional air quality impacts, the SCAQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LST's). LST's can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing

a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

In addition, guidance on siting incompatible land uses (such as placing homes near freeways) can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Perspective*, which can be found at the following internet address: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate these impacts. Pursuant to CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying possible mitigation measures for the project, including:

- Chapter 11 of the SCAQMD *CEQA Air Quality Handbook*
- SCAQMD's CEQA web pages at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies.
- CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.
- SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions
- Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's webpage (http://www.aqmd.gov).

The SCAQMD staff is available to work with the Lead Agency to ensure that project emissions are accurately evaluated and mitigated where feasible. If you have any questions regarding this letter, please contact me at Jwong1@aqmd.gov or call me at (909) 396-3176.

Sincerely,

Jillian Wong

Jillian Wong, Ph.D.
Program Supervisor
Planning, Rule Development & Area Sources

LAC160212-02
Control Number

50 YEARS
SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

Main Office

818 West 7th Street
12th Floor
Los Angeles, California
90017-3435

t (213) 236-1800
f (213) 236-1825

www.scag.ca.gov

March 11, 2016

Mr. Jeff Anderson, Planning Director
City of West Covina, Planning Department
1444 West Garvey Avenue South
West Covina, California 91790
Phone: (626) 939-8422
E-mail: jeff.anderson@westcovina.org

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the City of West Covina 2016 General Plan Update and Downtown Master Plan and Code [SCAG NO. IGR8765]

Dear Mr. Anderson,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the City of West Covina 2016 General Plan Update and Downtown Master Plan and Code ("proposed project") to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review (IGR) of programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

SCAG is also the designated Regional Transportation Planning Agency under state law, and is responsible for preparation of the Regional Transportation Plan (RTP) including its Sustainable Communities Strategy (SCS) component pursuant to SB 375. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans.[1] Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of the regional goals and policies in the RTP/SCS.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the City of West Covina 2016 General Plan Update and Downtown Master Plan and Code. The proposed project includes a comprehensive update to the City's General Plan and proposal to adopt a Downtown Master Plan and Code. The proposed Downtown Master Plan and accompanying form-based code establishes an image for Downtown West Covina as a livable, healthy, and economically vibrant community. As the General Plan Update and Downtown Master Plan are prepared simultaneously, the two documents are entirely consistent with each other.

When available, please send environmental documentation to SCAG's *office in Los Angeles or by email to sunl@scag.ca.gov* providing, at a minimum, the full public comment period for review. If you have any questions regarding the attached comments, please contact the Inter-Governmental Review (IGR) Program, attn.: Lijin Sun, Esq., Senior Regional Planner, at (213) 236-1882 or sunl@scag.ca.gov. Thank you.

Sincerely,

Ping Chang

Ping Chang
Program Manager II, Land Use and Environmental Planning

[1] SB 375 amends CEQA to add Chapter 4.2 Implementation of the Sustainable Communities Strategy, which allows for certain CEQA streamlining for projects consistent with the RTP/SCS. Lead agencies (including local jurisdictions) maintain the discretion and will be solely responsible for determining "consistency" of any future project with the SCS. Any "consistency" finding by SCAG pursuant to the IGR process should not be construed as a finding of consistency under SB 375 for purposes of CEQA streamlining.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF WEST COVINA INTERIM GENERAL PLAN UPDATE AND DOWNTOWN MASTER PLAN AND CODE [SCAG NO. IGR8748]

CONSISTENCY WITH RTP/SCS

SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS.

2012 RTP/SCS GOALS

The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012. The 2012 RTP/SCS links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations (see http://rtpscs.scag.ca.gov). The goals included in the 2012 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. Among the relevant goals of the 2012 RTP/SCS are the following:

SCAG 2012 RTP/SCS GOALS	
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*
RTP/SCS G3:	*Ensure travel safety and reliability for all people and goods in the region*
RTP/SCS G4:	*Preserve and ensure a sustainable regional transportation system*
RTP/SCS G5:	*Maximize the productivity of our transportation system*
RTP/SCS G6:	*Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking)*
RTP/SCS G7:	*Actively encourage and create incentives for energy efficiency, where possible*
RTP/SCS G8:	*Encourage land use and growth patterns that facilitate transit and non-motorized transportation*
RTP/SCS G9:	*Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the policy and supportive analysis in a table format. Suggested format is as follows:

SCAG 2012 RTP/SCS GOALS		
	Goal	Analysis
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

RTP/SCS STRATEGIES

To achieve the goals of the 2012 RTP/SCS, a wide range of strategies are included in SCS Chapter (starting on page 152) of the RTP/SCS focusing on four key areas: 1) Land Use Actions and Strategies; 2) Transportation Network Actions and Strategies; 3) Transportation Demand Management (TDM) Actions and Strategies and; 4) Transportation System Management (TSM) Actions and Strategies. If applicable to the proposed project, please refer to these strategies as guidance for considering the proposed project within the context of regional goals and policies. To access a listing of the strategies, please visit http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf (Tables 4.3 – 4.7, beginning on page 152).

REGIONAL GROWTH FORECASTS

At the time of this letter, the most recently adopted SCAG forecasts, at the jurisdictional level, consists of the 2020 and 2035 RTP/SCS population, household and employment forecasts. To view them, please visit http://scag.ca.gov/Documents/2012AdoptedGrowthForecastPDF.pdf. The forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts		Adopted City of West Covina Forecasts	
	Year 2020	Year 2035	Year 2020	Year 2035
Population	19,663,000	22,091,000	112,200	120,200
Households	6,458,000	7,325,000	32,600	33,900
Employment	8,414,000	9,441,000	29,300	30,900

MITIGATION

SCAG staff recommends that you review the SCAG 2012 RTP/SCS Final Program EIR Mitigation Measures for guidance, as appropriate. See Chapter 6 (beginning on page 143) at:
http://rtpscs.scag.ca.gov/Documents/peir/2012/final/Final2012PEIR.pdf

As referenced in Chapter 6, a comprehensive list of example mitigation measures that may be considered as appropriate is included in Appendix G: *Examples of Measures that Could Reduce Impacts from Planning, Development and Transportation Projects.* Appendix G can be accessed at:
http://rtpscs.scag.ca.gov/Documents/peir/2012/final/2012fPEIR_AppendixG_ExampleMeasures.pdf

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213-922-2000 Tel
metro.net

Metro

March 14, 2016

Jeff Anderson
City of West Covina
Planning Department
1444 West Garvey Avenue South
West Covina, CA 91790

RE: **City of West Covina 2016 General Plan Update and Downtown Master Plan and Code Notice of Preparation of a Draft EIR**

Dear Mr. Anderson:

Thank you for the opportunity to comment on the proposed City of West Covina 2016 General Plan Update and Downtown Master Plan EIR. This letter conveys recommendations from the Los Angeles County Metropolitan Transportation Authority (LACMTA) concerning issues that are germane to our agency's statutory responsibility in relation to our facilities and services that may be affected by the proposed project.

Metro bus line 190/194 operates on San Bernadino Road, within the boundary of the proposed project. Although the project is not expected to result in any long-term impacts on transit, the developer should be aware of the bus services that are present. Please contact Metro Bus Operations Control Special Events Coordinator at 213-922-4632 regarding construction activities that may impact Metro bus lines at least 30 days in advance of initiating construction activities. For closures that last more than six months, Metro's Stops and Zones Department will also need to be notified at 213-922-5188, 30 days in advance of initiating construction activities. Other municipal bus operators may also be impacted and should be included in construction outreach efforts.

If you have any questions regarding this response, please contact Elizabeth Carvajal at 213-922-3084 or by email at DevReview@metro.net.

LACMTA Development Review
One Gateway Plaza MS 99-23-4
Los Angeles, CA 90012-2952

Sincerely,

Elizabeth Carvajal
Transportation Planning Manager

DEPARTMENT OF TRANSPORTATION
DISTRICT 7-OFFICE OF TRANSPORTATION PLANNING
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897-9140
FAX (213) 897-1337
www.dot.ca.gov

Serious drought.
Help save water!

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MAR 2 2 2016

PLANNING DEPT.

March 15, 2016

Mr. Jerry Anderson
City of West Covina
1444 W. Garvey Avenue, Room 218
West Covina, CA 90406

Re: City of West Covina 2016 General Plan
Update and Downtown Mater Plan Code
Vic: LA-39, 60, 57
SCH# 2016021069
IGR#160234ME -NOP

Dear Mr. Anderson:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the proposed update of the City of West Covina 2016 General Plan Update and Downtown Mater Plan Code.

The proposed project is a comprehensive update of the City's General Plan, which has not been updated since 1985. The General Plan Land Use Map will also be updated to reflect the community's vision to direct the majority of new growth to the Downtown area. The Downtown Plan and Code seeks to form consensus around and establish a common image for Downtown West Covina.

As a State agency with jurisdiction over State highway transportation facilities, Caltrans will review the City of West Covina 2016 General Plan Update and Downtown Mater Plan Code with special interest to the Mobility and Land Use Elements.

Please be aware of Caltrans's new mission statement: "To provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Local Development-Intergovernmental Review (LD-IGR) Program reviews land use project and plans to ensure consistency with our mission and state planning priorities of infill, conservation, and efficient development.

Caltrans through its efforts to continually improve its standards and processes to provide flexibility while maintain the safety and integrity of the state's transportation system has updated

the Highway Design Manual (HDM) to incorporate streets policies, which incorporate a multimodal approach to highway design.

To ensure a safe, efficient, and reliable transportation system, we encourage early consultation and coordination with local jurisdictions and project proponents on all development projects that utilize the state highway transportation network. Please include language that will direct traffic consultants, for local development projects, to consult with Caltrans early when evaluating potential traffic impacts to Interstate-10 (I-10). The I-10 freeway is part of the State Highway system, and any modifications to it will require a permit from Caltrans.

We encourage the City to include vehicle demand-reducing strategies. These may include incentives for commuters to use transit, park-and-ride lots, discounts on monthly bus and rail passes, shuttle buses, vanpools, etc. To the extent that more of the population shifts to transit or alternate modes of transportation for some of tier inter-regional trips. Future cumulative traffic impacts to freeways may be satisfactorily mitigated.

Please be aware that although the City is required to comply with Los Angeles County Congestion Management Program (CMP) standards and thresholds of significance, Caltrans does not consider the Los Angeles County's (CMP) criteria alone to be adequate for the analysis of transportation impacts pursuant to a CEQA review. The CMP does not adequately address cumulative transportation impacts and does not analyze for safety. The 2010 CMP guidelines, Appendix D, states that Caltrans should be consulted for the analysis of State Highway facilities. Caltrans' Guide directs prepares of traffic impact analysis to consult with the

In the spirit of mutual cooperation, Caltrans staff is available to work with the City's traffic engineers to identify the parameters of traffic impact analysis such as study area, vehicle trip reduction factors, method of analysis, significant criteria, and possible mitigation measures if any are necessary.

If you have any questions, please feel free to contact Ms. Miya Edmonson, the project coordinator, at (213) 897-6536 should you have any questions. Please reference IGR/CEQA No. 160234-ME

Sincerely,

DIANNA WATSON
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON HYDE
Chief Engineer and General Manager

March 16, 2016

Ref File No.: 3617972

RECEIVED

MAR 22 2016

PLANNING DEPT.

Mr. Jeff Anderson, Planning Director
Planning Department
City of West Covina
1444 West Garvey Avenue South
West Covina, CA 91790

Dear Mr. Anderson:

Comment Letter for the City of West Covina
2016 General Plan Update and Downtown Master Plan and Code

The County Sanitation Districts of Los Angeles County (Districts) received a Notice of Preparation of a Draft Environmental Impact Report for the subject project on February 12, 2016. The majority of the City of West Covina is located within the jurisdictional boundaries of District No. 22 with remaining portions in Districts Nos. 15 and 21. We offer the following comments regarding sewerage service:

1. The Districts own, operate, and maintain the large trunk sewers that form the backbone of the regional wastewater conveyance system. Local collector and/or lateral sewer lines are the responsibility of the jurisdiction in which they are located. As such, the Districts cannot comment on any deficiencies in the sewerage system in the City of West Covina (City) except to state that presently no deficiencies exist in Districts' facilities that serve the City. For information on deficiencies in the City sewerage system, please contact the City Department of Public Works and/or the Los Angeles County Department of Public Works.

2. The Districts would appreciate the opportunity to review individual developments within the City in order to determine whether or not sufficient trunk sewer capacity exists to serve each project and if Districts' facilities will be affected by the project.

3. The wastewater generated by the City is treated at one or more of the following: the San Jose Creek Water Reclamation Plant (WRP) located adjacent to the City of Industry, which has a design capacity of 100 million gallons per day (mgd) and currently processes an average flow of 66.3 mgd; the Whittier Narrows WRP located near the City of South El Monte, which has a design capacity of 15 mgd and currently processes an average flow of 4.8 mgd; and/or the Los Coyotes WRP located in the City of Cerritos, which has a design capacity of 37.5 mgd and currently processes an average flow of 20.8 mgd.

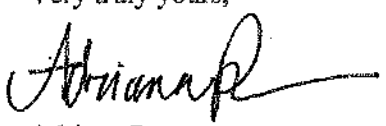
4. In order to estimate the volume of wastewater a project will generate, go to www.lacsd.org, Wastewater & Sewer Systems, click on Will Serve Program, and click on the Table 1, Loadings for Each Class of Land Use link for a copy of the Districts' average wastewater generation factors.

5. The Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or for increasing the strength or quantity of wastewater discharged from connected facilities. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For more information and a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Wastewater & Sewer Systems, click on Will Serve Program, and search for the appropriate link. In determining the impact to the Sewerage System and applicable connection fees, the Districts' Chief Engineer will determine the user category (e.g. Condominium, Single Family home, etc.) that best represents the actual or anticipated use of the parcel or facilities on the parcel. For more specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at (562) 908-4288, extension 2727.

6. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the design capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CCA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,



Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

DOC: #3655997.D221521

1919 S. State College Blvd.
Anaheim, CA 92806-6114

April 21, 2016

City of West Covina
1444 W Garvey Ave South
West Covina, CA 91790

Attn: Jeff Anderson

Subject: Environmental Impact Report for General Plan Update and Downtown Master Plan for City of West Covina and Downtown Area Bounded by I-10, Cameron Ave, West Covina Pkwy & Glendora Ave; West Covina

Thank you for providing the opportunity to respond to this Environmental Document. This letter is not to be interpreted as a contractual commitment to serve the proposed project but only as an information service. Its intent is to notify you that the Southern California Gas Company has facilities in the area where the above named project is proposed. Gas facilities within the service area of the project could be installed, altered or abandoned as necessary without any significant impact on the environment.

The availability of natural gas service is based upon conditions of gas supply and regulatory agencies. As a Public Utility, Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. Our ability to serve can also be affected by actions of federal regulatory agencies. Should these agencies take any action, which affect gas supply or the conditions under which service is available, gas service will be provided in accordance with the revised conditions.

This letter is also provided without considering any conditions or non-utility laws and regulations (such as environmental regulations), which could affect construction of a main and/or service line extension (i.e., if hazardous wastes were encountered in the process of installing the line). The regulations can only be determined around the time contractual arrangements are made and construction has begun.

Information regarding construction particulars and any costs associated with initiating service may be obtained by contacting our area Service Center at 800-427-2200.

Sincerely,

Katrina Regan
Planning Supervisor
SouthEast Region - Anaheim Planning & Engineering

KR/rl
EIR.doc

Estefania Sanchez
Program Assistant 3

9400 Oakdale Blvd
Chatsworth, CA 91311

ESanchez5@semprautilities.com

April 21, 2016

City of West Covina

Email: Jeff Anderson - jeff.anderson@westcovina.org

Subject: **City of West Covina 2016 General Plan Update and Downtown Master Plan and Code**
Notice of Preparation of a Draft Environmental Impact Report

DCF: **505-16NC416**

The Transmission Department of SoCalGas does not operate any facilities within your proposed improvement. However, SoCalGas Southeast Distribution Region may maintain and operate facilities within your project scope.

To assure no conflict with the Southeast Distribution's pipeline system, please contact them at (**714**) **634-5067**.

Sincerely,

Estefania Sanchez
Program Assistant 3
ESanchez5@semprautilities.com

Tuesday, March 01, 2016

City of West Covina

1444 W. Garvey Av

West Covina, CA

Attn.: Mr. Jeff Anderson - WC Planning Director

Mr. Anderson,

The City of West Covina is in the process of preparing an Environmental Impact Report (EIR) as part of the comprehensive drafting of a General Plan Update and this letter is in regards to seeking to study the making of a safe community and our current Public safety status!

It should be noted that there is a current severe shortage of West Covina Sworn Patrol Officers. In the past few years there have been more than a few instances where my neighbors and I have called regarding exigent situations and the WCPD uniformed response time was more than 20 minutes. Each time when asked what took so long? The Dispatcher and or the Officer who arrived usually say, "all our units were involved on a critical matter."

Please, at this time I am requesting a comparison City population study of the impact (professional examination and understanding) on our City of the current low per capita Police numbers? Additionally, what happens going forward as the demand increases for police service without immediate corrections and appropriate preparation for future impact of the General Plan Update?

Thank you,

Fredrick Sykes

Greg Martin

From: Jeff Anderson <Jeff.Anderson@westcovina.org>
Sent: Tuesday, March 01, 2016 8:16 AM
To: Greg Martin
Subject: FW: General Plan and Downtown Plan and Code- EIR Scoping Meeting
Attachments: Review Draft WC Downtown Plan & Code.pdf

Greg,

I received these comments this morning regarding the Scoping Meeting last night from someone who did not attend.

Jeff

From: ROBERT TORRES [mailto:roberthtorres@yahoo.com]
Sent: Tuesday, March 01, 2016 8:11 AM
To: Jeff Anderson <Jeff.Anderson@westcovina.org>
Cc: Ron Garcia <Ron.Garcia@westcovina.org>; Chris Freeland <Chris.Freeland@westcovina.org>; James Toma <James.Toma@westcovina.org>; Corey Warshaw <Corey.Warshaw@westcovina.org>; Councilman Mike Spence <westcovina@mikespence.com>; Lloyd Johnson <Lloyd.Johnson@westcovina.org>; Tony Wu <Tony.Wu@westcovina.org>
Subject: General Plan and Downtown Plan and Code- EIR Scoping Meeting

Good Morning Jeff,

I had planned to attend last night's EIR scoping meeting for the General Plan and Downtown Plan and Code, but unfortunately I ran into a few roadblocks. However, I have provided my comments below:

General Plan:

- Include analysis within the EIR that specifically addresses the current and future negative impacts of train horn noise on West Covina residents who reside in the northern end of the city.

    - I previously made this recommendation at the joint Council/Commission meeting and the General Plan consultant stated that this would be included in the EIR.

    - As a result of the EIR findings, the goal would be to development a mechanism to partially fund the cost of establishing a "Quiet Zone" along the portion of railroad that runs between Covina and West Covina. As a reminder, a "Quiet Zone" is a section of railroad in which locomotives are not required to sound their train horn, and may only sound their horn when warranted (i.e emergencies, heavy rain, etc.)

    - Additionally, increased train traffic and subsequent horn noise is directly related to economic growth and development, so a nexus exists.

Downtown Plan and Code:

My comments related to the Downtown Plan and Code are lengthy, so I have attached a PDF for your review. I have commented in general, but have highlighted the comments in yellow that I believe may be relevant to the EIR scoping.

The comments highlighted in blue and green are question I have for either you or Mr. Freeland.

Thank you

Robert Torres

Specific Comments on WC Downtown Plan and Code

Introduction

(Page 7, Downtown First)

- 135 Hotel Rooms are mentioned. Revision to include additional rooms, as requested by Council, may be necessary.
- Potential parcels for the anticipated hotel should be identified within the Downtown Plan

(Page 7, Fiscal Health)

- "Community Facilities District (CFD) bond currently being paid with Plaza West Covina Sales Tax Revenue (Mello-Roos Act of 1982) until 2022".
    - What facilities and/or services were financed by the CFD bond?
    - What will happen to the CFD after 2022?
    - Where will Plaza West Covina sales tax revenue be directed after 2022?

(Page 7, Mobility, Pedestrian)

- Recommendation(although costly): Pedestrian Bridge Over Vincent Ave
    - Possible connection to future developments near Vincent Ave and Plaza Drive with subsequent connection to the Plaza West Covina.

Vision

(Page 15: Key Concepts, 5. Strategic Infill Development & Figure 2-8)

- The Americas Tires Project was recently approved at the property located just north of Glendora Ave and Vincent Ave split. Should the anticipated residential units at this site be considered in the EIR?

- The site which currently houses McDonalds and El Pollo Loco restaurants is shown as a potential development site. Is this for future mixed use? If so, the recent construction and long term investment of the 2 restaurants should be considered in estimating anticipated development.

- Portos Bakery site is identified for potential development. Is modification to projected commercial development needed because of this future development?

(Page 15: Key Components, Public Projects, 1. Enhancing the Walnut Creek Wash)

- The EIR should look at the impact the opening of the Walnut Creek Trail may have on adjacent residents and recommend mitigation measures to preserve residents' privacy, noise level, and security.

(Page 15: Key Components, Public Projects, 2. Various Street Enhancements)

- Recommendation: Investigate the aesthetic and operational enhancements at the 4 major intersections located at the West Covina Parkway and Vincent Ave I-10 Freeway exits within the EIR.

    - West Covina Parkway/Pacific Ave @ I-10 Westbound Exit/Entrance
    - West Covina Parkway/Pacific Ave @ I-10 Eastbound Exit/Entrance
    - Vincent Ave@ I-10 Westbound Exit/Entrance
    - Vincent Ave@ I-10 Eastbound Exit/Entrance

- Although the EIR should address traffic impacts at these 4 intersections, it should also address potential aesthetic improvements to enhance the current gateways to the Downtown District, similar to the street enhancements already include in the Vision.

- Diagrams of potential intersection Improvements should be added to the Downtown General Plan.

(Page 15: Key Components, Public Projects, 5. Ped. Crossing on South Sunset Ave and Vincent Ave)

- Pedestrian Bridge over Vincent Ave may be more effective that sidewalk improvements and other road reconfigurations. Also provide for City Monument/Identification sign.

- The positive impact on pedestrian circulation as a result of such a bridge should be investigated within the EIR.

- Where is the future Vincent Ave enhanced pedestrian crossing proposed?

(Page 18: Key Components, Private Project, 6. Multi-family Housing along Walnut Greek Pkwy)

- The primary parcel at this location was recently approved for a new tire center. Should the potential loss in projected units be considered in the EIR?

(Page 19: Key Components, Private Project, 10. Two Office Buildings near East Garvey Ave)

- With the reconfiguration of Glendora Ave to incorporate La Ramblas, the additional traffic created by the two potential office buildings may be significant.

- EIR should address potential circulation issues and alternative routes for tenants of the office buildings, considering Glendora Ave will be only one lane in each direction.

- Potential construction of a Lark Ellen freeway exists may alleviate Glendora Ave traffic circulation issues.

Goals, Policies, & Actions

(Page 21: 3. Our Well Planned Community, Goal 5, Policy 5.2 Establish a dramatic visual cue into Downtown at Sunset Ave and Vincent Avenue)

- The 4 intersections previously recommended for Aesthetics should be included in Policy 5.2

(Page 29: 5. Our Resilient Community, Goal 11, Policy 11.4 Encourage new "green businesses" and institutions to locate Downtown, and existing businesses and institutions to reduce operating costs by going "green.")

- Add Action 11.4D- Regularly search for and acknowledge business within West Covina that demonstrate exceptional "Green" business practices. Present recognition awards to these businesses at regular City Council meetings.

(Page 30: 6. Our Healthy and Safe Community, Goal 12, Policy 12.2 Provide community safety through enhanced police and fire services)

- Add Action 12.2D- Add horse patrol along trails (i.e. Equestrian Trail and Park Trails), other open spaces, and during large public gatherings.

Code

(Page 40: Section 1: Purpose and Applicability, 1.2C Non-conformity Regulations, 1.2C.1 Nonconforming Buildings or Structures, 1.2C.1 (B) Additions)

- In addition to the requirement that additions of 50% or more of the existing floor area adhere to current Downtown Code, a height requirement should also be considered (i.e. Additions 2 times, or more, higher than the existing building must adhere to the current Downtown Code). Alternatively, a specific height limit can be used as a threshold for triggering conformance to current Downtown Code.

(Page 46: Table 4.2.1: Summary of Zoning Districts, T4 General Urban, Desired Form)

- It is stated that building up to 3 stories in height are to be allowed in the T4 Zone. Will this height requirement apply to the envisioned private developments (i.e. Office Buildings and Mixed used developments) within the Lakes Entertainment Area?

(Page 46: Table 4.2.1: Summary of Zoning Districts, T3 Urban Neighborhood, Desired Form)

- It is stated that building in the T4 Zone are intended for residential uses and ther id no mention of commercial/retail uses. Since the current commercial properties along Glendora Ave are proposed to be within the T4 Zone, should verbage of commercial uses be incorporated? Or is the intent to eliminate the existing retail uses?

(Page 47: Section 3.1A Permitted Land Uses)

- Requested Revision: "…provided the director makes ALL of the following finding:"

(Page 47: Table 4.3.1 Permitted Land Used)

- Requested Revision: Include a key to define the symbols "P", "U", and "X".

(Page 50: Development Standards, Section 4.1 T-5 Urban Center Zone)

- Will anticipated hotels in Downtown District be limited to 5 stories? In not, an asterisk should be included that proposed hotels MAY be allowed greater heights through variances or any other applicable planning mechanism. This will inform residents now as opposed to when a potential 8 or 9 story hotel is being proposed.

(Page 51: Development Standards, Section 4.2 T-4 General Urban Zone)

- Will anticipated office building at the north end of Glendora Ave be limited to 3 stories? In not, an asterisk should be included that proposed hotels MAY be allowed greater heights through variances or any other applicable planning mechanism. This will inform residents now as opposed to when a potential 8 or 9 story office building is being proposed.

(Page 52: Development Standards, Section 4.3 T-4 Urban Neighborhood Zone)

- On Page 46 it states that Urban Neighborhood Zone allows up to 2-Stories, but this section state that up to 3-Stories are allowed.

(Page 85: Section 7 Streets and Block Standards)

- Recommend adding and additional section (i.e. Section 7.3) identifying intersection standards (with respect to aesthetics and possibly lane configuration) of the four key entry way intersections at Vincent Ave and West Covina Pkwy and the I-10 FWY.

- The addition of these 4 intersections will significantly enhance the “wow” factor when visitors and residents enter Downtown West Covina from the I-10 Freeway.

(Page 116: Table 1A)

- Recommend that variances require mandatory final approval by the City Council. Typically variances are appealed by residents and result in a significant cost to the residents and discourage appeals.

Regards

Robert Torres

Rincon Consultants, Inc.
Environmental Scientists Planners Engineers

MEMORANDUM

■ Ventura
180 North Ashwood Avenue
Ventura, California 93003
805 644 4455
FAX 644 4240

☐ San Luis Obispo
1530 Monterey Street, Suite D
San Luis Obispo, California 93401
805 547 0900
FAX 547 0901

☐ Carlsbad
5135 Avenida Encinas, Suite A
Carlsbad, California 92008
760 918 9444
FAX 918 9449

☐ Monterey
437 Figueroa Street, Suite 203
Monterey, California 93940
831 333 0310
FAX 333 0340

☐ Oakland
180 Grand Avenue, Suite 400
Oakland, California 94612
510 834 4455
FAX 834 4433

☐ Riverside
5005 La Mart Drive, Suite 201
Riverside, California 92507
951 782 0061
FAX 782 0097

☐ Fresno
255 W. Fallbrook Avenue
Suite 103
Fresno, California 93711
559 228 9925

☐ Sacramento
4825 J Street
Suite 200
Sacramento, California 95819
916 706 1374

☐ Los Angeles
706 South Hill Street
Suite 1200
Los Angeles, California 90014
213 788 4842

Date: 3/14/16

To: Jeff Anderson, Planning Director

Organization: City of West Covina

From: Greg Martin, AICP, Senior Planner/Project Manager

Email: Jeff.Anderson@westcovina.org

cc: rangwalaassoc@gmail.com; jpower@rinconconsultants.com

Re: City of West Covina 2016 General Plan Update and Downtown Master Plan and Code EIR Scoping Meeting Summary

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Hi, Jeff. The following is a summary of comments received at the Public Scoping Meeting for the City of West Covina 2016 General Plan Update and Downtown Master Plan and Code held at West Covina City Hall on Monday, February 29th, 2016. If you have any questions or comments on this memo, please feel free to contact me. Thanks very much.

EIR Scope, Focus and Content

- Hazards and Health
  - Study potential hazards from the BKK landfill.
  - Study potential hazards/health risks in City parks related to left-behind drug paraphernalia.
- Noise
  - Study potential noise impacts from new development downtown, including traffic noise.
- Public Services
  - Study public safety in public parks, especially related to drug use and left-behind drug paraphernalia.
- Specific Future Developments
  - Study proposed developments at the Pioneer School site and the Vincent School site.

- Transportation/Circulation
    - Study potential traffic impacts from new development downtown.
    - Study parking demand in relation to supply.
    - Study the potential impacts of street redesign (such as traffic calming) on aesthetics, walkability, and safety.
- Utilities/Infrastructure
    - Study streetlights.

Mitigation Measures

- Synchronize traffic lights in order to reduce traffic congestion.
- Have a shuttle for downtown.
- Synchronize traffic lights in order to reduce air pollution.

Alternatives

- Construct hotel(s) at eastern end of town on Holt rather than downtown.

Appendix B

Hazardous Materials Sites

SITE NAME	GLOBAL ID	STATUS	ADDRESS	CITY
BKK SANITARY LANDFILL / CLASS I AREA	19490005	ACTIVE	2210 SOUTH AZUZA AVENUE	WEST COVINA
HONEYWELL INC	CAD008351827	CLOSED	--	WEST COVINA
76 PRODUCTS STATION #5817	T0603703723	COMPLETED - CASE CLOSED	1200 GLENDORA AVE S	WEST COVINA
ALL AMERICAN RENT-A-CAR	T0603704422	COMPLETED - CASE CLOSED	702 AZUSA AVE N	WEST COVINA
ARCO #0103	T0603703897	COMPLETED - CASE CLOSED	1333 MERCED AVE W	WEST COVINA
ARCO #0103	T0603743869	COMPLETED - CASE CLOSED	1333 MERCED AVE. W	WEST COVINA
ARCO #1276	T0603724238	COMPLETED - CASE CLOSED	300 NORTH AZUSA AVENUE	WEST COVINA
ARCO #1276	T0603703037	COMPLETED - CASE CLOSED	300 AZUSA AVE N	WEST COVINA
ARCO #6176	T0603703924	COMPLETED - CASE CLOSED	1001 AMAR RD E	WEST COVINA
ARCO SERVICE STATION (FORMER)	T0603704841	COMPLETED - CASE CLOSED	249 BARRANCA ST N	WEST COVINA
BKK LANDFILL INC	T0603704694	COMPLETED - CASE CLOSED	2210 AZUSA AVE S	WEST COVINA
BOZZANI PONTIAC/HYUNDAI	T0603703672	COMPLETED - CASE CLOSED	1800 GARVEY AVE E	WEST COVINA
CHASE AUTOMOTIVE	T0603704256	COMPLETED - CASE CLOSED	1827 SAN BERNARDINO RD W	WEST COVINA
CHEVRON #9-1449	T0603702645	COMPLETED - CASE CLOSED	201 GRAND AVE N	WEST COVINA
CHEVRON #9-5906	T0603703533	COMPLETED - CASE CLOSED	1347 AZUSA AVE S	WEST COVINA
CHEVRON #9-7829	T0603703531	COMPLETED - CASE CLOSED	246 CITRUS AVE S	WEST COVINA
CHEVRON #9-8263	T0603703532	COMPLETED - CASE CLOSED	2500 AZUSA AVE S	WEST COVINA
CRESTVIEW CADILLAC	T0603779603	COMPLETED - CASE CLOSED	2700 EAST GARVEY AVENUE	WEST COVINA
DOCTOR'S HOSPITAL OF WEST COVINA	T0603726822	COMPLETED - CASE CLOSED	725 ORANGE AVE. S	WEST COVINA
EASTLAND CENTER	T0603776919	COMPLETED - CASE CLOSED	2753 EASTLAND CENTER	WEST COVINA
EXXON #7-2516	T0603705118	COMPLETED - CASE CLOSED	2450 AZUSA AVE S	WEST COVINA
FIRESTONE TIRE	T0603704233	COMPLETED - CASE CLOSED	1035 WEST COVINA PKWY W	WEST COVINA
K-MART	T0603705241	COMPLETED - CASE CLOSED	730 ORANGE AVE S	WEST COVINA
MOBIL #11-DAF	T0603703414	COMPLETED - CASE CLOSED	700 SUNSET AVE S	WEST COVINA
MOBIL #17-M51V	T0603700021	COMPLETED - CASE CLOSED	201 AZUSA AVE S	WEST COVINA
MOBIL #17-M6A	T0603703406	COMPLETED - CASE CLOSED	333 VINCENT AVE S	WEST COVINA
PENSKE MOTOR GROUP, INC	T0603766259	COMPLETED - CASE CLOSED	2010 E GARVEY AVENUE	WEST COVINA
S & K SERVICE STATION (FORMER)	T0603792987	COMPLETED - CASE CLOSED	360 GLENDORA AVE S	WEST COVINA
SAN LUIS ARCO	T0603704134	COMPLETED - CASE CLOSED	550 GLENDORA AVE S	WEST COVINA
SHELL	T0603733554	COMPLETED - CASE CLOSED	200 S AZUSA AVE	WEST COVINA
SHELL #204-8343-0508	T0603703441	COMPLETED - CASE CLOSED	305 CITRUS AVE N	WEST COVINA
TOSCO - 76 STATION #4180	T0603705015	COMPLETED - CASE CLOSED	150 CITRUS AVE S	WEST COVINA
TOSCO/UNOCAL #30614	T0603720937	COMPLETED - CASE CLOSED	150 CITRUS ST. S.	WEST COVINA
UNOCAL #4550	T0603703737	COMPLETED - CASE CLOSED	245 AZUSA AVE N	WEST COVINA
UNOCAL #6187	T0603705018	COMPLETED - CASE CLOSED	123 GRAND AVE N	WEST COVINA
WEST COVINA GAS UP	T0603703350	COMPLETED - CASE CLOSED	711 AZUSA AVE N	WEST COVINA
WEST COVINA HAND WASH	T0603705436	COMPLETED - CASE CLOSED	310 VINCENT AVE S	WEST COVINA
WEST COVINA MAINTENANCE YARD	T0603703985	COMPLETED - CASE CLOSED	825 SUNSET AVE S	WEST COVINA
WEST COVINA OIL, INC.	T0603752090	COMPLETED - CASE CLOSED	1200 GLENDORA AVE	WEST COVINA
COGENERATION PLANT	WDR100000265	HISTORICAL - WDR	2210 AZUSA	WEST COVINA
EAST VALLEY COMMUNITY HEALTH CENTER	19800034	NO ACTION REQUIRED	420 S. GLENDORA AVENUE	WEST COVINA
WEST COVINA HIGH SCHOOL - COMMUNICATION	60001279	NO ACTION REQUIRED	1609 E. CAMERON AVENUE	WEST COVINA
HONEYWELL INC	80001565	NO FURTHER ACTION	--	WEST COVINA
SOUTH HILLS HIGH SCHOOL ADDITION	60000402	NO FURTHER ACTION	645 SOUTH BARRANCA STR	WEST COVINA
BKK CLASS I LANDFILL	L10009731452	OPEN - CLOSED/WITH MONITORING	2210 AZUSA	WEST COVINA
BKK CLASS III LANDFILL	L10005364254	OPEN - CLOSED/WITH MONITORING	2210 AZUSA	WEST COVINA
MOBIL OIL CORP S/S #18-M51	T10000000562	OPEN - ELIGIBLE FOR CLOSURE	201 S AZUSA AVE	WEST COVINA
76 STATION - RON ROSE OIL CO	T0603705010	OPEN - SITE ASSESSMENT	2010 PACIFIC AVE N	WEST COVINA
WEST COVINA UNIFIED SCHOOL DISTRICT	T10000003069	OPEN - SITE ASSESSMENT	1717 MERCED AVE W	WEST COVINA
BKK SANITARY LANDFILL	CAD067786749	OPERATING PERMIT	2210 S AZUSA AVE	WEST COVINA
BKK SANITARY LANDFILL	3002168	PENDING	2210 S AZUSA AVE	WEST COVINA
BKK SANITARY LANDFILL	80001464	REFER: EPA	2210 S AZUSA AVE	WEST COVINA
CONCORDE/INTERSPACE BATTERY CORP.	71002894	REFER: OTHER AGENCY	2009 SAN BERNADINO ROAD	WEST COVINA

Appendix C

Traffic Study

NELSON
NYGAARD

MEMORANDUM

To: Kaizer Rangwala, Greg Martin and Jeff Anderson

From: Steve Boland, Max Scheideman and Pete Costa

Date: August 29, 2016

Subject: West Covina General Plan Update: Revised Draft Traffic Study

INTRODUCTION

This memorandum presents draft results of the traffic study conducted for the West Covina General Plan Update, addressing the impacts of proposed land use and roadway configuration changes on traffic congestion at key intersections identified by City staff.

BACKGROUND

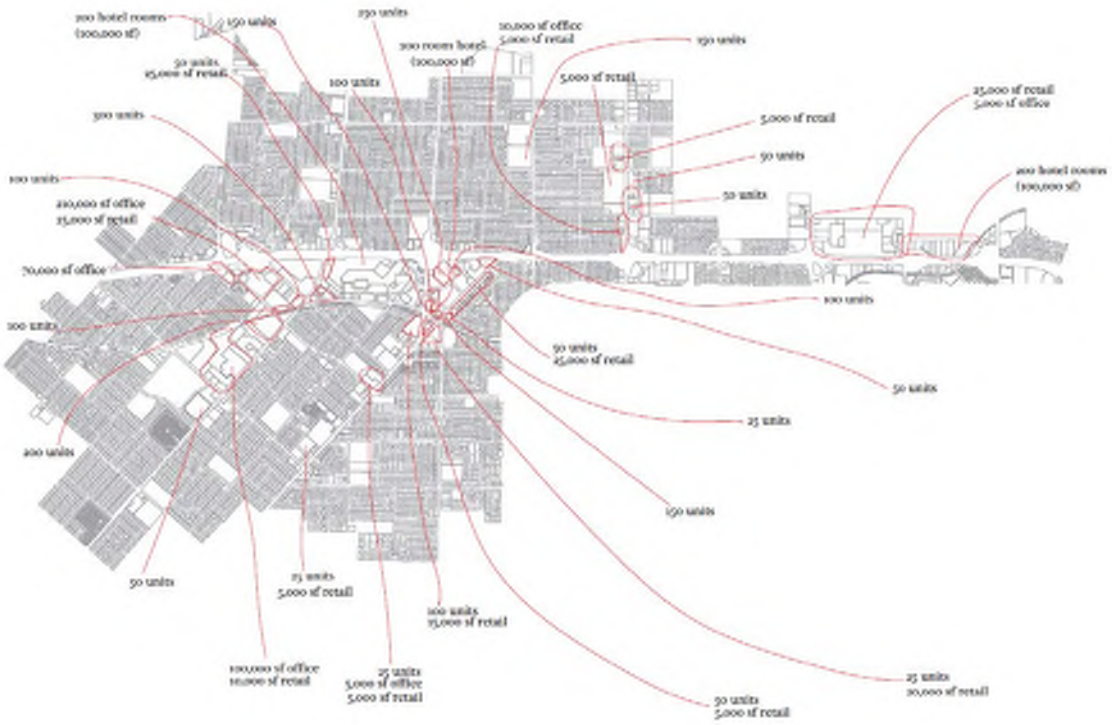
Proposed Land Use Changes

The development program developed for the General Plan Update is described in the "Our Well Planned Community" chapter of the draft Plan and is summarized in Tables 4.1 and 4.2 and Figure 4.3 of that document. The development program specifies total amounts of development in different categories (numbers of housing units and hotel rooms, area of commercial space) by area, but does not identify specific development sites. For purposes of traffic analysis, assumptions must be made about scale and type of development at specific locations – at the parcel level. The analysis contained in this document, then, should be viewed as based on one possible – but not the only possible – development scenario.

Specific locations and sizes of future developments assumed for purposes of analysis are shown in Figure 1, developed for this document. (Note that "units" refers to housing, and that "sf" represents square feet.) For purposes of the impact analysis, residential developments have been assigned to one of three scale/intensity categories – "townhome," "low-rise apartment" and "mid-rise apartment" categories, corresponding to the "Neighborhood Low," "Neighborhood Medium" and "Neighborhood High" categories in the draft Plan – with higher-density developments generally consisting of those with more units, located closer to downtown.

116 NEW MONTGOMERY STREET, SUITE 500 SAN FRANCISCO, CA 94105 415-284-1544 FAX 415-284-1554
www.nelsonnygaard.com

Figure 1 Proposed Land Use Changes



Proposed Roadway Configuration Changes

In addition to changes to land use, the General Plan Update calls for changes to the configuration/vehicular capacity of the following roadway segments:

- *West Covina Parkway between Vincent and Sunset avenues*: the second (outer) travel lane in each direction would be converted to a Business, Access and Transit (BAT) lane in which through travel by private vehicles is prohibited. They would be reserved instead for transit and right-turn movements.
- *Glendora Avenue between Lakes Drive and West Covina Parkway*: The second travel lane in each direction would be eliminated.
- *Lakes Drive*: The second westbound travel lane would be eliminated.
- *Walnut Creek Parkway*: The second travel lane in each direction would be eliminated.
- *Sunset Avenue*: Changes would be made to the configuration of the roadway; however, number of vehicle lanes would not be changed.

SCOPE OF STUDY

To determine the intersection level of service (LOS) analysis was conducted at 19 intersections including:

- Vincent Avenue at the Westbound Interstate 10 (I-10) On- and Off-Ramps
- Vincent at the Eastbound I-10 Ramps
- Vincent at Plaza Drive/Lakes
- Vincent at West Covina Parkway
- Vincent at Glendora
- Glendora at Lakes
- Glendora at Walnut Creek
- Glendora at West Covina Parkway
- West Covina Parkway at Sunset
- West Covina Parkway at the Eastbound I-10 Ramps
- West Covina Parkway at the Westbound I-10 Ramps
- Sunset at Merced Avenue
- Azusa Avenue at Rowland Avenue
- Azusa at Workman Avenue
- Azusa at Cameron Avenue
- Azusa at Amar Avenue
- Citrus Street at Garvey Avenue North/Eastland Center
- Citrus at Garvey South
- Lark Ellen at Cameron

Figure 2 shows the locations of the 19 study intersections.

Figure 2 Intersections

ANALYSIS METHODS

Traffic counts were conducted during weekday peak periods on Wednesday and Thursday, June 1 and 2, 2015, between the hours of 7 and 9 a.m. and 4 and 6 p.m.

Intersection operations were evaluated for the following scenarios:

- Existing Conditions (2016) without project
- Planning Horizon (2036) without project
- Planning Horizon (2036) with project

The analysis was conducted using the Intersection Capacity Utilization (ICU) method specified by the Los Angeles County Metropolitan Transportation Authority (Metro) Congestion Management Program (CMP). The intersections were evaluated using vehicle capacity (V/C) ratio, which is a commonly used metric for traffic analysis. The V/C ratio, also referred to as the degree of saturation, represents the sufficiency of an intersection to accommodate vehicular demand. A V/C ratio less than 0.8 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays. As the V/C ratio approaches 1.0 and higher, traffic flow is unstable and excessive delays and queuing conditions may occur.

Figure 3 describes intersection operations using the categories of V/C ratio ranges and the corresponding level of service as defined by the CMP, the significance criteria from which have been adopted for use by the City of West Covina (see following section)[1].

[1] CMP LOS definitions are different from those typically used in ICU analysis. For this reason, the reports provided as an appendix to this document (generated by Synchro modeling software) show LOS figures different from those shown in this document.

Figure 3 Level of Service Definitions for Arterial Intersections

Level of Service	Description	Volume to Capacity (V/C) Ratio
A	At LOS A, there are no cycles that are fully loaded, and few are even close to loaded. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.00-0.60
B	LOS B represents stable operation. An occasional approach phase is fully utilized, and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted within platoons of vehicles.	>0.60-0.70
C	In LOS C stable operation continues. Full signal cycle loading is still intermittent, but more frequent. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles.	>0.70-0.80
D	LOS D encompasses a zone of increasing restriction, approaching instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive back-ups.	>0.80-0.90
E	LOS E represents the most vehicles that any particular intersection approach can accommodate. At capacity (V/C=1.00) there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles).	>0.90-1.00
F	LOS F represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration, hence, volumes carried are not predictable. V/C values are highly variable because full utilization of the approach may be prevented by outside conditions.	>1.00

Synchro 9.0 software was used to model and analyze the levels of service at the study intersections. The existing signal timing sheets were provided by the City of West Covina (City) and the California Department of Transportation (Caltrans)[2].

As described in a following section, Institute of Traffic Engineers (ITE) trip generation rates were used. It should be noted that an annual growth rate of 0.82 percent in traffic volumes was assumed for the future-year "without project" scenario, consistent with the CMP; traffic generated by the additional development included in the "with project" scenario is assumed to be in addition to, rather than part of this baseline amount. Additionally, where new development is assumed, it is assumed that it would be in addition to existing development, rather than replacing existing

[2] Caltrans provided signal timing sheets for intersections with I-10 ramps. Note that these ramps are currently undergoing reconstruction, and timings will be different post-construction. However, because no information on future timings was yet available, previous timings and configurations have been used.

development, and trips from existing development were not subtracted from totals. For these reasons, the approach used should be considered a conservative one, representing "worst case" conditions.

EXISTING CONDITIONS

As indicated by the Synchro model, all intersections currently operate at level of service (LOS) E or better during both the AM and PM peak periods. Figures 4 through 6 display the results of this analysis.

Figure 4 Map of Existing Conditions AM LOS Results

Figure 5 Map of Existing Conditions PM LOS Results

Figure 6 Existing Conditions at Study Intersections

Intersection	Peak Hour	Existing Conditions	
		LOS	V/C Ratio
1. Vincent Ave & WB Interstate 10 Ramps	AM	A	0.468
	PM	A	0.530
2. Vincent Ave & EB Interstate 10 Ramps	AM	A	0.520
	PM	B	0.674
3. Vincent Ave & Plaza Dr / Lakes Dr	AM	A	0.566
	PM	C	0.759
4. Vincent Ave & West Covina Pkwy	AM	C	0.784
	PM	D	0.839
5. Vincent Ave & Glendora Ave	AM	A	0.384
	PM	B	0.607
6. Glendora Ave & Lakes Dr	AM	A	0.413
	PM	B	0.551
7. Glendora Ave & Walnut Creek Ave	AM	A*	0.399*
	PM	A*	0.392*
8. Glendora & West Covina Pkwy	AM	A	0.580
	PM	A	0.600
9. Sunset & West Covina Pkwy	AM	C	0.752
	PM	C	0.748
10. West Covina Pkwy & EB Interstate 10 Ramps	AM	B	0.673
	PM	A	0.570
11. West Covina Pkwy & WB Interstate 10 Ramps	AM	D	0.860
	PM	D	0.803
12. Sunset Ave & Merced Ave	AM	C	0.767
	PM	D	0.813
13. Azusa Ave & Rowland Ave	AM	C	0.759
	PM	E	0.911
14. Azusa Ave & Workman Ave	AM	D	0.883
	PM	E	0.921
15. Azusa Ave & Cameron Ave	AM	D	0.826
	PM	D	0.889
16. Azusa Ave & Amar Rd	AM	C	0.759
	PM	E	0.930
17. Citrus Ave & Garvey Ave N / Eastland Center	AM	A	0.561
	PM	D	0.866

18. Citrus Ave & Garvey Ave S	AM PM	B D	0.686 0.891
19. Lake Ellen Ave & Cameron Ave	AM PM	D D	0.837 0.857

* indicates worst lane approach V/C for all-way stop control intersection

PROJECT TRIPS

Trip generation refers to the process of estimating the amount of motor vehicle traffic that a project will add to (or subtract from) the surrounding roadway system. Estimates are made of future trips for the peak one-hour periods during the morning and evening commute periods when traffic volumes on the adjacent streets are highest.

The baseline trip generation estimates for the project were developed using the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 9th Edition. The associated land uses of the General Plan Update were assigned as closely as possible to categories represented in the manual, in order to estimate the baseline number of AM peak and PM peak hour trips (including hotels, offices, retail, mid- and low-rise housing, and townhomes).

For purposes of analysis, developments proposed by the Plan have been grouped into one of four districts and corridors including the Eastland area and the Azusa, Vincent, and Sunset corridors.

The General Plan Update proposes denser development than much of what currently exists in West Covina, including mixed-use infill development in appropriate locations. The Plan also includes projects, programs and policies designed to reduce impacts from development by making transit, walking and cycling more attractive alternatives to driving, including transit-only lanes on West Covina Parkway in the downtown area.

The ITE cautions that average ITE trip generation rates are not appropriate or accurate for assessing land use projects located in downtowns, mixed-use projects, places served by public transit, or with transportation demand management (TDM) programs.[3] This is because ITE data is collected primarily at single-use, suburban land-use developments with plentiful free parking and little or no transit service. Therefore, adjusting the baseline number of trips, which were estimated using average ITE rates, is necessary to achieve a realistic projection of trips generated by the project.[4]

To accomplish this, the land use and transportation characteristics of the West Covina districts were examined. Based on the development characteristics, a 15 percent trip reduction rate was applied to the baseline trip generation for each district. The trip reduction percentages were then applied to the baseline ITE values for each district to determine the net new trips expected in the AM and PM peak hour for each district.

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[3] *Trip Generation Handbook: An ITE Recommended Practice (June 2004)*. Page 15: "If the site is located in a downtown setting, served by significant public transportation, or is the site of an extensive transportation demand management program, the site is not consistent with the ITE data..."

[4] Parker, Terry. "Overview of Trip-Generation for Urban Infill, Mixed-Use, and Transit-Oriented Development Land Use Projects." Caltrans Division of Transportation Planning, December 2012. http://www.dot.ca.gov/hq/tpp/offices/ocp/sp_files/Trip-GenerationRatesForUrbanInfill_and_TODprojects_Dec2012.pdf. This Caltrans memo explains the importance of completing this step for accurate trip generation results, and recommends appropriate modeling approaches.

Figure 7 Trip Generation Rates by District/Corridor and Land Use

District	ITE Code	ITE Trip Rate		Total New Residential Units/ Total New Nonresidential Space	Total New Trips	
		AM Peak Hour	PM Peak Hour		AM Peak Hour	PM Peak Hour
Eastland						
Hotel (rm)	*310*	*0.64*	*0.58*	*200*	128	116
Office (ksf)	*710*	*1.56*	*1.49*	*5*	8	7
Retail (ksf)	*820*	*0.96*	*3.71*	*25*	24	24
Azusa						
Office (ksf)	*710*	*1.56*	*1.49*	*10*	16	15
Retail (ksf)	*820*	*0.96*	*3.71*	*15*	14	14
Townhome (du)	*n/a*	*0.54*	*0.73*	*250*	135	183
Vincent						
Hotel (rm)	*310*	*0.64*	*0.58*	*200*	128	116
Office (ksf)	*710*	*1.56*	*1.49*	*5*	8	7
Retail (ksf)	*820*	*0.96*	*3.71*	*75*	72	72
Townhome (du)	*n/a*	*0.54*	*0.73*	*50*	27	37
Low-Rise Residential (du)	*221*	*0.51*	*0.62*	*200*	102	124
Mid-Rise Residential (du)	*223*	*0.51*	*0.62*	*850*	434	527
Sunset						
Hotel (rm)	*310*	*0.64*	*0.58*	*200*	128	116
Office (ksf)	*710*	*1.56*	*1.49*	*380*	593	566
Retail (ksf)	*820*	*0.96*	*3.71*	*60*	58	58
Townhome (du)	*n/a*	*0.54*	*0.73*	*50*	27	37
Low-Rise (du)	*221*	*0.51*	*0.62*	*250*	128	155
Mid-Rise (du)	*223*	*0.51*	*0.62*	*500*	255	310
Note:						
1. ksf = 1,000 square feet of non-residential built space						
2. du = dwelling unit						
3. rm = occupied room						
4. Townhome trip generation rate per by LA County TIA Guidelines						

Figure 8 Trip Generation Summary

District	AM Peak Hour			PM Peak Hour		
	Total Trips	Internal Reduction (15%)	Net New Trips	Total Trips	Internal Reduction (15%)	Net New Trips
Eastland	160	*-24*	136	147	*-22*	125
Azusa	165	*-25*	140	212	*-32*	180
Vincent	770	*-116*	655	883	*-132*	751
Sunset	1,188	*-178*	1,010	1,241	*-186*	1,055

The trip distribution and assignment forecasts were developed based on existing turning movement volumes, understanding of the circulation system, and known traffic controls. Trip assignment using vehicle routing was not feasible due to unknown circulation information such as driveway location and building footprint characteristics. As an alternative, project trips were applied to each studied intersection within the respective district of the project. The number of project trips added to each turning movement was weighted based on the existing turning movement volume compared to the total intersection volume.

Figure 9 Trip Assignment Summary

Intersections	No. of Project Trips Assigned to Intersection	
	AM Peak Hour	PM Peak Hour
Vincent District		
Vincent Ave & WB Interstate 10 Ramps	655	751
Vincent Ave & at EB Interstate 10 Ramps		
Vincent Ave & Plaza Dr / Lakes Dr		
Vincent Ave & West Covina Pkwy		
Vincent Ave & Glendora Ave		
Glendora Ave & Lakes Dr		
Glendora Ave & Walnut Creek Ave		
Glendora & West Covina Pkwy		
Sunset District		
Sunset & West Covina Pkwy	1,010	1,055
West Covina Pkwy & EB Interstate 10 Ramps		
West Covina Pkwy & EB Interstate 10 Ramps		
Sunset Ave & Merced Ave		
Azusa District		
Azusa Ave & Rowland Ave	140	180
Azusa Ave & Workman Ave		
Azusa Ave & Cameron Ave		
Lake Ellen Ave & Cameron Ave		
Eastland District		
Citrus Ave & Garvey Ave N / Eastland Center	136	125
Citrus Ave & Garvey Ave S		
Outside District Boundaries		
Azusa Ave & Amar Rd	0	0

SIGNIFICANCE CRITERIA

The City of West Covina has adopted Los Angeles County CMP guidelines for acceptable intersection level of service. The LOS standard identified in the CMP is E (except where LOS in

the base year of 1992 was worse than E)[5]. LOS E, then, is considered less than significant, while LOS F is considered significant.

Azusa Avenue is part of the CMP roadway system. For CMP intersections, a significant impact occurs when the proposed project increases traffic demand by 2 percent of capacity (V/C ≥.0.02), causing LOS F (V/C > 1.00). If the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2 percent of capacity (V/C ≥ 0.02). Additionally:

- For CMP intersections currently in compliance with the adopted LOS standard, a project will be considered to have a CMP impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the CMP intersection operating at a level of service that violates the standard adopted in the current Congestion Management Program (CMP) and the proposed project increases average control delay at the intersection by four (4) seconds or more.
- For CMP intersections currently not in compliance with the adopted LOS standard, a project is considered to have a CMP impact if the project will add any additional traffic to the CMP intersection that is currently not in compliance with its adopted level of service standard as established in the CMP.

Four of the 19 intersections for which analysis was conducted – the intersections with I-10 ramps – are managed by the California Department of Transportation, or Caltrans. As noted in the *Caltrans Guide for the Preparation of Traffic Impact Studies* (Caltrans, December 2002), Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway facilities. However, Caltrans has not established specific traffic thresholds of significance.

PROJECT CONDITIONS

Level of service analysis was conducted of future (year 2036) traffic conditions with and without the proposed changes. The potential impacts to traffic at each intersection are summarized in Figures 10 through 14.

[5] Section 2.3.1, pg. 17.

Figure 10 Map of Future without Project Conditions AM LOS Results

Figure 11 Map of Future without Project Conditions PM LOS Results

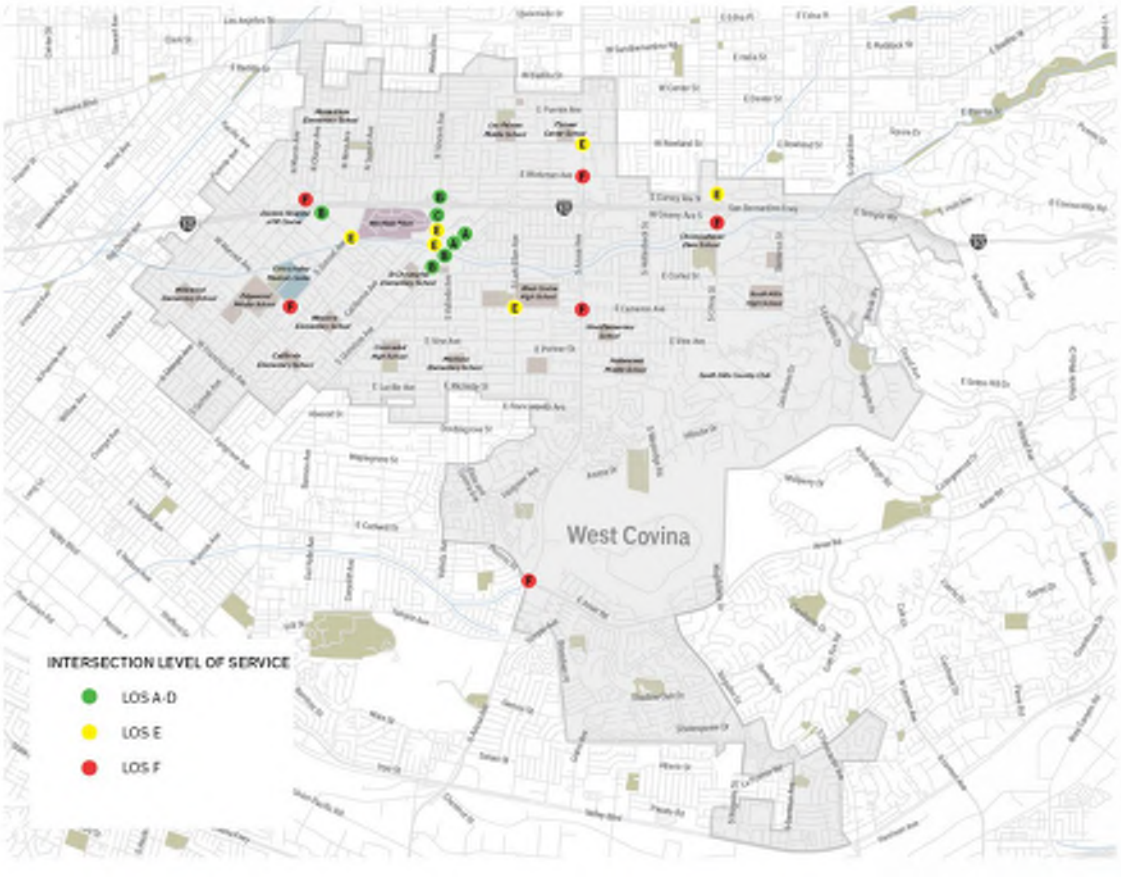


Figure 12 Map of Future with Project Conditions AM LOS Results

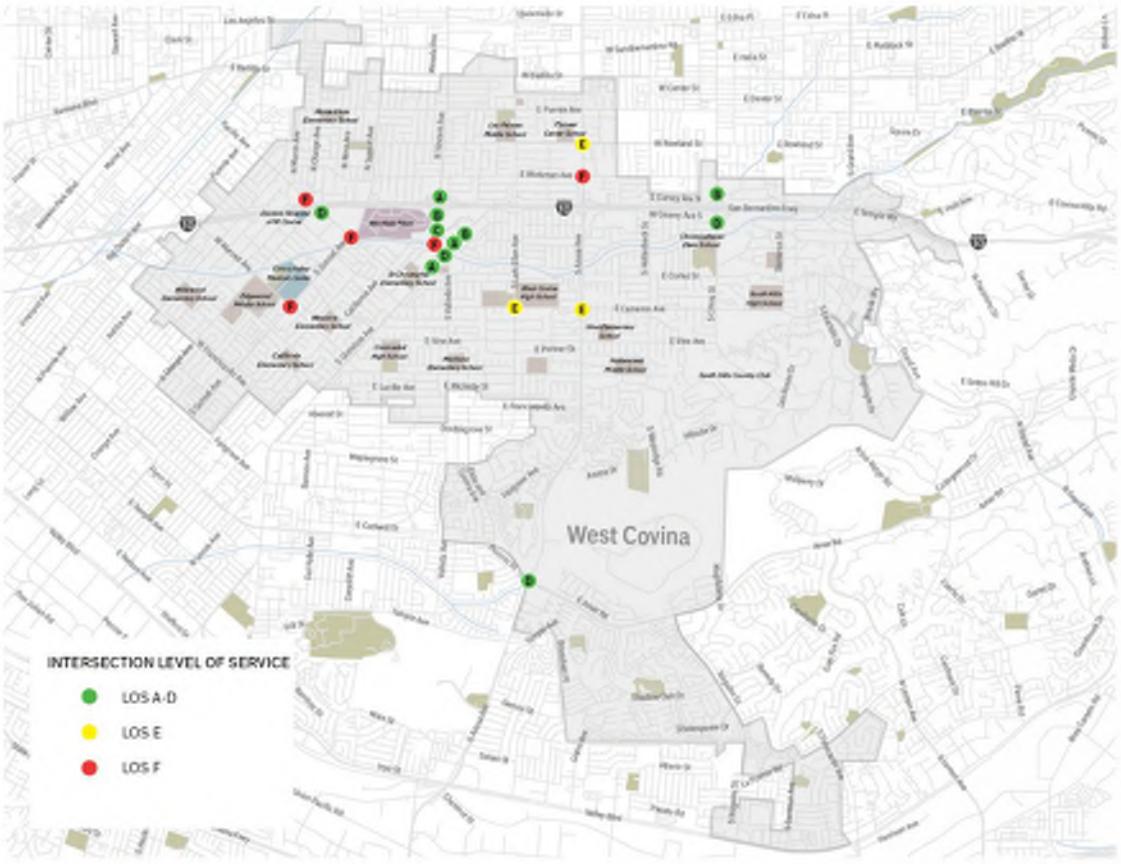


Figure 13 Map of Future with Project Conditions PM LOS Results

Figure 14 Comparison of Project Conditions LOS at Study Area Intersections

Intersection	Peak Hour	Existing Conditions		Y2036 Planning Horizon without Project		Y2036 Planning Horizon with Project	
		LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio
1. Vincent Ave & WB Interstate 10 Ramps	AM	A	0.468	A	0.545	A	0.562
	PM	A	0.530	B	0.603	B	0.666
2. Vincent Ave & at EB Interstate 10 Ramps	AM	A	0.520	A	0.573	B	0.670
	PM	B	0.674	C	0.752	D	0.845
3. Vincent Ave & Plaza Dr / Lakes Dr	AM	A	0.566	B	0.634	C	0.723
	PM	C	0.759	E	0.955	F	1.023
4. Vincent Ave & West Covina Pkwy	AM	C	0.784	D	0.860	F	1.005
	PM	D	0.839	E	0.956	F	1.105
5. Vincent Ave & Glendora Ave	AM	A	0.384	A	0.426	A	0.513
	PM	B	0.607	B	0.672	C	0.764
6. Glendora Ave & Lakes Dr	AM	A	0.413	A	0.444	B	0.618
	PM	A	0.551	A	0.616	D	0.878
7. Glendora Ave & Walnut Creek Ave	AM	A	0.399*	A	0.435*	A	0.533*
	PM	A	0.392*	A	0.469*	B	0.655*
8. Glendora & West Covina Pkwy	AM	A	0.580	B	0.644	D	0.865
	PM	A	0.600	B	0.661	C	0.795
9. Sunset & West Covina Pkwy	AM	C	0.752	D	0.855	F	1.122
	PM	C	0.748	E	0.910	F	1.083
10. West Covina Pkwy & EB Interstate 10 Ramps	AM	B	0.673	C	0.723	D	0.805
	PM	A	0.570	B	0.636	C	0.721
11. West Covina Pkwy & WB Interstate 10 Ramps	AM	D	0.860	F	1.084	F	1.335
	PM	D	0.803	F	1.038	F	1.277
12. Sunset Ave & Merced Ave	AM	C	0.767	D	0.871	F	1.020
	PM	D	0.813	F	1.041	F	1.208
13. Azusa Ave & Rowland Ave	AM	C	0.759	D	0.865	E	0.987
	PM	E	0.911	E	0.929	E	0.954
14. Azusa Ave & Workman Ave	AM	D	0.883	F	1.011	F	1.028
	PM	E	0.921	F	1.056	F	1.081
15. Azusa Ave & Cameron Ave	AM	D	0.826	E	0.938	E	0.962
	PM	D	0.889	F	1.020	F	1.053
16. Azusa Ave & Amar Rd	AM	C	0.759	D	0.862	D	0.862
	PM	E	0.930	F	1.062	F	1.062

17. Citrus Ave & Garvey Ave N / Eastland Center	AM PM	A D	0.561 0.866	B E	0.617 0.977	B E	0.633 0.993
18. Citrus Ave & Garvey Ave S	AM PM	B D	0.686 0.891	D F	0.825 1.023	D F	0.841 1.039
19. Lake Ellen Ave & Cameron Ave	AM PM	D D	0.837 0.857	E E	0.942 0.969	E F	0.968 1.004

Note: BOLD indicates unacceptable LOS conditions (i.e., LOS F) and signifies a "significant traffic impact".

* indicates worst lane approach V/C for all-way stop control intersection

FINDINGS

The following conclusions are drawn from the analysis:

- Under existing conditions, all intersections operate at LOS D or better in both the AM and PM peak period.
- Under the CMP guidelines, LOS F is defined as unacceptable. In the future year (2036) without project condition, six intersections operate at LOS F during either the AM or PM peak period:
  - The intersection of West Covina Parkway with the westbound I-10 ramps during both the AM and PM peak periods
  - The intersection of Sunset and Merced during the PM peak period
  - The intersection of Azusa and Workman during both the AM and PM peak periods
  - The intersection of Azusa and Cameron during the PM peak period
  - The intersection of Azusa and Amar during the PM peak period
  - The intersection of Citrus and Garvey during the PM peak period
- Under the CMP guidelines, LOS F is defined as unacceptable. In the future year with project condition, ten intersections operate at LOS F during either the AM or PM peak period:
  - The intersection of Vincent and Plaza/Lakes during the PM peak period
  - The intersection of West Covina Parkway and Vincent during both the AM and PM peak periods
  - The intersection of West Covina Parkway and Sunset during both the AM and PM peak periods
  - The intersection of West Covina Parkway with the westbound I-10 ramps during both the AM and PM peak periods
  - The intersection of Sunset and Merced during both the AM and PM peak periods
  - The intersection of Azusa and Workman during both the AM and PM peak periods
  - The intersection of Azusa and Cameron during the PM peak period
  - The intersection of Azusa and Amar during the PM peak period
  - The intersection of Citrus and Garvey during the PM peak period
  - The intersection of Lake Ellen and Cameron during the PM peak period

MITIGATIONS

According to the analysis, in the future year (2036) with project condition, there would be significant traffic impacts at seven locations:

- Vincent and Plaza/Lakes
- West Covina Parkway and Vincent
- West Covina Parkway and Sunset
- Sunset and Merced
- Azusa and Workman
- Azusa and Cameron
- Lake Ellen and Cameron

Additional locations at which LOS would be F with project were found to be F without project; thus, a significant impact does not exist. Note, however, that at the above intersections on Azusa that were already at F, a significant impact appears to exist under CMP guidelines for roadways in the CMP system itself, as the project would add traffic (see previous "Significance Criteria" section).

At two of the seven locations – the intersections of West Covina Parkway with Vincent and Sunset – the impact is related in part to changes to the roadway recommended as part of this General Plan Update, specifically conversion of general-purpose travel lanes to BAT lanes in which through travel by private vehicles is prohibited. Mitigating the impacts at these locations by maintaining the existing general-purpose lanes in order to maintain throughput would be inconsistent with General Plan policy.

At the remaining five locations, it might be possible to make physical changes to increase vehicular capacity without contradicting specific General Plan Update recommendations. However, this would require property takings, and to the extent reconfiguration served to degrade conditions for pedestrians and cyclists, it would be inconsistent with General Plan direction.

Significant impacts at these or other intersections found through future project-level traffic analysis could be mitigated in a number of ways. Historically, mitigation measures to reduce significant traffic impacts to a less-than-significant level under the California Environmental Quality Act (CEQA) have typically consisted of physical changes to roadways to increase vehicular throughput and reduce delay. However, signal timings may be adjusted to increase throughput, fees might be paid by a project's developer into a municipality's traffic in-lieu program, or additional transportation demand management (TDM) measures may be required. Alternately, capacity might be expanded not by providing additional turn lanes, or other typical measures, but by implementing measures designed to maintain throughput while improving safety and reducing impacts on pedestrians and other users, such as modern roundabouts.

Two additional issues related to traffic analysis, impacts and mitigation should be noted:

1. Under current CEQA guidelines, some projects are exempt from analysis.
2. CEQA guidelines for traffic analysis are currently undergoing revision.

First, under California Senate Bill 375 (SB 375, Steinberg, 2008), in regions with an adopted Sustainable Communities Strategy or SCS there is an exemption from CEQA traffic analysis for "Transit Priority Projects," or TPP's. These are defined as projects with at least a 50 percent residential component (25 percent if FAR is greater than 0.75) and at least 20 net dwelling units

per acre located within one-half mile of a "high quality transit corridor," defined as "a corridor with fixed route bus service with intervals no longer than 15 minutes during peak commute hours." The Foothill Transit Routes Silver Streak, 488 and 498 all meet this standard and make stops in the downtown area, including along West Covina Parkway. (Note, however, that projects still may have to conduct traffic analysis in order to meet CEQA requirements related to "secondary" impacts such as safety and air quality.)

Second, as a result of passage of Senate Bill 743 (SB 743, Steinberg, 2013) the City will soon be required to update its significance criteria for traffic impacts, in order to remain consistent with state law. SB 743 created a process to change the way that transportation impacts are analyzed under CEQA: specifically, it required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts. Per SB 743, auto delay can no longer be considered a significant impact under CEQA.

In December of 2013, OPR published a preliminary evaluation of possible metrics to replace level of service in transportation analyses and invited public comment on that evaluation. In January of this year, it released for public review a "Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA." That proposal can be found online at: *https://www.opr.ca.gov/docs/Revised_VMT_CEQA_Guidelines_Proposal_January_20_2016.pdf.*

The OPR proposal states the following:

> Senate Bill 743 mandates a change in the way that public agencies evaluate transportation impacts of projects under the California Environmental Quality Act. Legislative findings in that bill plainly state that California's foundational environmental law can no longer treat vibrant communities, transit and active transportation options as adverse environmental outcomes. On the contrary, aspects of project location and design that influence travel choices, and thereby improve or degrade our air quality, safety, and health, must be considered. ...
>
> Once finally adopted, these Guidelines should result in a better, more transparent evaluation of project impacts, and better environmental outcomes. Procedurally, traffic studies that accompany in-depth environmental review will now typically take days rather than weeks to prepare. Because models to estimate vehicle miles traveled are publicly available, decision-makers and the public will be better able to engage in the review process. Substantively, a focus on vehicle miles traveled will facilitate the production of badly-needed housing in urban locations. It will also facilitate transit projects and better uses of existing infrastructure as well as bicycle and pedestrian improvements. As a result, people will have better transportation options. It also means that CEQA will no longer mandate roadways that focus on automobiles to the exclusion of every other transportation option. It will no longer mandate excessive, and expensive, roadway capacity....
>
> Senate Bill 743 (Steinberg, 2013) required changes to the Guidelines Implementing the California Environmental Quality Act (CEQA Guidelines) regarding the analysis of transportation impacts. Those proposed changes identify vehicle miles traveled as the most appropriate metric to evaluate a project's transportation impacts. Those proposed changes also provide that the analysis of certain transportation projects must address the potential for induced travel. Once the Natural Resources Agency adopts these changes to

> the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, will no longer constitute a significant environmental effect under CEQA.[6]

The OPR proposal provides technical guidance on the implementation of vehicle miles traveled, or VMT, as the metric for determining transportation impacts under CEQA, including alternative analytical tools and methods and revised significance criteria. Under its section on "Screening Thresholds", it recommends a "presumption of less than significant impact near transit stations" that would exempt from CEQA review all development (and not just primarily residential projects) within one-half mile of a stop on a "high quality transit corridor," again defined as "a corridor with fixed route bus service with intervals no longer than 15 minutes during peak commute hours."[7] It also recommends presumption of less than significant impact for smaller projects generating fewer than 100 trips per day.

Finally, in its "Mitigation and Alternatives" section, the OPR proposal recommends mitigation strategies designed to reduce VMT rather than auto delay. These include a range of transportation demand management (TDM) measures as well as changes to the location and design of the project.

As previously noted, the proposed Guidelines have not yet been adopted, and the proposal recommends that analysis of VMT will remain voluntary for two years following adoption of the new Guidelines. However, a number of California cities have already begun to update their policies based on the proposed Guidelines, and in order to allow for development and roadway reconfigurations consistent with this General Plan Update, we recommend that West Covina similarly begin this process as soon as possible.

[6] Pages 1 and 13.

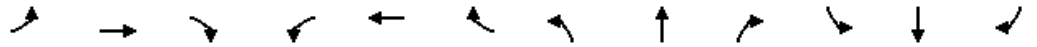
[7] The OPR proposal notes that the presumption might not apply if the project might still generate significant levels of VMT, for example by having a floor area ratio less than 0.75 or provides more parking than required by the jurisdiction.

Appendix C1

Modeling Software Results

Intersection Capacity Utilization
1: S Vincent Ave & I-10 WB on- and off-ramps

8/25/2016



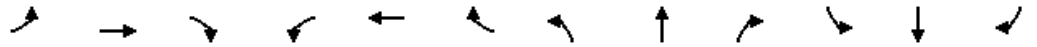
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	274	0	98	0	567	362	0	672	582
Pedestrians									7			2
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	274	0	98	0	567	362	0	672	582
Lane Utilization Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	0	0	2952	0	1360	0	4358	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.3
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	11.1	0.0	8.6	0.0	15.6	32.8	0.0	26.5	51.6
Adj Reference Time (s)	0.0	0.0	0.0	15.6	0.0	13.1	0.0	22.5	37.3	0.0	31.0	56.1
Permitted Option												
Adj Saturation A (vph)	0	0		98	0		0	1453		0	1523	
Reference Time A (s)	0.0	0.0		167.1	0.0		0.0	15.6		0.0	26.5	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	0.0	0.0		19.1	0.0		NA	NA		NA	NA	
Reference Time (s)		0.0			19.1			15.6			26.5	
Adj Reference Time (s)		8.0			23.1			22.5			31.0	
Split Option												
Ref Time Combined (s)	0.0	0.0		11.1	0.0		0.0	15.6		0.0	26.5	
Ref Time Seperate (s)	0.0	0.0		11.1	0.0		0.0	15.6		0.0	26.5	
Reference Time (s)	0.0	0.0		11.1	11.1		15.6	15.6		26.5	26.5	
Adj Reference Time (s)	0.0	0.0		15.1	15.1		22.5	22.5		31.0	31.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	15.6	31.0	
Permitted Option (s)	23.1	31.0	
Split Option (s)	15.1	53.5	
Minimum (s)	15.1	31.0	46.1

Right Turns	WBR	NBR	SBR
Adj Reference Time (s)	13.1	37.3	56.1
Cross Thru Ref Time (s)	22.5	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	35.6	37.3	56.1

Intersection Summary			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	0	206	0	0	0	0	782	686	0	979	1
Pedestrians							1		8	8		1
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.0	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	4.0	5.0	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	158	0	206	0	0	0	0	1011	457	0	979	1
Lane Utilization Factor	1.00	1.00	0.89	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	0	2407	0	0	0	1520	2943	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.5	0.0	10.3	0.0	0.0	0.0	0.0	41.4	41.4	0.0	38.6	0.2
Adj Reference Time (s)	17.0	0.0	14.8	0.0	0.0	0.0	9.5	45.9	45.9	0.0	43.1	22.5
Permitted Option												
Adj Saturation A (vph)	101	0		0	0		101	1472		0	1523	
Reference Time A (s)	187.1	0.0		0.0	0.0		0.0	41.4		0.0	38.6	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	20.5	0.0		0.0	0.0		NA	NA		NA	NA	
Reference Time (s)		20.5			0.0			41.4			38.6	
Adj Reference Time (s)		24.5			8.0			45.9			43.1	
Split Option												
Ref Time Combined (s)	12.5	0.0		0.0	0.0		0.0	41.4		0.0	38.6	
Ref Time Seperate (s)	12.5	0.0		0.0	0.0		0.0	32.1		0.0	38.6	
Reference Time (s)	12.5	12.5		0.0	0.0		41.4	41.4		38.6	38.6	
Adj Reference Time (s)	16.5	16.5		0.0	0.0		45.9	45.9		43.1	43.1	

Summary	EB WB	NB SB	Combined
Protected Option (s)	17.0	52.6	
Permitted Option (s)	24.5	45.9	
Split Option (s)	16.5	89.0	
Minimum (s)	16.5	45.9	62.4

Right Turns	EBR	NBR	SBR
Adj Reference Time (s)	14.8	45.9	22.5
Cross Thru Ref Time (s)	43.1	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	57.8	45.9	22.5

Intersection Summary			
Intersection Capacity Utilization	52.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	76	27	35	17	41	73	3	19	1196	18	9	119
Pedestrians	2		21	21		2		7		20		20
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	76	27	35	0	58	73	0	22	1214	0	0	128
Lane Utilization Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	2952	1600	1360	0	3153	1360	0	2952	4349	0	0	2952
Ped Intf Time (s)	0.0	0.0	2.4	0.0	0.0	0.3	0.0	0.0	0.0	2.3	0.0	0.0
Pedestrian Frequency (%)		0.50			0.06				1.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			5.5			6.7	0.0	0.9	33.5	0.0	0.0	5.2
Adj Reference Time (s)			10.0			11.2	0.0	8.5	38.5	0.0	0.0	9.7
Permitted Option												
Adj Saturation A (vph)	98	1600		0	571		0	98	1450		0	98
Reference Time A (s)	46.3	2.0		0.0	12.2		0.0	13.4	33.5		0.0	78.1
Adj Saturation B (vph	0	1600		0	0		NA	NA	NA		NA	NA
Reference Time B (s)	11.1	2.0		8.7	10.2		NA	NA	NA		NA	NA
Reference Time (s)		11.1			10.2				33.5			
Adj Reference Time (s)		15.6			14.7				38.5			
Split Option												
Ref Time Combined (s)	3.1	2.0		0.0	2.2		0.0	0.9	33.5		0.0	5.2
Ref Time Seperate (s)	3.1	2.0		0.7	3.1		0.2	0.8	33.0		0.7	4.8
Reference Time (s)	3.1	3.1		3.1	3.1		33.5	33.5	33.5		24.4	24.4
Adj Reference Time (s)	8.5	8.5		8.5	8.5		38.5	38.5	38.5		29.4	29.4

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	48.2	
Permitted Option (s)	15.6	83.1	
Split Option (s)	17.0	67.9	
Minimum (s)	15.6	48.2	63.8

Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	10.0	11.2	25.1
Cross Thru Ref Time (s)	37.9	48.2	8.5
Oncoming Left Ref Time (s)	8.5	8.5	8.5
Combined (s)	56.4	67.9	42.1

Intersection Summary			
Intersection Capacity Utilization	56.6%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations		
Volume (vph)	886	218
Pedestrians		7
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	5.0	5.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	886	218
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	4358	1360
Ped Intf Time (s)	0.0	0.9
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	24.4	20.1
Adj Reference Time (s)	29.4	25.1
Permitted Option		
Adj Saturation A (vph)	1453	
Reference Time A (s)	24.4	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	78.1	
Adj Reference Time (s)	83.1	
Split Option		
Ref Time Combined (s)	24.4	
Ref Time Seperate (s)	24.4	
Reference Time (s)	24.4	
Adj Reference Time (s)	29.4	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	18	430	385	183	118	48	69	552	3	34	158	525
Pedestrians	1		9	9		1	12		6		6	
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.5	6.0	4.0	5.0	5.0	6.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	4.0	4.0	4.0	6.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	448	385	0	301	48	69	555	0	0	192	744
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.97	0.91
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.96
Saturated Flow (vph)	0	3194	1360	0	2954	1360	2952	4355	0	0	2952	4166
Ped Intf Time (s)	0.0	0.0	1.1	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0	0.4
Pedestrian Frequency (%)		0.26			0.03			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			35.1			4.4	2.8	15.3	0.0	0.0	7.8	21.9
Adj Reference Time (s)			40.6			11.5	8.5	21.3	0.0	0.0	12.8	27.9
Permitted Option												
Adj Saturation A (vph)	0	2026		0	98		98	1452		0	98	1389
Reference Time A (s)	0.0	26.5		0.0	223.0		42.1	15.3		0.0	117.1	21.9
Adj Saturation B (vph	0	0		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	8.7	24.8		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		24.8			223.0			42.1				117.1
Adj Reference Time (s)		30.3			228.5			48.1				123.1
Split Option												
Ref Time Combined (s)	0.0	16.8		0.0	12.2		2.8	15.3		0.0	7.8	21.9
Ref Time Seperate (s)	0.7	32.3		14.4	4.6		2.8	15.2		2.7	6.4	15.6
Reference Time (s)	32.3	32.3		14.4	14.4		15.3	15.3		21.9	21.9	21.9
Adj Reference Time (s)	37.8	37.8		19.9	19.9		21.3	21.3		27.9	27.9	27.9

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	36.4	
Permitted Option (s)	228.5	123.1	
Split Option (s)	57.7	49.2	
Minimum (s)	57.7	36.4	94.1

Right Turns	EBR	WBR
Adj Reference Time (s)	40.6	11.5
Cross Thru Ref Time (s)	27.9	34.1
Oncoming Left Ref Time (s)	19.9	30.3
Combined (s)	88.4	75.9

Intersection Summary			
Intersection Capacity Utilization	78.4%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	219
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	42	0	11	20	579	0	0	525	9	98	3	10
Pedestrians	11					1	1					11
Ped Button					No					Yes		
Pedestrian Timing (s)					16.0					16.0		
Free Right			No			No			No		No	No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0
Minimum Green (s)	4.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	42	0	11	20	579	0	0	534	0	104	0	7
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.94	0.85	0.85
Saturated Flow (vph)	1520	0	1360	1520	3046	0	0	3039	0	2934	0	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	1.4
Pedestrian Frequency (%)		0.00			1.00			0.00		0.31		
Protected Option Allowed		No			Yes			Yes		No		
Reference Time (s)			1.0	1.6	22.8	0.0	0.0	21.1	0.0		0.0	1.9
Adj Reference Time (s)			9.0	15.0	27.8	0.0	0.0	26.1	0.0		0.0	9.0
Permitted Option												
Adj Saturation A (vph)	101	0		101	1523		0	1519		98		
Reference Time A (s)	49.7	0.0		23.7	22.8		0.0	21.1		64.1		
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA		
Reference Time (s)					23.7			21.1				
Adj Reference Time (s)					28.7			26.1				
Split Option												
Ref Time Combined (s)	3.3	0.0		1.6	22.8		0.0	21.1		4.3		
Ref Time Seperate (s)	3.3	0.0		1.6	22.8		0.0	20.7		4.1		
Reference Time (s)	3.3	3.3		22.8	22.8		21.1	21.1		4.3		
Adj Reference Time (s)	8.0	8.0		27.8	27.8		26.1	26.1		9.3		

Summary	EB	NB SB	SW	Combined
Protected Option (s)	NA	41.1	NA	
Permitted Option (s)	Err	28.7	Err	
Split Option (s)	8.0	53.9	9.3	
Minimum (s)	8.0	28.7	9.3	46.0

Right Turns	EBR	SWR2
Adj Reference Time (s)	9.0	9.0
Cross Thru Ref Time (s)	26.1	27.8
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	35.1	36.8

Intersection Summary			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	19	4	17	0	4	0	20	104	5	0	167	93
Pedestrians	3		8	8		3			4	4		
Ped Button		Yes			No			No				
Pedestrian Timing (s)		16.0			16.0			16.0				
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	4.0	8.0	8.0	8.0	8.0	8.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	23	17	0	4	0	20	104	5	0	260	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	1534	1360	0	1600	0	1520	1600	1360	0	1514	0
Ped Intf Time (s)	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.0
Pedestrian Frequency (%)		0.23			1.00			1.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			2.5			0.0			1.0			0.0
Adj Reference Time (s)			11.0			0.0			13.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	117		0	1600		101	1600		0	1514	
Reference Time A (s)	0.0	23.7		0.0	0.3		23.7	7.8		0.0	20.6	
Adj Saturation B (vph	0	0		0	1600		NA	NA		0	1514	
Reference Time B (s)	9.5	9.8		0.0	0.3		NA	NA		0.0	20.6	
Reference Time (s)		9.8			0.3			23.7			20.6	
Adj Reference Time (s)		14.8			11.0			28.7			25.6	
Split Option												
Ref Time Combined (s)	0.0	1.8		0.0	0.3		1.6	7.8		0.0	20.6	
Ref Time Seperate (s)	1.5	0.3		0.0	0.3		1.6	7.8		0.0	13.2	
Reference Time (s)	1.8	1.8		0.3	0.3		7.8	7.8		20.6	20.6	
Adj Reference Time (s)	11.0	11.0		11.0	11.0		13.0	13.0		25.6	25.6	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	14.8	28.7	
Split Option (s)	22.0	38.6	
Minimum (s)	14.8	28.7	43.5

Right Turns	SER	NER
Adj Reference Time (s)	11.0	13.0
Cross Thru Ref Time (s)	25.6	11.0
Oncoming Left Ref Time (s)	11.0	25.6
Combined (s)	47.6	49.6

Intersection Summary			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	4	3	5	119	58	5	3	21	123	36	7	167
Pedestrians	1		5	5		1		1		17	17	
Ped Button		Yes			Yes				Yes			Yes
Pedestrian Timing (s)		16.0			16.0				16.0			16.0
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	7	5	0	182	0	0	24	123	36	7	183
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.96	0.85	0.95	0.95	1.00	0.85	0.95	0.99
Saturated Flow (vph)	0	1554	1360	0	1541	0	0	1520	3046	1360	1520	3006
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	2.0	0.0	0.0
Pedestrian Frequency (%)		0.15			0.03				0.43			0.03
Protected Option Allowed		No			No				Yes			Yes
Reference Time (s)			1.1			0.0	0.0	1.9	4.8	5.2	0.6	7.3
Adj Reference Time (s)			9.8			0.0	0.0	8.0	13.7	13.9	8.0	11.6
Permitted Option												
Adj Saturation A (vph)	0	1383		0	141		0	101	1523		101	1503
Reference Time A (s)	0.0	0.6		0.0	155.3		0.0	28.4	4.8		8.3	7.3
Adj Saturation B (vph	0	0		0	0		NA	NA	NA		NA	NA
Reference Time B (s)	8.3	8.5		17.4	22.2		NA	NA	NA		NA	NA
Reference Time (s)		0.6			22.2				28.4			8.3
Adj Reference Time (s)		9.8			26.2				32.4			12.5
Split Option												
Ref Time Combined (s)	0.0	0.5		0.0	14.2		0.0	1.9	4.8		0.6	7.3
Ref Time Seperate (s)	0.3	0.2		9.4	4.4		0.2	1.7	4.8		0.6	6.7
Reference Time (s)	0.5	0.5		14.2	14.2		4.8	4.8	4.8		7.3	7.3
Adj Reference Time (s)	9.8	9.8		18.2	18.2		13.7	13.7	13.7		11.6	11.6

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	21.7	
Permitted Option (s)	26.2	32.4	
Split Option (s)	28.1	25.3	
Minimum (s)	26.2	21.7	47.8

Right Turns	SER	NER
Adj Reference Time (s)	9.8	13.9
Cross Thru Ref Time (s)	19.6	9.8
Oncoming Left Ref Time (s)	18.2	8.0
Combined (s)	47.7	31.7

Intersection Summary			
Intersection Capacity Utilization	39.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	16
Pedestrians	1
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.1
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	50	198	5	6	694	77	9	97	4	24	110	163
Pedestrians	4		5	5		4	5		7	7		5
Ped Button		Yes			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.5	5.5	5.5	5.5	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	50	203	0	6	771	0	9	97	4	24	273	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.91	0.85
Saturated Flow (vph)	1520	3035	0	1520	3001	0	1520	3046	1360	1520	2774	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.5	0.0	0.0	0.9	0.0	0.4	0.6
Pedestrian Frequency (%)		0.15			1.00			0.21			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.9	8.0	0.0	0.5	30.9	0.0	0.7	3.8	1.2	1.9	12.2	0.0
Adj Reference Time (s)	15.5	15.5	0.0	15.5	36.4	0.0	11.5	11.5	11.5	11.5	17.7	0.0
Permitted Option												
Adj Saturation A (vph)	101	1518		101	1500		101	1523		101	1387	
Reference Time A (s)	59.2	8.0		7.1	30.9		10.7	3.8		28.4	12.2	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		0	2774	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		9.9	12.2	
Reference Time (s)		59.2			30.9			10.7			12.2	
Adj Reference Time (s)		64.7			36.4			16.2			17.7	
Split Option												
Ref Time Combined (s)	3.9	8.0		0.5	30.9		0.7	3.8		1.9	12.2	
Ref Time Seperate (s)	3.9	7.8		0.5	27.8		0.7	3.8		1.9	5.1	
Reference Time (s)	8.0	8.0		30.9	30.9		3.8	3.8		12.2	12.2	
Adj Reference Time (s)	15.5	15.5		36.4	36.4		11.5	11.5		17.7	17.7	

Summary	NW SE	NE SW	Combined
Protected Option (s)	51.9	29.2	
Permitted Option (s)	64.7	17.7	
Split Option (s)	51.9	29.2	
Minimum (s)	51.9	17.7	69.6

Right Turns	NER
Adj Reference Time (s)	11.5
Cross Thru Ref Time (s)	15.5
Oncoming Left Ref Time (s)	11.5
Combined (s)	38.5

Intersection Summary			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	85	129	41	101	369	109	2	149	585	128	6	68
Pedestrians	17		11	11		17		6		13		13
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	6.0	4.0	4.5	6.0	4.0	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	6.0	6.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	170	0	101	478	0	0	151	585	128	0	74
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.97	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	2936	0	1520	2942	0	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.3	1.4	0.0	0.5	2.0	0.0	0.0	0.0	1.6	0.0	0.0
Pedestrian Frequency (%)		0.31			0.43				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	6.7	7.3	0.0	8.0	20.0	0.0	0.0	11.9	23.0	12.9	0.0	5.8
Adj Reference Time (s)	11.2	13.3	0.0	12.5	26.0	0.0	0.0	16.4	29.0	18.9	0.0	10.3
Permitted Option												
Adj Saturation A (vph)	101	1468		101	1471		0	101	1523		0	101
Reference Time A (s)	100.7	7.3		119.6	20.0		0.0	178.8	23.0		0.0	87.6
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		100.7			119.6				178.8			
Adj Reference Time (s)		106.7			125.6				184.8			
Split Option												
Ref Time Combined (s)	6.7	7.3		8.0	20.0		0.0	11.9	23.0		0.0	5.8
Ref Time Seperate (s)	6.7	5.6		8.0	15.5		0.2	11.8	23.0		0.5	5.4
Reference Time (s)	7.3	7.3		20.0	20.0		23.0	23.0	23.0		30.6	30.6
Adj Reference Time (s)	13.3	13.3		26.0	26.0		29.0	29.0	29.0		36.6	36.6

Summary	NW SE	NE SW	Combined
Protected Option (s)	37.2	53.0	
Permitted Option (s)	125.6	184.8	
Split Option (s)	39.2	65.7	
Minimum (s)	37.2	53.0	90.2

Right Turns	NER	SWR
Adj Reference Time (s)	18.9	25.3
Cross Thru Ref Time (s)	13.3	26.0
Oncoming Left Ref Time (s)	10.3	16.4
Combined (s)	42.5	67.7

Intersection Summary			
Intersection Capacity Utilization	75.2%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWT	SWR
Lane Configurations		
Volume (vph)	777	210
Pedestrians		6
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	6.0	6.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	777	210
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.8
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	30.6	19.3
Adj Reference Time (s)	36.6	25.3
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	30.6	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	87.6	
Adj Reference Time (s)	93.6	
Split Option		
Ref Time Combined (s)	30.6	
Ref Time Seperate (s)	30.6	
Reference Time (s)	30.6	
Adj Reference Time (s)	36.6	

Summary

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	27	199	554	2	192	446	15	2	7	1	21	10
Pedestrians	3		3		3		3					
Ped Button		No				No						
Pedestrian Timing (s)		16.0				16.0						
Free Right			No				No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.7	4.9	4.0	3.7	3.7	4.9	4.0	4.1	4.1	4.1	4.1	4.1
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	27	753	0	0	194	461	0	0	9	1	21	10
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00
Saturated Flow (vph)	1520	2710	0	0	2952	3032	0	0	1582	1360	1520	1600
Ped Intf Time (s)	0.0	0.3	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		1.00				1.00			0.00			0.00
Protected Option Allowed		Yes				Yes			No			No
Reference Time (s)	2.1	33.6	0.0	0.0	7.9	18.3	0.0			0.1		
Adj Reference Time (s)	14.0	38.5	0.0	0.0	14.0	23.2	0.0			14.1		
Permitted Option												
Adj Saturation A (vph)	101	1355		0	98	1516		0	360		101	1600
Reference Time A (s)	32.0	33.6		0.0	118.3	18.3		0.0	3.0		24.9	0.8
Adj Saturation B (vph	NA	NA		NA	NA	NA		0	0		0	1600
Reference Time B (s)	NA	NA		NA	NA	NA		8.2	8.7		9.7	0.8
Reference Time (s)		33.6				118.3			3.0			9.7
Adj Reference Time (s)		38.5				123.2			14.1			14.1
Split Option												
Ref Time Combined (s)	2.1	33.6		0.0	7.9	18.3		0.0	0.7		1.7	0.8
Ref Time Seperate (s)	2.1	9.1		0.2	7.8	17.7		0.2	0.5		1.7	0.8
Reference Time (s)	33.6	33.6		18.3	18.3	18.3		0.7	0.7		1.7	1.7
Adj Reference Time (s)	38.5	38.5		23.2	23.2	23.2		14.1	14.1		14.1	14.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	52.5	NA	
Permitted Option (s)	123.2	14.1	
Split Option (s)	61.7	28.2	
Minimum (s)	52.5	14.1	66.6

Right Turns	NER	SWR
Adj Reference Time (s)	14.1	14.1
Cross Thru Ref Time (s)	52.5	23.2
Oncoming Left Ref Time (s)	14.1	14.1
Combined (s)	80.7	51.4

Intersection Summary			
Intersection Capacity Utilization	67.3%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	46
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.1
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	46
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	4.1
Adj Reference Time (s)	14.1
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWU	NWL	NWT
Lane Configurations												
Volume (vph)	55	1	56	142	315	77	26	579	154	2	289	178
Pedestrians							3		2		2	
Ped Button								No				No
Pedestrian Timing (s)								16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.0	3.7	4.9	4.9	3.7	3.7	4.9
Minimum Green (s)	10.0	10.0	10.0	9.9	9.9	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	56	56	0	534	0	26	579	154	0	291	217
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.97	0.95
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.97
Saturated Flow (vph)	0	1521	1360	0	1545	0	1520	3046	1360	0	2952	2964
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			4.9			0.0	2.1	22.8	13.9	0.0	11.8	8.9
Adj Reference Time (s)			14.1			0.0	14.0	27.7	18.8	0.0	15.8	14.9
Permitted Option												
Adj Saturation A (vph)	0	513		0	303		101	1523		0	98	1482
Reference Time A (s)	0.0	13.1		0.0	211.2		30.8	22.8		0.0	177.4	8.9
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		19.2	49.5		NA	NA		NA	NA	NA
Reference Time (s)		13.1			49.5			30.8				177.4
Adj Reference Time (s)		17.2			53.6			35.7				182.3
Split Option												
Ref Time Combined (s)	0.0	4.4		0.0	41.5		2.1	22.8		0.0	11.8	8.9
Ref Time Seperate (s)	4.3	0.1		11.2	24.3		2.1	22.8		0.2	11.7	7.3
Reference Time (s)	4.4	4.4		41.5	41.5		22.8	22.8		11.8	11.8	11.8
Adj Reference Time (s)	14.1	14.1		45.6	45.6		27.7	27.7		16.7	16.7	16.7

Summary	NB SB	NW SE	Combined
Protected Option (s)	NA	43.5	
Permitted Option (s)	53.6	182.3	
Split Option (s)	59.7	44.4	
Minimum (s)	53.6	43.5	97.1

Right Turns	NBR	SER
Adj Reference Time (s)	14.1	18.8
Cross Thru Ref Time (s)	43.5	45.6
Oncoming Left Ref Time (s)	45.6	15.8
Combined (s)	103.2	80.2

Intersection Summary			
Intersection Capacity Utilization	86.0%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NWR
Lane Configurations	
Volume (vph)	39
Pedestrians	3
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.4
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	94	252	61	113	400	80	86	785	51	21	98	791
Pedestrians	14		12	12		14	12		7		7	
Ped Button		Yes			No			No				Yes
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.5	6.0	4.0	3.5	3.5	6.0
Minimum Green (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	4.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	94	313	0	113	480	0	86	836	0	0	119	896
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.97	0.85	0.95	0.99	0.85	0.95	0.95	0.98
Saturated Flow (vph)	1520	2957	0	1520	2970	0	1520	3019	0	0	1520	2993
Ped Intf Time (s)	0.0	0.3	1.5	0.0	0.3	1.7	0.0	0.1	0.9	0.0	0.0	0.2
Pedestrian Frequency (%)		0.33			1.00			1.00				0.33
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	7.4	13.0	0.0	8.9	19.7	0.0	6.8	33.3	0.0	0.0	9.4	36.1
Adj Reference Time (s)	13.4	19.0	0.0	14.9	25.7	0.0	10.8	39.3	0.0	0.0	13.4	42.1
Permitted Option												
Adj Saturation A (vph)	101	1479		101	1485		101	1509		0	101	1496
Reference Time A (s)	111.3	13.0		133.8	19.7		101.8	33.3		0.0	140.9	36.1
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		111.3			133.8			101.8				140.9
Adj Reference Time (s)		117.3			139.8			107.8				146.9
Split Option												
Ref Time Combined (s)	7.4	13.0		8.9	19.7		6.8	33.3		0.0	9.4	36.1
Ref Time Seperate (s)	7.4	10.5		8.9	16.4		6.8	31.3		1.7	7.7	31.9
Reference Time (s)	13.0	13.0		19.7	19.7		33.3	33.3		36.1	36.1	36.1
Adj Reference Time (s)	19.0	19.0		25.7	25.7		39.3	39.3		42.1	42.1	42.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	39.1	52.9	
Permitted Option (s)	139.8	146.9	
Split Option (s)	44.7	81.4	
Minimum (s)	39.1	52.9	92.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	76.7%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	105
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	4	56	306	84	2	146	593	134	11	66	752	92
Pedestrians		16		16		16		16		14		39
Ped Button			Yes				Yes				No	
Pedestrian Timing (s)			16.0				16.0				16.0	
Free Right				No				No				No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0	4.0	4.0	6.0	6.0	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	60	306	84	0	148	593	134	0	77	752	92
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360	0	1520	3046	1360	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0	0.0	4.0
Pedestrian Frequency (%)			0.41				0.41				1.00	
Protected Option Allowed			Yes				Yes				Yes	
Reference Time (s)	0.0	4.7	12.1	9.3	0.0	11.7	23.4	13.7	0.0	6.1	29.6	12.1
Adj Reference Time (s)	0.0	9.2	18.1	15.3	0.0	15.7	29.4	19.7	0.0	10.6	35.6	18.1
Permitted Option												
Adj Saturation A (vph)	0	101	1523		0	101	1523		0	101	1523	
Reference Time A (s)	0.0	71.1	12.1		0.0	175.3	23.4		0.0	91.2	29.6	
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time B (s)	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time (s)			71.1				175.3				91.2	
Adj Reference Time (s)			77.1				181.3				97.2	
Split Option												
Ref Time Combined (s)	0.0	4.7	12.1		0.0	11.7	23.4		0.0	6.1	29.6	
Ref Time Seperate (s)	0.3	4.4	12.1		0.2	11.5	23.4		0.9	5.2	29.6	
Reference Time (s)	12.1	12.1	12.1		23.4	23.4	23.4		29.6	29.6	29.6	
Adj Reference Time (s)	18.1	18.1	18.1		29.4	29.4	29.4		35.6	35.6	35.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	38.6	52.5	
Permitted Option (s)	181.3	97.2	
Split Option (s)	47.4	77.6	
Minimum (s)	38.6	52.5	91.1

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	15.3	19.7	18.1	16.0
Cross Thru Ref Time (s)	52.5	45.0	33.7	38.6
Oncoming Left Ref Time (s)	15.7	9.2	9.4	10.6
Combined (s)	83.5	74.0	61.2	65.2

Intersection Summary			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Volume (vph)	10	52	913	42
Pedestrians		39		14
Ped Button			No	
Pedestrian Timing (s)			16.0	
Free Right				No
Ideal Flow	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120
Volume Combined (vph)	0	62	913	42
Lane Utilization Factor	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	1.7
Pedestrian Frequency (%)			1.00	
Protected Option Allowed			Yes	
Reference Time (s)	0.0	4.9	36.0	5.4
Adj Reference Time (s)	0.0	9.4	42.0	16.0
Permitted Option				
Adj Saturation A (vph)	0	101	1523	
Reference Time A (s)	0.0	73.4	36.0	
Adj Saturation B (vph	NA	NA	NA	
Reference Time B (s)	NA	NA	NA	
Reference Time (s)			73.4	
Adj Reference Time (s)			79.4	
Split Option				
Ref Time Combined (s)	0.0	4.9	36.0	
Ref Time Seperate (s)	0.8	4.1	36.0	
Reference Time (s)	36.0	36.0	36.0	
Adj Reference Time (s)	42.0	42.0	42.0	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	51	170	264	121	308	96	13	122	820	76	20	58
Pedestrians	19		3	3		19		13		7		7
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	5.5	5.5	4.5	5.5	5.5	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	51	170	264	121	308	96	0	135	820	76	0	78
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	0.4	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0
Pedestrian Frequency (%)		0.10			0.47				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	4.0	12.8	23.7	9.6	23.1	10.7	0.0	10.7	32.3	7.6	0.0	6.2
Adj Reference Time (s)	8.5	18.3	29.2	14.1	28.6	16.2	0.0	15.2	38.3	16.0	0.0	10.7
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	60.4	12.8		143.3	23.1		0.0	159.9	32.3		0.0	92.4
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		60.4			143.3				159.9			
Adj Reference Time (s)		65.9			148.8				165.9			
Split Option												
Ref Time Combined (s)	4.0	12.8		9.6	23.1		0.0	10.7	32.3		0.0	6.2
Ref Time Seperate (s)	4.0	12.8		9.6	23.1		1.0	9.6	32.3		1.6	4.6
Reference Time (s)	12.8	12.8		23.1	23.1		32.3	32.3	32.3		41.6	41.6
Adj Reference Time (s)	18.3	18.3		28.6	28.6		38.3	38.3	38.3		47.6	47.6

Summary	EB WB	NB SB	Combined
Protected Option (s)	37.1	62.8	
Permitted Option (s)	148.8	165.9	
Split Option (s)	46.9	85.9	
Minimum (s)	37.1	62.8	99.9

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	29.2	16.2	16.0	16.0
Cross Thru Ref Time (s)	62.8	49.0	18.3	28.6
Oncoming Left Ref Time (s)	14.1	8.5	10.7	15.2
Combined (s)	106.0	73.7	44.9	59.8

Intersection Summary			
Intersection Capacity Utilization	88.3%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Volume (vph)	1056	40
Pedestrians		13
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1056	40
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	1.6
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	41.6	5.1
Adj Reference Time (s)	47.6	16.0
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	41.6	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	92.4	
Adj Reference Time (s)	98.4	
Split Option		
Ref Time Combined (s)	41.6	
Ref Time Seperate (s)	41.6	
Reference Time (s)	41.6	
Adj Reference Time (s)	47.6	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	130	303	116	220	384	71	73	1039	136	2	36	897
Pedestrians	5		15	15		5	5		8		8	
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		18.0			18.0			18.0				18.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	130	419	0	220	455	0	73	1039	136	0	38	897
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	1.00
Saturated Flow (vph)	1520	2920	0	1520	2975	0	1520	3046	1360	0	1520	3046
Ped Intf Time (s)	0.0	0.5	1.8	0.0	0.1	0.6	0.0	0.0	1.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.39			0.15			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	10.3	17.7	0.0	17.4	18.5	0.0	5.8	40.9	13.0	0.0	3.0	35.3
Adj Reference Time (s)	14.8	22.3	0.0	21.9	23.0	0.0	10.3	45.4	22.5	0.0	9.5	39.8
Permitted Option												
Adj Saturation A (vph)	101	1460		101	1488		101	1523		0	101	1523
Reference Time A (s)	153.9	17.7		260.5	18.5		86.4	40.9		0.0	45.0	35.3
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		153.9			260.5			86.4				45.0
Adj Reference Time (s)		158.4			265.0			90.9				49.5
Split Option												
Ref Time Combined (s)	10.3	17.7		17.4	18.5		5.8	40.9		0.0	3.0	35.3
Ref Time Seperate (s)	10.3	13.0		17.4	15.6		5.8	40.9		0.2	2.8	35.3
Reference Time (s)	17.7	17.7		18.5	18.5		40.9	40.9		35.3	35.3	35.3
Adj Reference Time (s)	22.3	22.3		23.0	23.0		45.4	45.4		39.8	39.8	39.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	44.2	54.9	
Permitted Option (s)	265.0	90.9	
Split Option (s)	45.3	85.3	
Minimum (s)	44.2	54.9	99.1

Right Turns	NBR	SBR
Adj Reference Time (s)	22.5	22.5
Cross Thru Ref Time (s)	22.3	23.0
Oncoming Left Ref Time (s)	9.5	10.3
Combined (s)	54.3	55.7

Intersection Summary			
Intersection Capacity Utilization	82.6%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	90
Pedestrians	5
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.5
Minimum Green (s)	5.0
Refr Cycle Length (s)	120
Volume Combined (vph)	90
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.6
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	8.6
Adj Reference Time (s)	22.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	692	228	173	1006	427	202	581	95	362	894	90
Pedestrians	23		56	56		23	30		31	31		30
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.5	4.0	4.5	7.5	4.0
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	135	692	228	173	1006	427	202	676	0	362	984	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.99	0.85
Saturated Flow (vph)	2952	3046	1360	2952	4358	1360	4428	4267	0	4428	4299	0
Ped Intf Time (s)	0.0	0.0	5.1	0.0	0.0	2.6	0.0	0.5	3.3	0.0	0.3	3.2
Pedestrian Frequency (%)		0.85			0.54			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.5	27.3	25.3	7.0	27.7	40.3	5.5	19.5	0.0	9.8	27.8	0.0
Adj Reference Time (s)	10.0	34.3	32.3	11.5	34.7	47.3	10.0	27.0	0.0	14.3	35.3	0.0
Permitted Option												
Adj Saturation A (vph)	98	1523		98	1453		98	1422		98	1433	
Reference Time A (s)	82.3	27.3		105.5	27.7		82.1	19.5		147.2	27.8	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		82.3			105.5			82.1			147.2	
Adj Reference Time (s)		89.3			112.5			89.6			154.7	
Split Option												
Ref Time Combined (s)	5.5	27.3		7.0	27.7		5.5	19.5		9.8	27.8	
Ref Time Seperate (s)	5.5	27.3		7.0	27.7		5.5	16.8		9.8	25.3	
Reference Time (s)	27.3	27.3		27.7	27.7		19.5	19.5		27.8	27.8	
Adj Reference Time (s)	34.3	34.3		34.7	34.7		27.0	27.0		35.3	35.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	45.8	45.2	
Permitted Option (s)	112.5	154.7	
Split Option (s)	69.0	62.2	
Minimum (s)	45.8	45.2	91.0

Right Turns	EBR	WBR
Adj Reference Time (s)	32.3	47.3
Cross Thru Ref Time (s)	35.3	27.0
Oncoming Left Ref Time (s)	11.5	10.0
Combined (s)	79.1	84.3

Intersection Summary			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	18	17	58	62	41	32	118	923	123	1	52	707
Pedestrians	4					4			7		7	
Ped Button					Yes			No				
Pedestrian Timing (s)					16.0			16.0				
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.5	5.5	4.5	4.5	4.5
Minimum Green (s)	6.0	6.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	93	0	0	103	32	118	923	123	0	53	752
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.91
Turning Factor (vph)	0.95	0.90	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.99
Saturated Flow (vph)	0	1436	0	0	3104	1360	1520	4358	1360	0	1520	4319
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.9	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.12			1.00				0.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			0.0			3.3	9.3	25.4	11.7	0.0	4.2	20.9
Adj Reference Time (s)			0.0			15.0	14.3	30.9	17.2	0.0	8.7	25.4
Permitted Option												
Adj Saturation A (vph)	0	365		0	1229		101	1453		0	101	1440
Reference Time A (s)	0.0	30.6		0.0	10.1		139.7	25.4		0.0	62.8	20.9
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	9.4	15.8		10.4	12.0		NA	NA		NA	NA	NA
Reference Time (s)		15.8			10.1			139.7				62.8
Adj Reference Time (s)		20.8			15.1			145.2				67.3
Split Option												
Ref Time Combined (s)	0.0	7.8		0.0	4.0		9.3	25.4		0.0	4.2	20.9
Ref Time Seperate (s)	1.4	1.4		2.4	3.1		9.3	25.4		0.1	4.1	19.6
Reference Time (s)	7.8	7.8		4.0	4.0		25.4	25.4		20.9	20.9	20.9
Adj Reference Time (s)	12.8	12.8		15.0	15.0		30.9	30.9		25.4	25.4	25.4

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	39.7	
Permitted Option (s)	20.8	145.2	
Split Option (s)	27.8	56.3	
Minimum (s)	20.8	39.7	60.5

Right Turns	WBR	NBR
Adj Reference Time (s)	15.0	17.2
Cross Thru Ref Time (s)	39.6	12.8
Oncoming Left Ref Time (s)	12.8	8.7
Combined (s)	67.4	38.7

Intersection Summary			
Intersection Capacity Utilization	56.1%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	45
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	81	13	62	120	366	16	468	221	334	517	69
Pedestrians			3	3			1		2	2		1
Ped Button		Yes						No			No	
Pedestrian Timing (s)		16.0						16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.5	5.0	4.0	4.5	5.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	10.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	34	94	0	62	120	366	16	689	0	334	586	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	1567	0	1520	1600	1360	1520	2900	0	1520	4281	0
Ped Intf Time (s)	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.10			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.7	7.3	0.0	4.9	9.0	32.3	1.3	28.6	0.0	26.4	16.4	0.0
Adj Reference Time (s)	9.0	12.3	0.0	9.9	14.0	37.3	8.5	33.6	0.0	30.9	21.4	0.0
Permitted Option												
Adj Saturation A (vph)	101	1567		101	1600		101	1450		101	1427	
Reference Time A (s)	40.3	7.3		73.4	9.0		18.9	28.6		395.5	16.4	
Adj Saturation B (vph	0	1567		0	1600		NA	NA		NA	NA	
Reference Time B (s)	10.7	7.3		12.9	9.0		NA	NA		NA	NA	
Reference Time (s)		10.7			12.9			28.6			395.5	
Adj Reference Time (s)		15.7			17.9			33.6			400.5	
Split Option												
Ref Time Combined (s)	2.7	7.3		4.9	9.0		1.3	28.6		26.4	16.4	
Ref Time Seperate (s)	2.7	6.3		4.9	9.0		1.3	19.5		26.4	14.5	
Reference Time (s)	7.3	7.3		9.0	9.0		28.6	28.6		26.4	26.4	
Adj Reference Time (s)	12.3	12.3		14.0	14.0		33.6	33.6		31.4	31.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	23.0	64.5	
Permitted Option (s)	17.9	400.5	
Split Option (s)	26.3	65.0	
Minimum (s)	17.9	64.5	82.4

Right Turns	WBR
Adj Reference Time (s)	37.3
Cross Thru Ref Time (s)	33.6
Oncoming Left Ref Time (s)	9.0
Combined (s)	79.9

Intersection Summary			
Intersection Capacity Utilization	68.6%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

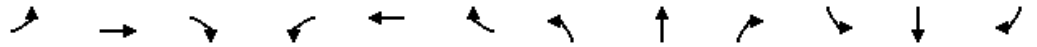
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	429	14	89	736	91	44	309	146	114	224	62
Pedestrians	86		19	19		86	7		51	51		7
Ped Button		No			No			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.0	4.0	5.5	5.0	4.0
Minimum Green (s)	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	29	443	0	89	827	0	0	499	0	0	400	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.95	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	3032	0	1520	2996	0	0	2900	0	0	2933	0
Ped Intf Time (s)	0.0	0.1	2.2	0.0	0.7	6.6	0.0	1.4	4.8	0.0	0.1	0.9
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	2.3	17.6	0.0	7.0	33.9	0.0			0.0			0.0
Adj Reference Time (s)	12.5	23.1	0.0	12.5	39.4	0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	101	1516		101	1498		0	279		0	98	
Reference Time A (s)	34.3	17.6		105.4	33.9		0.0	70.9		0.0	140.1	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		34.3			105.4			70.9			140.1	
Adj Reference Time (s)		39.8			110.9			75.9			145.1	
Split Option												
Ref Time Combined (s)	2.3	17.6		7.0	33.9		0.0	22.1		0.0	16.5	
Ref Time Seperate (s)	2.3	17.0		7.0	30.2		3.5	14.2		9.0	9.3	
Reference Time (s)	17.6	17.6		33.9	33.9		22.1	22.1		16.5	16.5	
Adj Reference Time (s)	23.1	23.1		39.4	39.4		27.1	27.1		21.5	21.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	51.9	NA	
Permitted Option (s)	110.9	145.1	
Split Option (s)	62.5	48.6	
Minimum (s)	51.9	48.6	100.4

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	83.7%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	650	0	178	0	1006	307	0	729	249
Pedestrians									7			3
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	650	0	178	0	1006	307	0	729	249
Lane Utilization Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	0	0	2952	0	1360	0	4358	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.4
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	26.4	0.0	15.7	0.0	27.7	28.0	0.0	28.7	22.4
Adj Reference Time (s)	0.0	0.0	0.0	30.9	0.0	20.2	0.0	32.2	32.5	0.0	33.2	26.9
Permitted Option												
Adj Saturation A (vph)	0	0		98	0		0	1453		0	1523	
Reference Time A (s)	0.0	0.0		396.4	0.0		0.0	27.7		0.0	28.7	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	0.0	0.0		34.4	0.0		NA	NA		NA	NA	
Reference Time (s)		0.0			34.4			27.7			28.7	
Adj Reference Time (s)		8.0			38.4			32.2			33.2	
Split Option												
Ref Time Combined (s)	0.0	0.0		26.4	0.0		0.0	27.7		0.0	28.7	
Ref Time Seperate (s)	0.0	0.0		26.4	0.0		0.0	27.7		0.0	28.7	
Reference Time (s)	0.0	0.0		26.4	26.4		27.7	27.7		28.7	28.7	
Adj Reference Time (s)	0.0	0.0		30.4	30.4		32.2	32.2		33.2	33.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	30.9	33.2	
Permitted Option (s)	38.4	33.2	
Split Option (s)	30.4	65.4	
Minimum (s)	30.4	33.2	63.6

Right Turns	WBR	NBR	SBR
Adj Reference Time (s)	20.2	32.5	26.9
Cross Thru Ref Time (s)	32.2	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	52.4	32.5	26.9

Intersection Summary			
Intersection Capacity Utilization	53.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	0	261	0	0	0	0	1085	802	0	1359	1
Pedestrians												7
Ped Button											No	
Pedestrian Timing (s)											18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.0	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	4.0	5.0	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	221	0	261	0	0	0	0	1352	535	0	1359	1
Lane Utilization Factor	1.00	1.00	0.89	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	0	2407	0	0	0	1520	2956	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Pedestrian Frequency (%)		0.00			0.00			0.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	17.4	0.0	13.0	0.0	0.0	0.0	0.0	54.9	47.2	0.0	53.5	1.0
Adj Reference Time (s)	21.9	0.0	17.5	0.0	0.0	0.0	9.5	59.4	51.7	0.0	58.0	22.5
Permitted Option												
Adj Saturation A (vph)	101	0		0	0		101	1478		0	1523	
Reference Time A (s)	261.7	0.0		0.0	0.0		0.0	54.9		0.0	53.5	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	25.4	0.0		0.0	0.0		NA	NA		NA	NA	
Reference Time (s)		25.4			0.0			54.9			53.5	
Adj Reference Time (s)		29.4			8.0			59.4			58.0	
Split Option												
Ref Time Combined (s)	17.4	0.0		0.0	0.0		0.0	54.9		0.0	53.5	
Ref Time Seperate (s)	17.4	0.0		0.0	0.0		0.0	44.0		0.0	53.5	
Reference Time (s)	17.4	17.4		0.0	0.0		54.9	54.9		53.5	53.5	
Adj Reference Time (s)	21.4	21.4		0.0	0.0		59.4	59.4		58.0	58.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	21.9	67.5	
Permitted Option (s)	29.4	59.4	
Split Option (s)	21.4	117.4	
Minimum (s)	21.4	59.4	80.8

Right Turns	EBR	NBR	SBR
Adj Reference Time (s)	17.5	51.7	22.5
Cross Thru Ref Time (s)	58.0	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	75.5	51.7	22.5

Intersection Summary			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	462	115	171	184	77	102	9	101	1097	4	9	253
Pedestrians			32			37						
Ped Button		Yes			Yes							
Pedestrian Timing (s)		16.0			16.0							
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	462	115	171	0	261	102	0	110	1101	0	0	262
Lane Utilization Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	2952	1600	1360	0	3087	1360	0	2952	4356	0	0	2952
Ped Intf Time (s)	0.0	0.0	3.4	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.66			0.71				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			18.5			12.8	0.0	4.5	30.3	0.0	0.0	10.7
Adj Reference Time (s)			23.0			17.3	0.0	9.0	35.3	0.0	0.0	15.2
Permitted Option												
Adj Saturation A (vph)	98	1600		0	265		0	98	1452		0	98
Reference Time A (s)	281.7	8.6		0.0	118.1		0.0	67.1	30.3		0.0	159.8
Adj Saturation B (vph	0	1600		0	0		NA	NA	NA		NA	NA
Reference Time B (s)	26.8	8.6		15.3	18.1		NA	NA	NA		NA	NA
Reference Time (s)		26.8			18.1				67.1			
Adj Reference Time (s)		31.3			22.6				72.1			
Split Option												
Ref Time Combined (s)	18.8	8.6		0.0	10.1		0.0	4.5	30.3		0.0	10.7
Ref Time Seperate (s)	18.8	8.6		7.3	5.8		0.7	4.1	30.2		0.7	10.3
Reference Time (s)	18.8	18.8		10.1	10.1		30.3	30.3	30.3		25.8	25.8
Adj Reference Time (s)	23.3	23.3		14.6	14.6		35.3	35.3	35.3		30.8	30.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	50.5	
Permitted Option (s)	31.3	164.8	
Split Option (s)	37.9	66.2	
Minimum (s)	31.3	50.5	81.8

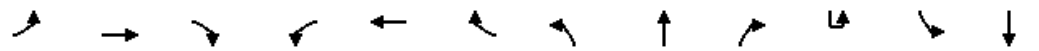
Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	23.0	17.3	44.6
Cross Thru Ref Time (s)	39.8	50.5	14.6
Oncoming Left Ref Time (s)	14.6	23.3	9.0
Combined (s)	77.5	91.1	68.2

Intersection Summary			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations		
Volume (vph)	938	432
Pedestrians		12
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	5.0	5.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	938	432
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	4358	1360
Ped Intf Time (s)	0.0	1.5
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	25.8	39.6
Adj Reference Time (s)	30.8	44.6
Permitted Option		
Adj Saturation A (vph)	1453	
Reference Time A (s)	25.8	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	159.8	
Adj Reference Time (s)	164.8	
Split Option		
Ref Time Combined (s)	25.8	
Ref Time Seperate (s)	25.8	
Reference Time (s)	25.8	
Adj Reference Time (s)	30.8	

Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	293	367	102	16	273	233	120	712	21	18	228	703
Pedestrians						2			8			
Ped Button					Yes			No				No
Pedestrian Timing (s)					16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.5	6.0	4.0	5.0	5.0	6.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	4.0	4.0	4.0	6.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	660	102	0	289	233	120	733	0	0	246	917
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.97	0.91
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.96
Saturated Flow (vph)	0	3129	1360	0	3038	1360	2952	4340	0	0	2952	4206
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.3
Pedestrian Frequency (%)		0.00			0.06			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			9.0			20.8	4.9	20.3	0.0	0.0	10.0	26.5
Adj Reference Time (s)			14.5			26.3	9.4	26.3	0.0	0.0	15.0	32.5
Permitted Option												
Adj Saturation A (vph)	0	396		0	486		98	1447		0	98	1402
Reference Time A (s)	0.0	199.9		0.0	27.8		73.2	20.3		0.0	150.0	26.5
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		199.9			27.8			73.2				150.0
Adj Reference Time (s)		205.4			33.3			79.2				156.0
Split Option												
Ref Time Combined (s)	0.0	25.3		0.0	11.4		4.9	20.3		0.0	10.0	26.5
Ref Time Seperate (s)	11.6	27.5		1.3	10.8		4.9	19.7		1.4	9.3	20.4
Reference Time (s)	27.5	27.5		11.4	11.4		20.3	20.3		26.5	26.5	26.5
Adj Reference Time (s)	33.0	33.0		16.9	16.9		26.3	26.3		32.5	32.5	32.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	41.9	
Permitted Option (s)	205.4	156.0	
Split Option (s)	49.9	58.8	
Minimum (s)	49.9	41.9	91.8

Right Turns	EBR	WBR
Adj Reference Time (s)	14.5	26.3
Cross Thru Ref Time (s)	32.5	41.3
Oncoming Left Ref Time (s)	16.9	33.0
Combined (s)	63.9	100.6

Intersection Summary			
Intersection Capacity Utilization	83.9%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	214
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	67	0	39	41	756	0	0	791	7	151	13	14
Pedestrians	11					3						11
Ped Button					No					Yes		
Pedestrian Timing (s)					16.0					16.0		
Free Right			No			No			No		No	No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0
Minimum Green (s)	4.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	67	0	39	41	756	0	0	798	0	169	0	9
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.94	0.85	0.85
Saturated Flow (vph)	1520	0	1360	1520	3046	0	0	3042	0	2921	0	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0	1.4
Pedestrian Frequency (%)		0.00			1.00			0.00		0.31		
Protected Option Allowed		No			Yes			Yes		No		
Reference Time (s)			3.4	3.2	29.8	0.0	0.0	31.5	0.0		0.0	2.2
Adj Reference Time (s)			9.0	15.0	34.8	0.0	0.0	36.5	0.0		0.0	9.0
Permitted Option												
Adj Saturation A (vph)	101	0		101	1523		0	1521		97		
Reference Time A (s)	79.3	0.0		48.6	29.8		0.0	31.5		104.1		
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA		
Reference Time (s)					48.6			31.5				
Adj Reference Time (s)					53.6			36.5				
Split Option												
Ref Time Combined (s)	5.3	0.0		3.2	29.8		0.0	31.5		7.1		
Ref Time Seperate (s)	5.3	0.0		3.2	29.8		0.0	31.2		6.3		
Reference Time (s)	5.3	5.3		29.8	29.8		31.5	31.5		7.1		
Adj Reference Time (s)	9.3	9.3		34.8	34.8		36.5	36.5		12.1		

Summary	EB	NB SB	SW	Combined
Protected Option (s)	NA	51.5	NA	
Permitted Option (s)	Err	53.6	Err	
Split Option (s)	9.3	71.3	12.1	
Minimum (s)	9.3	51.5	12.1	72.8

Right Turns	EBR	SWR2
Adj Reference Time (s)	9.0	9.0
Cross Thru Ref Time (s)	36.5	34.8
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	45.5	43.8

Intersection Summary			
Intersection Capacity Utilization	60.7%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	94	41	84	12	21	13	72	222	31	6	152	47
Pedestrians			3			3	3		4	1		3
Ped Button		Yes			No			No			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	4.0	8.0	8.0	8.0	8.0	8.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	135	84	0	46	0	72	222	31	0	205	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.96	0.85
Saturated Flow (vph)	0	1544	1360	0	1512	0	1520	1600	1360	0	1543	0
Ped Intf Time (s)	0.0	0.0	0.4	0.0	0.1	0.4	0.0	0.0	0.5	0.0	0.1	0.4
Pedestrian Frequency (%)		0.10			1.00			1.00			0.10	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			7.8			0.0			3.3			0.0
Adj Reference Time (s)			12.8			0.0			13.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	670		0	302		146	1600		0	1089	
Reference Time A (s)	0.0	24.2		0.0	18.4		59.3	16.6		0.0	22.7	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	15.4	18.5		8.9	11.8		NA	NA		NA	NA	
Reference Time (s)		18.5			11.8			59.3			22.7	
Adj Reference Time (s)		23.5			16.8			64.3			27.7	
Split Option												
Ref Time Combined (s)	0.0	10.5		0.0	3.8		5.7	16.6		0.0	16.0	
Ref Time Seperate (s)	7.4	3.1		0.9	1.8		5.7	16.6		0.5	11.9	
Reference Time (s)	10.5	10.5		3.8	3.8		16.6	16.6		16.0	16.0	
Adj Reference Time (s)	15.5	15.5		11.0	11.0		21.6	21.6		21.0	21.0	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	23.5	64.3	
Split Option (s)	26.5	42.7	
Minimum (s)	23.5	42.7	66.2

Right Turns	SER	NER
Adj Reference Time (s)	12.8	13.0
Cross Thru Ref Time (s)	21.0	15.5
Oncoming Left Ref Time (s)	11.0	21.0
Combined (s)	44.8	49.5

Intersection Summary			
Intersection Capacity Utilization	55.1%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	12	18	19	88	21	12	3	29	318	110	25	213
Pedestrians	6		4	4		6		2		9	9	
Ped Button		Yes			Yes				Yes			Yes
Pedestrian Timing (s)		16.0			16.0				16.0			16.0
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	30	19	0	121	0	0	32	318	110	25	226
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.95	0.85	0.95	0.95	1.00	0.85	0.95	0.99
Saturated Flow (vph)	0	1568	1360	0	1519	0	0	1520	3046	1360	1520	3020
Ped Intf Time (s)	0.0	0.0	0.5	0.0	0.1	0.8	0.0	0.0	0.0	1.1	0.0	0.0
Pedestrian Frequency (%)		0.12			0.18				0.26			0.06
Protected Option Allowed		No			No				Yes			Yes
Reference Time (s)			2.2			0.0	0.0	2.5	12.5	10.8	2.0	9.0
Adj Reference Time (s)			9.5			0.0	0.0	8.0	17.4	16.2	8.0	13.4
Permitted Option												
Adj Saturation A (vph)	0	1570		0	127		0	101	1523		101	1510
Reference Time A (s)	0.0	2.3		0.0	114.2		0.0	37.9	12.5		29.6	9.0
Adj Saturation B (vph	0	0		0	0		NA	NA	NA		NA	NA
Reference Time B (s)	8.9	10.3		14.9	17.6		NA	NA	NA		NA	NA
Reference Time (s)		2.3			17.6				37.9			29.6
Adj Reference Time (s)		9.5			21.6				41.9			33.6
Split Option												
Ref Time Combined (s)	0.0	2.3		0.0	9.6		0.0	2.5	12.5		2.0	9.0
Ref Time Seperate (s)	0.9	1.4		6.9	1.7		0.2	2.3	12.5		2.0	8.5
Reference Time (s)	2.3	2.3		9.6	9.6		12.5	12.5	12.5		9.0	9.0
Adj Reference Time (s)	9.5	9.5		14.8	14.8		17.4	17.4	17.4		13.4	13.4

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	25.4	
Permitted Option (s)	21.6	41.9	
Split Option (s)	24.3	30.9	
Minimum (s)	21.6	25.4	47.1

Right Turns	SER	NER
Adj Reference Time (s)	9.5	16.2
Cross Thru Ref Time (s)	21.4	9.5
Oncoming Left Ref Time (s)	14.8	8.0
Combined (s)	45.7	33.7

Intersection Summary			
Intersection Capacity Utilization	39.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	13
Pedestrians	2
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.3
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	114	515	27	12	419	100	19	257	6	105	141	82
Pedestrians	7		11	11		7	7		10	7		10
Ped Button		Yes			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.5	5.5	5.5	5.5	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	114	542	0	12	519	0	19	257	6	105	223	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.94	0.85
Saturated Flow (vph)	1520	3024	0	1520	2958	0	1520	3046	1360	1520	2878	0
Ped Intf Time (s)	0.0	0.1	1.4	0.0	0.2	0.9	0.0	0.0	1.2	0.0	0.5	1.2
Pedestrian Frequency (%)		0.31			1.00			0.28			0.28	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.0	21.6	0.0	0.9	21.2	0.0	1.5	10.1	1.8	8.3	9.8	0.0
Adj Reference Time (s)	15.5	27.1	0.0	15.5	26.7	0.0	11.5	15.6	11.5	13.8	15.3	0.0
Permitted Option												
Adj Saturation A (vph)	101	1512		101	1479		101	1523		101	1439	
Reference Time A (s)	135.0	21.6		14.2	21.2		22.5	10.1		124.3	9.8	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		135.0			21.2			22.5			124.3	
Adj Reference Time (s)		140.5			26.7			28.0			129.8	
Split Option												
Ref Time Combined (s)	9.0	21.6		0.9	21.2		1.5	10.1		8.3	9.8	
Ref Time Seperate (s)	9.0	20.5		0.9	17.2		1.5	10.1		8.3	6.3	
Reference Time (s)	21.6	21.6		21.2	21.2		10.1	10.1		9.8	9.8	
Adj Reference Time (s)	27.1	27.1		26.7	26.7		15.6	15.6		15.3	15.3	

Summary	NW SE	NE SW	Combined
Protected Option (s)	42.6	29.4	
Permitted Option (s)	140.5	129.8	
Split Option (s)	53.8	30.9	
Minimum (s)	42.6	29.4	72.0

Right Turns	NER
Adj Reference Time (s)	11.5
Cross Thru Ref Time (s)	27.1
Oncoming Left Ref Time (s)	13.8
Combined (s)	52.4

Intersection Summary			
Intersection Capacity Utilization	60.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	150	348	66	101	287	84	2	119	784	262	9	124
Pedestrians			8			16				24		
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	6.0	4.0	4.5	6.0	4.0	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	6.0	6.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	150	414	0	101	371	0	0	121	784	262	0	133
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.97	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	2974	0	1520	2943	0	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.2	1.0	0.0	0.4	1.9	0.0	0.0	0.0	2.7	0.0	0.0
Pedestrian Frequency (%)		0.23			0.41				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	11.8	16.9	0.0	8.0	15.6	0.0	0.0	9.6	30.9	25.8	0.0	10.5
Adj Reference Time (s)	16.3	22.9	0.0	12.5	21.6	0.0	0.0	14.1	36.9	31.8	0.0	15.0
Permitted Option												
Adj Saturation A (vph)	101	1487		101	1471		0	101	1523		0	101
Reference Time A (s)	177.6	16.9		119.6	15.6		0.0	143.3	30.9		0.0	157.5
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		177.6			119.6				143.3			
Adj Reference Time (s)		183.6			125.6				149.3			
Split Option												
Ref Time Combined (s)	11.8	16.9		8.0	15.6		0.0	9.6	30.9		0.0	10.5
Ref Time Seperate (s)	11.8	14.2		8.0	12.1		0.2	9.4	30.9		0.7	9.8
Reference Time (s)	16.9	16.9		15.6	15.6		30.9	30.9	30.9		30.8	30.8
Adj Reference Time (s)	22.9	22.9		21.6	21.6		36.9	36.9	36.9		36.8	36.8

Summary	NW SE	NE SW	Combined
Protected Option (s)	37.9	51.9	
Permitted Option (s)	183.6	163.5	
Split Option (s)	44.4	73.7	
Minimum (s)	37.9	51.9	89.8

Right Turns	NER	SWR
Adj Reference Time (s)	31.8	22.8
Cross Thru Ref Time (s)	22.9	21.6
Oncoming Left Ref Time (s)	15.0	14.1
Combined (s)	69.7	58.4

Intersection Summary			
Intersection Capacity Utilization	74.8%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWT	SWR
Lane Configurations	↑↑	↱
Volume (vph)	782	180
Pedestrians		7
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	6.0	6.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	782	180
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.9
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	30.8	16.8
Adj Reference Time (s)	36.8	22.8
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	30.8	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	157.5	
Adj Reference Time (s)	163.5	
Split Option		
Ref Time Combined (s)	30.8	
Ref Time Seperate (s)	30.8	
Reference Time (s)	30.8	
Adj Reference Time (s)	36.8	

Summary

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	109	366	448	1	242	429	40	0	0	0	23	40
Pedestrians	7		6		6		7					
Ped Button		No				No						
Pedestrian Timing (s)		16.0				16.0						
Free Right			No				No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.7	4.9	4.0	3.7	3.7	4.9	4.0	4.1	4.1	4.1	4.1	4.1
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	109	814	0	0	243	469	0	0	0	0	23	40
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00
Saturated Flow (vph)	1520	2795	0	0	2952	3007	0	0	1600	1360	1520	1600
Ped Intf Time (s)	0.0	0.4	0.8	0.0	0.0	0.1	0.9	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		1.00				1.00			0.00			0.00
Protected Option Allowed		Yes				Yes			No			No
Reference Time (s)	8.6	35.4	0.0	0.0	9.9	18.8	0.0			0.0		
Adj Reference Time (s)	14.0	40.3	0.0	0.0	14.0	23.7	0.0			14.1		
Permitted Option												
Adj Saturation A (vph)	101	1397		0	98	1504		0	1600		101	1600
Reference Time A (s)	129.1	35.4		0.0	148.2	18.8		0.0	0.0		27.2	3.0
Adj Saturation B (vph	NA	NA		NA	NA	NA		0	1600		0	1600
Reference Time B (s)	NA	NA		NA	NA	NA		0.0	0.0		9.8	3.0
Reference Time (s)		129.1				148.2			0.0			9.8
Adj Reference Time (s)		134.0				153.1			14.1			14.1
Split Option												
Ref Time Combined (s)	8.6	35.4		0.0	9.9	18.8		0.0	0.0		1.8	3.0
Ref Time Seperate (s)	8.6	16.1		0.1	9.8	17.2		0.0	0.0		1.8	3.0
Reference Time (s)	35.4	35.4		18.8	18.8	18.8		0.0	0.0		3.0	3.0
Adj Reference Time (s)	40.3	40.3		23.7	23.7	23.7		0.0	0.0		14.1	14.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	54.3	NA	
Permitted Option (s)	153.1	14.1	
Split Option (s)	64.0	14.1	
Minimum (s)	54.3	14.1	68.4

Right Turns	NER	SWR
Adj Reference Time (s)	14.1	19.5
Cross Thru Ref Time (s)	0.0	23.7
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	0.0	43.1

Intersection Summary			
Intersection Capacity Utilization	57.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	174
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.1
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	174
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	15.4
Adj Reference Time (s)	19.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWU	NWL	NWT
Lane Configurations												
Volume (vph)	220	10	81	105	137	79	53	686	85	2	289	280
Pedestrians									2			
Ped Button								No				No
Pedestrian Timing (s)								16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.0	3.7	4.9	4.9	3.7	3.7	4.9
Minimum Green (s)	10.0	10.0	10.0	9.9	9.9	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	230	81	0	321	0	53	686	85	0	291	344
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.97	0.95
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.95	0.97
Saturated Flow (vph)	0	1523	1360	0	1516	0	1520	3046	1360	0	2952	2961
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			7.1			0.0	4.2	27.0	7.8	0.0	11.8	14.1
Adj Reference Time (s)			14.1			0.0	14.0	31.9	14.9	0.0	15.8	19.0
Permitted Option												
Adj Saturation A (vph)	0	620		0	250		101	1523		0	98	1481
Reference Time A (s)	0.0	44.5		0.0	154.2		62.8	27.0		0.0	177.4	14.1
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		16.3	33.4		NA	NA		NA	NA	NA
Reference Time (s)		44.5			33.4			62.8				177.4
Adj Reference Time (s)		48.6			37.5			67.7				182.3
Split Option												
Ref Time Combined (s)	0.0	18.1		0.0	25.4		4.2	27.0		0.0	11.8	14.1
Ref Time Seperate (s)	17.4	0.8		8.3	10.9		4.2	27.0		0.2	11.7	11.5
Reference Time (s)	18.1	18.1		25.4	25.4		27.0	27.0		14.1	14.1	14.1
Adj Reference Time (s)	22.2	22.2		29.5	29.5		31.9	31.9		19.0	19.0	19.0

Summary	NB SB	NW SE	Combined
Protected Option (s)	NA	47.8	
Permitted Option (s)	48.6	182.3	
Split Option (s)	51.7	50.9	
Minimum (s)	48.6	47.8	96.4

Right Turns	NBR	SER
Adj Reference Time (s)	14.1	14.9
Cross Thru Ref Time (s)	47.8	29.5
Oncoming Left Ref Time (s)	29.5	15.8
Combined (s)	91.4	60.2

Intersection Summary			
Intersection Capacity Utilization	80.3%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NWR
Lane Configurations	
Volume (vph)	64
Pedestrians	5
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.6
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	159	560	63	80	219	67	71	938	119	43	127	864
Pedestrians	16		10	10		16			11			
Ped Button		Yes			No			No				Yes
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.5	6.0	4.0	3.5	3.5	6.0
Minimum Green (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	4.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	159	623	0	80	286	0	71	1057	0	0	170	982
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.98	0.85	0.95	0.95	0.98
Saturated Flow (vph)	1520	3000	0	1520	2939	0	1520	2995	0	0	1520	2991
Ped Intf Time (s)	0.0	0.1	1.2	0.0	0.4	1.9	0.0	0.2	1.4	0.0	0.0	0.1
Pedestrian Frequency (%)		0.28			1.00			1.00				0.18
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	12.6	25.0	0.0	6.3	12.1	0.0	5.6	42.5	0.0	0.0	13.4	39.5
Adj Reference Time (s)	18.6	31.0	0.0	12.3	18.1	0.0	9.6	48.5	0.0	0.0	17.4	45.5
Permitted Option												
Adj Saturation A (vph)	101	1500		101	1470		101	1497		0	101	1496
Reference Time A (s)	188.3	25.0		94.7	12.1		84.1	42.5		0.0	201.3	39.5
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		188.3			94.7			84.1				201.3
Adj Reference Time (s)		194.3			100.7			90.1				207.3
Split Option												
Ref Time Combined (s)	12.6	25.0		6.3	12.1		5.6	42.5		0.0	13.4	39.5
Ref Time Seperate (s)	12.6	22.5		6.3	9.4		5.6	37.7		3.4	10.0	34.8
Reference Time (s)	25.0	25.0		12.1	12.1		42.5	42.5		39.5	39.5	39.5
Adj Reference Time (s)	31.0	31.0		18.1	18.1		48.5	48.5		45.5	45.5	45.5

Summary	NW SE	NE SW	Combined
Protected Option (s)	43.4	65.9	
Permitted Option (s)	194.3	207.3	
Split Option (s)	49.2	94.0	
Minimum (s)	43.4	65.9	109.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	91.1%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	118
Pedestrians	6
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.8
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	6	144	421	154	2	112	318	78	20	76	833	76
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No				No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0	4.0	4.0	6.0	6.0	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	150	421	154	0	114	318	78	0	96	833	76
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360	0	1520	3046	1360	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00				0.00				0.00	
Protected Option Allowed			Yes				Yes				Yes	
Reference Time (s)	0.0	11.8	16.6	13.6	0.0	9.0	12.5	6.9	0.0	7.6	32.8	6.7
Adj Reference Time (s)	0.0	16.3	22.6	19.6	0.0	13.0	18.5	12.9	0.0	12.1	38.8	16.0
Permitted Option												
Adj Saturation A (vph)	0	101	1523		0	101	1523		0	101	1523	
Reference Time A (s)	0.0	177.6	16.6		0.0	135.0	12.5		0.0	113.7	32.8	
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time B (s)	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time (s)			177.6				135.0				113.7	
Adj Reference Time (s)			183.6				141.0				119.7	
Split Option												
Ref Time Combined (s)	0.0	11.8	16.6		0.0	9.0	12.5		0.0	7.6	32.8	
Ref Time Seperate (s)	0.5	11.4	16.6		0.2	8.8	12.5		1.6	6.0	32.8	
Reference Time (s)	16.6	16.6	16.6		12.5	12.5	12.5		32.8	32.8	32.8	
Adj Reference Time (s)	22.6	22.6	22.6		18.5	18.5	18.5		38.8	38.8	38.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	35.6	62.0	
Permitted Option (s)	183.6	199.0	
Split Option (s)	41.1	88.7	
Minimum (s)	35.6	62.0	97.6

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	19.6	12.9	16.0	16.0
Cross Thru Ref Time (s)	62.0	56.2	35.6	34.9
Oncoming Left Ref Time (s)	13.0	16.3	17.4	12.1
Combined (s)	94.6	85.4	69.0	62.9

Intersection Summary			
Intersection Capacity Utilization	81.3%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Volume (vph)	34	129	1115	49
Pedestrians				
Ped Button				
Pedestrian Timing (s)				
Free Right				No
Ideal Flow	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120
Volume Combined (vph)	0	163	1115	49
Lane Utilization Factor	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00	
Protected Option Allowed			Yes	
Reference Time (s)	0.0	12.9	43.9	4.3
Adj Reference Time (s)	0.0	17.4	49.9	16.0
Permitted Option				
Adj Saturation A (vph)	0	101	1523	
Reference Time A (s)	0.0	193.0	43.9	
Adj Saturation B (vph	NA	NA	NA	
Reference Time B (s)	NA	NA	NA	
Reference Time (s)			193.0	
Adj Reference Time (s)			199.0	
Split Option				
Ref Time Combined (s)	0.0	12.9	43.9	
Ref Time Seperate (s)	2.7	10.2	43.9	
Reference Time (s)	43.9	43.9	43.9	
Adj Reference Time (s)	49.9	49.9	49.9	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	93	308	267	114	153	88	21	115	904	79	42	93
Pedestrians						11				4		
Ped Button					Yes				No			
Pedestrian Timing (s)					16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	5.5	5.5	4.5	5.5	5.5	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	93	308	267	114	153	88	0	136	904	79	0	135
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.5	0.0	0.0
Pedestrian Frequency (%)		0.00			0.31				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	7.3	23.1	23.6	9.0	11.5	9.1	0.0	10.7	35.6	7.5	0.0	10.7
Adj Reference Time (s)	11.8	28.6	29.1	13.5	17.0	14.6	0.0	15.2	41.6	16.0	0.0	15.2
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	110.1	23.1		135.0	11.5		0.0	161.1	35.6		0.0	159.9
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		110.1			135.0				161.1			
Adj Reference Time (s)		115.6			140.5				167.1			
Split Option												
Ref Time Combined (s)	7.3	23.1		9.0	11.5		0.0	10.7	35.6		0.0	10.7
Ref Time Seperate (s)	7.3	23.1		9.0	11.5		1.7	9.1	35.6		3.3	7.3
Reference Time (s)	23.1	23.1		11.5	11.5		35.6	35.6	35.6		46.7	46.7
Adj Reference Time (s)	28.6	28.6		17.0	17.0		41.6	41.6	41.6		52.7	52.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	42.1	68.0	
Permitted Option (s)	140.5	167.1	
Split Option (s)	45.6	94.3	
Minimum (s)	42.1	68.0	110.1

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	29.1	14.6	16.0	16.0
Cross Thru Ref Time (s)	68.0	56.8	28.6	17.0
Oncoming Left Ref Time (s)	13.5	11.8	15.2	15.2
Combined (s)	110.5	83.2	59.8	48.2

Intersection Summary			
Intersection Capacity Utilization	92.1%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Volume (vph)	1186	43
Pedestrians		3
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1186	43
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.4
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	46.7	4.2
Adj Reference Time (s)	52.7	16.0
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	46.7	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	159.9	
Adj Reference Time (s)	165.9	
Split Option		
Ref Time Combined (s)	46.7	
Ref Time Seperate (s)	46.7	
Reference Time (s)	46.7	
Adj Reference Time (s)	52.7	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	136	548	77	184	358	35	83	1141	176	4	45	958
Pedestrians			7			7			9			
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	136	625	0	184	393	0	83	1141	176	0	49	958
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	1.00
Saturated Flow (vph)	1520	2990	0	1520	3006	0	1520	3046	1360	0	1520	3046
Ped Intf Time (s)	0.0	0.1	0.9	0.0	0.1	0.9	0.0	0.0	1.1	0.0	0.0	0.0
Pedestrian Frequency (%)		0.21			0.21			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	10.7	25.2	0.0	14.5	15.8	0.0	6.6	44.9	16.7	0.0	3.9	37.7
Adj Reference Time (s)	15.2	29.7	0.0	19.0	20.3	0.0	11.1	49.4	21.2	0.0	8.5	42.2
Permitted Option												
Adj Saturation A (vph)	101	1495		101	1503		101	1523		0	101	1523
Reference Time A (s)	161.1	25.2		217.9	15.8		98.3	44.9		0.0	58.0	37.7
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		161.1			217.9			98.3				58.0
Adj Reference Time (s)		165.6			222.4			102.8				62.5
Split Option												
Ref Time Combined (s)	10.7	25.2		14.5	15.8		6.6	44.9		0.0	3.9	37.7
Ref Time Seperate (s)	10.7	22.1		14.5	14.4		6.6	44.9		0.3	3.6	37.7
Reference Time (s)	25.2	25.2		15.8	15.8		44.9	44.9		37.7	37.7	37.7
Adj Reference Time (s)	29.7	29.7		20.3	20.3		49.4	49.4		42.2	42.2	42.2

Summary	EB WB	NB SB	Combined
Protected Option (s)	48.7	57.9	
Permitted Option (s)	222.4	102.8	
Split Option (s)	50.0	91.7	
Minimum (s)	48.7	57.9	106.7

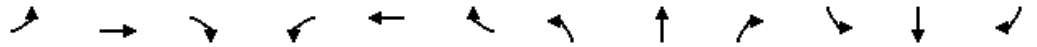
Right Turns	NBR	SBR
Adj Reference Time (s)	21.2	14.5
Cross Thru Ref Time (s)	29.7	20.3
Oncoming Left Ref Time (s)	8.5	11.1
Combined (s)	59.3	45.8

Intersection Summary			
Intersection Capacity Utilization	88.9%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	86
Pedestrians	2
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.5
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	86
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.3
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	7.9
Adj Reference Time (s)	14.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	845	185	201	850	493	343	1119	63	507	747	146
Pedestrians			50			25			14			49
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.5	4.0	4.5	7.5	4.0
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	217	845	185	201	850	493	343	1182	0	507	893	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	2952	3046	1360	2952	4358	1360	4428	4324	0	4428	4252	0
Ped Intf Time (s)	0.0	0.0	4.8	0.0	0.0	2.8	0.0	0.1	1.7	0.0	0.8	4.7
Pedestrian Frequency (%)		0.81			0.57			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.8	33.3	21.1	8.2	23.4	46.3	9.3	32.9	0.0	13.7	26.0	0.0
Adj Reference Time (s)	13.3	40.3	28.1	12.7	30.4	53.3	13.8	40.4	0.0	18.2	33.5	0.0
Permitted Option												
Adj Saturation A (vph)	98	1523		98	1453		98	1441		98	1417	
Reference Time A (s)	132.3	33.3		122.6	23.4		139.4	32.9		206.1	26.0	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		132.3			122.6			139.4			206.1	
Adj Reference Time (s)		139.3			129.6			146.9			213.6	
Split Option												
Ref Time Combined (s)	8.8	33.3		8.2	23.4		9.3	32.9		13.7	26.0	
Ref Time Seperate (s)	8.8	33.3		8.2	23.4		9.3	31.1		13.7	21.9	
Reference Time (s)	33.3	33.3		23.4	23.4		32.9	32.9		26.0	26.0	
Adj Reference Time (s)	40.3	40.3		30.4	30.4		40.4	40.4		33.5	33.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	53.0	58.6	
Permitted Option (s)	139.3	213.6	
Split Option (s)	70.7	73.9	
Minimum (s)	53.0	58.6	111.6

Right Turns	EBR	WBR
Adj Reference Time (s)	28.1	53.3
Cross Thru Ref Time (s)	33.5	40.4
Oncoming Left Ref Time (s)	12.7	13.3
Combined (s)	74.2	107.0

Intersection Summary			
Intersection Capacity Utilization	93.0%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	362	40	134	35	74	61	44	631	283	169	1016	44
Pedestrians						6			15			1
Ped Button					Yes			No			No	
Pedestrian Timing (s)					16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.5	5.5	4.5	4.5	4.0
Minimum Green (s)	6.0	6.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	536	0	0	109	61	44	631	283	169	1060	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1488	0	0	3149	1360	1520	4358	1360	1520	4331	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.8	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.18			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			0.0			6.1	3.5	17.4	26.8	13.3	29.4	0.0
Adj Reference Time (s)			0.0			15.0	9.0	22.9	32.3	17.8	33.9	0.0
Permitted Option												
Adj Saturation A (vph)	0	132		0	3139		101	1453		101	1444	
Reference Time A (s)	0.0	486.3		0.0	4.2		52.1	17.4		200.1	29.4	
Adj Saturation B (vph	0	0		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	36.6	51.2		NA	NA		NA	NA		NA	NA	
Reference Time (s)		51.2			4.2			52.1			200.1	
Adj Reference Time (s)		56.2			15.0			57.6			204.6	
Split Option												
Ref Time Combined (s)	0.0	43.2		0.0	4.2		3.5	17.4		13.3	29.4	
Ref Time Seperate (s)	28.6	3.4		1.4	5.5		3.5	17.4		13.3	28.2	
Reference Time (s)	43.2	43.2		5.5	5.5		17.4	17.4		29.4	29.4	
Adj Reference Time (s)	48.2	48.2		15.0	15.0		22.9	22.9		33.9	33.9	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	42.9	
Permitted Option (s)	56.2	204.6	
Split Option (s)	63.2	56.7	
Minimum (s)	56.2	42.9	99.1

Right Turns	WBR	NBR
Adj Reference Time (s)	15.0	32.3
Cross Thru Ref Time (s)	40.7	48.2
Oncoming Left Ref Time (s)	48.2	17.8
Combined (s)	103.9	98.3

Intersection Summary			
Intersection Capacity Utilization	86.6%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

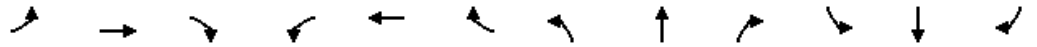
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	161	12	70	53	323	11	463	211	519	536	49
Pedestrians												1
Ped Button											No	
Pedestrian Timing (s)											16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.5	5.0	4.0	4.5	5.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	10.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	55	173	0	70	53	323	11	674	0	519	585	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.99	0.85
Saturated Flow (vph)	1520	1583	0	1520	1600	1360	1520	2903	0	1520	4304	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			0.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.3	13.1	0.0	5.5	4.0	28.5	0.9	27.9	0.0	41.0	16.3	0.0
Adj Reference Time (s)	9.3	18.1	0.0	10.5	9.0	33.5	8.5	32.9	0.0	45.5	21.3	0.0
Permitted Option												
Adj Saturation A (vph)	101	1583		101	1600		101	1452		101	1435	
Reference Time A (s)	65.1	13.1		82.9	4.0		13.0	27.9		614.6	16.3	
Adj Saturation B (vph	0	1583		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	12.3	13.1		NA	NA		NA	NA		NA	NA	
Reference Time (s)		13.1			82.9			27.9			614.6	
Adj Reference Time (s)		18.1			87.9			32.9			619.6	
Split Option												
Ref Time Combined (s)	4.3	13.1		5.5	4.0		0.9	27.9		41.0	16.3	
Ref Time Seperate (s)	4.3	12.2		5.5	4.0		0.9	19.1		41.0	15.0	
Reference Time (s)	13.1	13.1		5.5	5.5		27.9	27.9		41.0	41.0	
Adj Reference Time (s)	18.1	18.1		10.5	10.5		32.9	32.9		46.0	46.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	28.6	78.3	
Permitted Option (s)	87.9	619.6	
Split Option (s)	28.6	78.8	
Minimum (s)	28.6	78.3	107.0

Right Turns	WBR
Adj Reference Time (s)	33.5
Cross Thru Ref Time (s)	32.9
Oncoming Left Ref Time (s)	9.3
Combined (s)	75.7

Intersection Summary			
Intersection Capacity Utilization	89.1%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	668	54	68	417	81	46	388	107	102	399	81
Pedestrians	12		5	5		12	8		8	8		8
Ped Button		No			No			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.0	4.0	5.5	5.0	4.0
Minimum Green (s)	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	95	722	0	68	498	0	0	541	0	0	582	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	0.97	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1520	3012	0	1520	2972	0	0	2943	0	0	2957	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.2	1.5	0.0	0.2	1.0	0.0	0.1	1.0
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	7.5	28.8	0.0	5.4	20.3	0.0			0.0			0.0
Adj Reference Time (s)	13.0	34.3	0.0	12.5	25.8	0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	101	1506		101	1486		0	297		0	99	
Reference Time A (s)	112.5	28.8		80.5	20.3		0.0	72.4		0.0	124.3	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		112.5			80.5			72.4			124.3	
Adj Reference Time (s)		118.0			86.0			77.4			129.3	
Split Option												
Ref Time Combined (s)	7.5	28.8		5.4	20.3		0.0	22.3		0.0	23.8	
Ref Time Seperate (s)	7.5	26.7		5.4	17.1		3.6	16.0		8.1	16.3	
Reference Time (s)	28.8	28.8		20.3	20.3		22.3	22.3		23.8	23.8	
Adj Reference Time (s)	34.3	34.3		25.8	25.8		27.3	27.3		28.8	28.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	46.8	NA	
Permitted Option (s)	118.0	129.3	
Split Option (s)	60.2	56.0	
Minimum (s)	46.8	56.0	102.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	85.7%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

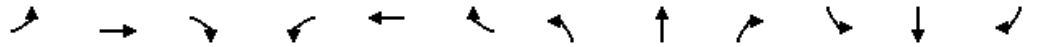
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	323	0	116	0	669	427	0	793	687
Pedestrians									7			2
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	323	0	116	0	669	427	0	793	687
Lane Utilization Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	0	0	2952	0	1360	0	4358	1360	0	4358	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.3
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	13.1	0.0	10.2	0.0	18.4	38.6	0.0	21.8	60.9
Adj Reference Time (s)	0.0	0.0	0.0	17.6	0.0	14.7	0.0	22.9	43.1	0.0	26.3	65.4
Permitted Option												
Adj Saturation A (vph)	0	0		98	0		0	1453		0	1453	
Reference Time A (s)	0.0	0.0		197.2	0.0		0.0	18.4		0.0	21.8	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	0.0	0.0		21.1	0.0		NA	NA		NA	NA	
Reference Time (s)		0.0			21.1			18.4			21.8	
Adj Reference Time (s)		8.0			25.1			22.9			26.3	
Split Option												
Ref Time Combined (s)	0.0	0.0		13.1	0.0		0.0	18.4		0.0	21.8	
Ref Time Seperate (s)	0.0	0.0		13.1	0.0		0.0	18.4		0.0	21.8	
Reference Time (s)	0.0	0.0		13.1	13.1		18.4	18.4		21.8	21.8	
Adj Reference Time (s)	0.0	0.0		17.1	17.1		22.9	22.9		26.3	26.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	17.6	26.3	
Permitted Option (s)	25.1	26.3	
Split Option (s)	17.1	49.3	
Minimum (s)	17.1	26.3	43.5

Right Turns	WBR	NBR	SBR
Adj Reference Time (s)	14.7	43.1	65.4
Cross Thru Ref Time (s)	22.9	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	37.6	43.1	65.4

Intersection Summary			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	0	243	0	0	0	0	923	809	0	1155	1
Pedestrians							1		8	8		1
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	267	162	0	0	0	0	1193	540	0	1155	1
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	2948	1360	0	0	0	1520	2943	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			14.3			0.0	0.0	48.9	48.6	0.0	45.5	0.2
Adj Reference Time (s)			18.8			0.0	9.5	53.4	53.1	0.0	50.0	22.5
Permitted Option												
Adj Saturation A (vph)	0	255		0	0		101	1472		0	1523	
Reference Time A (s)	0.0	125.6		0.0	0.0		0.0	48.9		0.0	45.5	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	15.4	18.9		0.0	0.0		NA	NA		NA	NA	
Reference Time (s)		18.9			0.0			48.9			45.5	
Adj Reference Time (s)		23.4			8.0			53.4			50.0	
Split Option												
Ref Time Combined (s)	0.0	10.9		0.0	0.0		0.0	48.9		0.0	45.5	
Ref Time Seperate (s)	7.4	0.0		0.0	0.0		0.0	37.9		0.0	45.5	
Reference Time (s)	10.9	10.9		0.0	0.0		48.9	48.9		45.5	45.5	
Adj Reference Time (s)	15.4	15.4		0.0	0.0		53.4	53.4		50.0	50.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	59.5	
Permitted Option (s)	23.4	53.4	
Split Option (s)	15.4	103.4	
Minimum (s)	15.4	53.4	68.7

Right Turns	EBR	NBR	SBR
Adj Reference Time (s)	18.8	53.1	22.5
Cross Thru Ref Time (s)	50.0	15.4	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	68.8	68.5	22.5

Intersection Summary			
Intersection Capacity Utilization	57.3%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	90	32	41	20	48	86	4	22	1411	21	11	140
Pedestrians	2		21	21		2		7		20		20
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	90	32	41	0	68	86	0	26	1433	0	0	151
Lane Utilization Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	2952	1600	1360	0	3153	1360	0	2952	4349	0	0	2952
Ped Intf Time (s)	0.0	0.0	2.4	0.0	0.0	0.3	0.0	0.0	0.0	2.3	0.0	0.0
Pedestrian Frequency (%)		0.50			0.06				1.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			6.1			7.9	0.0	1.1	39.6	0.0	0.0	6.1
Adj Reference Time (s)			10.6			12.4	0.0	8.5	44.6	0.0	0.0	10.6
Permitted Option												
Adj Saturation A (vph)	98	1600		0	571		0	98	1450		0	98
Reference Time A (s)	54.7	2.4		0.0	14.4		0.0	15.8	39.6		0.0	92.1
Adj Saturation B (vph	0	1600		0	0		NA	NA	NA		NA	NA
Reference Time B (s)	11.6	2.4		8.8	10.6		NA	NA	NA		NA	NA
Reference Time (s)		11.6			10.6				39.6			
Adj Reference Time (s)		16.1			15.1				44.6			
Split Option												
Ref Time Combined (s)	3.6	2.4		0.0	2.6		0.0	1.1	39.6		0.0	6.1
Ref Time Seperate (s)	3.6	2.4		0.8	3.6		0.3	0.9	39.0		0.8	5.7
Reference Time (s)	3.6	3.6		3.6	3.6		39.6	39.6	39.6		28.8	28.8
Adj Reference Time (s)	8.5	8.5		8.5	8.5		44.6	44.6	44.6		33.8	33.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	55.2	
Permitted Option (s)	16.1	97.1	
Split Option (s)	17.0	78.3	
Minimum (s)	16.1	55.2	71.3

Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	10.6	12.4	28.6
Cross Thru Ref Time (s)	42.3	55.2	8.5
Oncoming Left Ref Time (s)	8.5	8.5	8.5
Combined (s)	61.3	76.1	45.6

Intersection Summary			
Intersection Capacity Utilization	63.4%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑↑	↱
Volume (vph)	1045	257
Pedestrians		7
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	5.0	5.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1045	257
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	4358	1360
Ped Intf Time (s)	0.0	0.9
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	28.8	23.6
Adj Reference Time (s)	33.8	28.6
Permitted Option		
Adj Saturation A (vph)	1453	
Reference Time A (s)	28.8	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	92.1	
Adj Reference Time (s)	97.1	
Split Option		
Ref Time Combined (s)	28.8	
Ref Time Seperate (s)	28.8	
Reference Time (s)	28.8	
Adj Reference Time (s)	33.8	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	216	139	57	21	507	454	81	651	4	40	186	620
Pedestrians	1		9	9		1	12		6		6	
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.5	6.0	4.0	5.0	5.0	6.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	4.0	4.0	4.0	6.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	355	57	0	529	454	81	655	0	0	227	878
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.97	0.91
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.96
Saturated Flow (vph)	0	3103	1360	0	3040	1360	2952	4355	0	0	2952	4166
Ped Intf Time (s)	0.0	0.0	1.1	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0	0.4
Pedestrian Frequency (%)		0.26			0.03			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			6.1			40.2	3.3	18.1	0.0	0.0	9.2	25.7
Adj Reference Time (s)			11.6			45.7	8.5	24.1	0.0	0.0	14.2	31.7
Permitted Option												
Adj Saturation A (vph)	0	301		0	631		98	1452		0	98	1389
Reference Time A (s)	0.0	141.8		0.0	42.2		49.6	18.1		0.0	138.2	25.7
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		141.8			42.2			49.6				138.2
Adj Reference Time (s)		147.3			47.7			55.6				144.2
Split Option												
Ref Time Combined (s)	0.0	13.7		0.0	20.9		3.3	18.1		0.0	9.2	25.7
Ref Time Seperate (s)	8.5	10.4		1.7	20.0		3.3	18.0		3.2	7.6	18.3
Reference Time (s)	13.7	13.7		20.9	20.9		18.1	18.1		25.7	25.7	25.7
Adj Reference Time (s)	19.2	19.2		26.4	26.4		24.1	24.1		31.7	31.7	31.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	40.2	
Permitted Option (s)	147.3	144.2	
Split Option (s)	45.6	55.8	
Minimum (s)	45.6	40.2	85.8

Right Turns	EBR	WBR
Adj Reference Time (s)	11.6	45.7
Cross Thru Ref Time (s)	31.7	38.3
Oncoming Left Ref Time (s)	26.4	19.2
Combined (s)	69.7	103.2

Intersection Summary			
Intersection Capacity Utilization	86.0%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	258
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	50	0	13	24	683	0	0	620	11	116	4	12
Pedestrians	11					1	1					11
Ped Button					No					Yes		
Pedestrian Timing (s)					16.0					16.0		
Free Right			No			No			No		No	No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0
Minimum Green (s)	4.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	50	0	13	24	683	0	0	630	0	123	0	8
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.94	0.85	0.85
Saturated Flow (vph)	1520	0	1360	1520	3046	0	0	3039	0	2934	0	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	1.4
Pedestrian Frequency (%)		0.00			1.00			0.00		0.31		
Protected Option Allowed		No			Yes			Yes		No		
Reference Time (s)			1.1	1.9	26.9	0.0	0.0	24.9	0.0		0.0	2.0
Adj Reference Time (s)			9.0	15.0	31.9	0.0	0.0	29.9	0.0		0.0	9.0
Permitted Option												
Adj Saturation A (vph)	101	0		101	1523		0	1519		98		
Reference Time A (s)	58.7	0.0		27.9	26.9		0.0	24.9		75.6		
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA		
Reference Time (s)					27.9			24.9				
Adj Reference Time (s)					32.9			29.9				
Split Option												
Ref Time Combined (s)	3.9	0.0		1.9	26.9		0.0	24.9		5.1		
Ref Time Seperate (s)	3.9	0.0		1.9	26.9		0.0	24.5		4.8		
Reference Time (s)	3.9	3.9		26.9	26.9		24.9	24.9		5.1		
Adj Reference Time (s)	8.0	8.0		31.9	31.9		29.9	29.9		10.1		

Summary	EB	NB SB	SW	Combined
Protected Option (s)	NA	44.9	NA	
Permitted Option (s)	Err	32.9	Err	
Split Option (s)	8.0	61.8	10.1	
Minimum (s)	8.0	32.9	10.1	51.1

Right Turns	EBR	SWR2
Adj Reference Time (s)	9.0	9.0
Cross Thru Ref Time (s)	29.9	31.9
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	38.9	40.9

Intersection Summary			
Intersection Capacity Utilization	42.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	22	5	20	0	5	0	24	123	6	0	197	110
Pedestrians	3		8	8		3			4	4		
Ped Button		Yes			No			No				
Pedestrian Timing (s)		16.0			16.0			16.0				
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	4.0	8.0	8.0	8.0	8.0	8.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	20	0	5	0	24	123	6	0	307	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	1534	1360	0	1600	0	1520	1600	1360	0	1514	0
Ped Intf Time (s)	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.0
Pedestrian Frequency (%)		0.23			1.00			1.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			2.8			0.0			1.0			0.0
Adj Reference Time (s)			11.0			0.0			13.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	117		0	1600		101	1600		0	1514	
Reference Time A (s)	0.0	27.9		0.0	0.4		27.9	9.2		0.0	24.3	
Adj Saturation B (vph	0	0		0	1600		NA	NA		NA	NA	
Reference Time B (s)	9.8	10.1		0.0	0.4		NA	NA		NA	NA	
Reference Time (s)		10.1			0.4			27.9			24.3	
Adj Reference Time (s)		15.1			11.0			32.9			29.3	
Split Option												
Ref Time Combined (s)	0.0	2.1		0.0	0.4		1.9	9.2		0.0	24.3	
Ref Time Seperate (s)	1.8	0.4		0.0	0.4		1.9	9.2		0.0	15.6	
Reference Time (s)	2.1	2.1		0.4	0.4		9.2	9.2		24.3	24.3	
Adj Reference Time (s)	11.0	11.0		11.0	11.0		14.2	14.2		29.3	29.3	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	15.1	32.9	
Split Option (s)	22.0	43.5	
Minimum (s)	15.1	32.9	48.1

Right Turns	SER	NER
Adj Reference Time (s)	11.0	13.0
Cross Thru Ref Time (s)	29.3	11.0
Oncoming Left Ref Time (s)	11.0	29.3
Combined (s)	51.3	53.3

Intersection Summary			
Intersection Capacity Utilization	44.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	4	6	140	68	6	25	145	42	8	197	19
Pedestrians	1		5	5		1	1		17	17		1
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	8	6	0	215	0	25	188	0	8	216	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.96	0.85	0.95	0.97	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1554	1360	0	1541	0	1520	2943	0	1520	3006	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.5	2.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.15			0.03			0.43			0.03	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			1.2			0.0	2.0	8.1	0.0	0.7	8.6	0.0
Adj Reference Time (s)			9.8			0.0	8.0	15.5	0.0	8.0	12.9	0.0
Permitted Option												
Adj Saturation A (vph)	0	1383		0	141		101	1471		101	1503	
Reference Time A (s)	0.0	0.7		0.0	183.2		29.3	8.1		9.8	8.6	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	8.4	8.6		19.1	24.7		NA	NA		NA	NA	
Reference Time (s)		0.7			24.7			29.3			9.8	
Adj Reference Time (s)		9.8			28.7			33.3			14.0	
Split Option												
Ref Time Combined (s)	0.0	0.6		0.0	16.7		2.0	8.1		0.7	8.6	
Ref Time Seperate (s)	0.4	0.3		11.1	5.2		2.0	6.4		0.7	7.9	
Reference Time (s)	0.6	0.6		16.7	16.7		8.1	8.1		8.6	8.6	
Adj Reference Time (s)	9.8	9.8		20.7	20.7		15.5	15.5		12.9	12.9	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	23.5	
Permitted Option (s)	28.7	33.3	
Split Option (s)	30.6	28.4	
Minimum (s)	28.7	23.5	52.2

Right Turns	SER
Adj Reference Time (s)	9.8
Cross Thru Ref Time (s)	12.9
Oncoming Left Ref Time (s)	20.7
Combined (s)	43.4

Intersection Summary			
Intersection Capacity Utilization	43.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	59	234	6	7	819	91	11	114	5	28	130	192
Pedestrians	4		5	5		4	5		7	7		5
Ped Button		Yes			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.5	5.5	5.5	5.5	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	59	240	0	7	910	0	11	114	5	28	322	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.91	0.85
Saturated Flow (vph)	1520	3035	0	1520	3001	0	1520	3046	1360	1520	2774	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.5	0.0	0.0	0.9	0.0	0.4	0.6
Pedestrian Frequency (%)		0.15			1.00			0.21			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.7	9.5	0.0	0.6	36.4	0.0	0.8	4.5	1.3	2.2	14.3	0.0
Adj Reference Time (s)	15.5	15.5	0.0	15.5	41.9	0.0	11.5	11.5	11.5	11.5	19.8	0.0
Permitted Option												
Adj Saturation A (vph)	101	1518		101	1500		101	1523		101	1387	
Reference Time A (s)	69.9	9.5		8.4	36.4		12.6	4.5		33.5	14.3	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		0	2774	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		10.2	14.3	
Reference Time (s)		69.9			36.4			12.6			14.3	
Adj Reference Time (s)		75.4			41.9			18.1			19.8	
Split Option												
Ref Time Combined (s)	4.7	9.5		0.6	36.4		0.8	4.5		2.2	14.3	
Ref Time Seperate (s)	4.7	9.3		0.6	32.8		0.8	4.5		2.2	6.0	
Reference Time (s)	9.5	9.5		36.4	36.4		4.5	4.5		14.3	14.3	
Adj Reference Time (s)	15.5	15.5		41.9	41.9		11.5	11.5		19.8	19.8	

Summary	NW SE	NE SW	Combined
Protected Option (s)	57.4	31.3	
Permitted Option (s)	75.4	19.8	
Split Option (s)	57.4	31.3	
Minimum (s)	57.4	19.8	77.3

Right Turns	NER
Adj Reference Time (s)	11.5
Cross Thru Ref Time (s)	15.5
Oncoming Left Ref Time (s)	11.5
Combined (s)	38.5

Intersection Summary			
Intersection Capacity Utilization	64.4%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	100	152	48	119	435	129	2	176	690	151	7	80
Pedestrians	17		11	11		17		6		13		13
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	6.0	4.0	4.5	6.0	4.0	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	6.0	6.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	100	201	0	119	564	0	0	178	690	151	0	87
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.97	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	2936	0	1520	2942	0	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.3	1.4	0.0	0.5	2.0	0.0	0.0	0.0	1.6	0.0	0.0
Pedestrian Frequency (%)		0.31			0.43				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	7.9	8.5	0.0	9.4	23.5	0.0	0.0	14.1	27.2	14.9	0.0	6.9
Adj Reference Time (s)	12.4	14.5	0.0	13.9	29.5	0.0	0.0	18.6	33.2	20.9	0.0	11.4
Permitted Option												
Adj Saturation A (vph)	101	1468		101	1471		0	101	1523		0	101
Reference Time A (s)	118.8	8.5		141.1	23.5		0.0	211.0	27.2		0.0	103.4
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		118.8			141.1				211.0			
Adj Reference Time (s)		124.8			147.1				217.0			
Split Option												
Ref Time Combined (s)	7.9	8.5		9.4	23.5		0.0	14.1	27.2		0.0	6.9
Ref Time Seperate (s)	7.9	6.5		9.4	18.2		0.2	13.9	27.2		0.6	6.3
Reference Time (s)	8.5	8.5		23.5	23.5		27.2	27.2	27.2		36.1	36.1
Adj Reference Time (s)	14.5	14.5		29.5	29.5		33.2	33.2	33.2		42.1	42.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	41.9	60.7	
Permitted Option (s)	147.1	217.0	
Split Option (s)	44.0	75.3	
Minimum (s)	41.9	60.7	102.6

Right Turns	NER	SWR
Adj Reference Time (s)	20.9	28.6
Cross Thru Ref Time (s)	14.5	29.5
Oncoming Left Ref Time (s)	11.4	18.6
Combined (s)	46.8	76.7

Intersection Summary			
Intersection Capacity Utilization	85.5%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWT	SWR
Lane Configurations		
Volume (vph)	917	248
Pedestrians		6
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	6.0	6.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	917	248
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.8
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	36.1	22.6
Adj Reference Time (s)	42.1	28.6
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	36.1	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	103.4	
Adj Reference Time (s)	109.4	
Split Option		
Ref Time Combined (s)	36.1	
Ref Time Seperate (s)	36.1	
Reference Time (s)	36.1	
Adj Reference Time (s)	42.1	

Summary

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	32	235	654	2	227	526	18	2	8	1	25	12
Pedestrians	3		3		3		3					
Ped Button		No				No						
Pedestrian Timing (s)		16.0				16.0						
Free Right			No				No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.7	4.9	4.0	3.7	3.7	4.9	4.0	4.1	4.1	4.1	4.1	4.1
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	32	889	0	0	229	544	0	0	11	1	25	12
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00
Saturated Flow (vph)	1520	2710	0	0	2952	3032	0	0	1582	1360	1520	1600
Ped Intf Time (s)	0.0	0.3	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		1.00				1.00			0.00			0.00
Protected Option Allowed		Yes				Yes			No			No
Reference Time (s)	2.5	39.6	0.0	0.0	9.3	21.5	0.0			0.1		
Adj Reference Time (s)	14.0	44.5	0.0	0.0	14.0	26.4	0.0			14.1		
Permitted Option												
Adj Saturation A (vph)	101	1355		0	98	1516		0	360		101	1600
Reference Time A (s)	37.7	39.6		0.0	139.6	21.5		0.0	3.5		29.3	0.9
Adj Saturation B (vph	NA	NA		NA	NA	NA		0	0		0	1600
Reference Time B (s)	NA	NA		NA	NA	NA		8.2	8.8		10.0	0.9
Reference Time (s)		39.6				139.6			3.5			10.0
Adj Reference Time (s)		44.5				144.5			14.1			14.1
Split Option												
Ref Time Combined (s)	2.5	39.6		0.0	9.3	21.5		0.0	0.8		2.0	0.9
Ref Time Seperate (s)	2.5	10.7		0.2	9.2	20.8		0.2	0.6		2.0	0.9
Reference Time (s)	39.6	39.6		21.5	21.5	21.5		0.8	0.8		2.0	2.0
Adj Reference Time (s)	44.5	44.5		26.4	26.4	26.4		14.1	14.1		14.1	14.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	58.5	NA	
Permitted Option (s)	144.5	14.1	
Split Option (s)	71.0	28.2	
Minimum (s)	58.5	14.1	72.6

Right Turns	NER	SWR
Adj Reference Time (s)	14.1	14.1
Cross Thru Ref Time (s)	58.5	26.4
Oncoming Left Ref Time (s)	14.1	14.1
Combined (s)	86.7	54.6

Intersection Summary			
Intersection Capacity Utilization	72.3%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	54
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.1
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	54
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	4.8
Adj Reference Time (s)	14.1
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWU	NWL	NWT
Lane Configurations												
Volume (vph)	65	1	66	168	372	91	31	683	182	2	341	210
Pedestrians							3		2		2	
Ped Button								No				No
Pedestrian Timing (s)								16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.0	3.7	4.9	4.9	3.7	3.7	4.9
Minimum Green (s)	10.0	10.0	10.0	9.9	9.9	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	66	66	0	630	0	31	683	182	0	343	256
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.97
Saturated Flow (vph)	0	1521	1360	0	1545	0	1520	3046	1360	0	1520	2964
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			5.8			0.0	2.4	26.9	16.3	0.0	27.1	10.4
Adj Reference Time (s)			14.1			0.0	14.0	31.8	21.2	0.0	31.1	15.3
Permitted Option												
Adj Saturation A (vph)	0	513		0	303		101	1523		0	101	1482
Reference Time A (s)	0.0	15.5		0.0	249.3		36.3	26.9		0.0	406.6	10.4
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		21.2	57.0		NA	NA		NA	NA	NA
Reference Time (s)		15.5			57.0			36.3				406.6
Adj Reference Time (s)		19.6			61.1			41.2				411.5
Split Option												
Ref Time Combined (s)	0.0	5.2		0.0	49.0		2.4	26.9		0.0	27.1	10.4
Ref Time Seperate (s)	5.1	0.1		13.2	28.7		2.4	26.9		0.2	26.9	8.6
Reference Time (s)	5.2	5.2		49.0	49.0		26.9	26.9		27.1	27.1	27.1
Adj Reference Time (s)	14.1	14.1		53.1	53.1		31.8	31.8		32.0	32.0	32.0

Summary	NB SB	NW SE	Combined
Protected Option (s)	NA	62.9	
Permitted Option (s)	61.1	411.5	
Split Option (s)	67.2	63.8	
Minimum (s)	61.1	62.9	124.0

Right Turns	NBR	SER
Adj Reference Time (s)	14.1	21.2
Cross Thru Ref Time (s)	62.9	53.1
Oncoming Left Ref Time (s)	53.1	31.1
Combined (s)	130.1	105.4

Intersection Summary			
Intersection Capacity Utilization	108.4%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NWR
Lane Configurations	
Volume (vph)	46
Pedestrians	3
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.4
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	111	297	72	133	472	94	101	926	60	25	116	933
Pedestrians	14		12	12		14	12		7		7	
Ped Button		Yes			No			No				Yes
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.5	6.0	4.0	3.5	3.5	6.0
Minimum Green (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	4.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	111	369	0	133	566	0	101	986	0	0	140	1057
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.97	0.85	0.95	0.99	0.85	0.95	0.95	0.98
Saturated Flow (vph)	1520	2957	0	1520	2970	0	1520	3019	0	0	1520	2993
Ped Intf Time (s)	0.0	0.3	1.5	0.0	0.3	1.7	0.0	0.1	0.9	0.0	0.0	0.2
Pedestrian Frequency (%)		0.33			1.00			1.00				0.33
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	8.8	15.3	0.0	10.5	23.2	0.0	8.0	39.3	0.0	0.0	11.1	42.6
Adj Reference Time (s)	14.8	21.3	0.0	16.5	29.2	0.0	12.0	45.3	0.0	0.0	15.1	48.6
Permitted Option												
Adj Saturation A (vph)	101	1479		101	1485		101	1509		0	101	1496
Reference Time A (s)	131.4	15.3		157.9	23.2		120.2	39.3		0.0	166.3	42.6
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		131.4			157.9			120.2				166.3
Adj Reference Time (s)		137.4			163.9			126.2				172.3
Split Option												
Ref Time Combined (s)	8.8	15.3		10.5	23.2		8.0	39.3		0.0	11.1	42.6
Ref Time Seperate (s)	8.8	12.4		10.5	19.4		8.0	36.9		2.0	9.1	37.6
Reference Time (s)	15.3	15.3		23.2	23.2		39.3	39.3		42.6	42.6	42.6
Adj Reference Time (s)	21.3	21.3		29.2	29.2		45.3	45.3		48.6	48.6	48.6

Summary	NW SE	NE SW	Combined
Protected Option (s)	43.9	60.6	
Permitted Option (s)	163.9	172.3	
Split Option (s)	50.4	93.8	
Minimum (s)	43.9	60.6	104.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	87.1%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	124
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	5	66	361	99	2	172	700	158	13	78	887	109
Pedestrians		16		16		16		16		14		39
Ped Button			Yes				Yes				No	
Pedestrian Timing (s)			16.0				16.0				16.0	
Free Right				No				No				No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0	4.0	4.0	6.0	6.0	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	71	361	99	0	175	700	158	0	91	887	109
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360	0	1520	3046	1360	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0	0.0	4.0
Pedestrian Frequency (%)			0.41				0.41				1.00	
Protected Option Allowed			Yes				Yes				Yes	
Reference Time (s)	0.0	5.6	14.2	10.7	0.0	13.8	27.6	15.9	0.0	7.2	35.0	13.6
Adj Reference Time (s)	0.0	10.1	20.2	16.7	0.0	17.8	33.6	21.9	0.0	11.7	41.0	19.6
Permitted Option												
Adj Saturation A (vph)	0	101	1523		0	101	1523		0	101	1523	
Reference Time A (s)	0.0	83.8	14.2		0.0	206.8	27.6		0.0	107.6	35.0	
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time B (s)	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time (s)			83.8				206.8				107.6	
Adj Reference Time (s)			89.8				212.8				113.6	
Split Option												
Ref Time Combined (s)	0.0	5.6	14.2		0.0	13.8	27.6		0.0	7.2	35.0	
Ref Time Seperate (s)	0.4	5.2	14.2		0.2	13.6	27.6		1.0	6.1	35.0	
Reference Time (s)	14.2	14.2	14.2		27.6	27.6	27.6		35.0	35.0	35.0	
Adj Reference Time (s)	20.2	20.2	20.2		33.6	33.6	33.6		41.0	41.0	41.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	43.7	60.1	
Permitted Option (s)	212.8	113.6	
Split Option (s)	53.8	89.4	
Minimum (s)	43.7	60.1	103.8

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	16.7	21.9	19.6	16.0
Cross Thru Ref Time (s)	60.1	51.2	38.0	43.7
Oncoming Left Ref Time (s)	17.8	10.1	10.3	11.7
Combined (s)	94.5	83.2	67.8	71.3

Intersection Summary			
Intersection Capacity Utilization	86.5%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Volume (vph)	12	61	1077	50
Pedestrians		39		14
Ped Button			No	
Pedestrian Timing (s)			16.0	
Free Right				No
Ideal Flow	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120
Volume Combined (vph)	0	73	1077	50
Lane Utilization Factor	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	1.7
Pedestrian Frequency (%)			1.00	
Protected Option Allowed			Yes	
Reference Time (s)	0.0	5.8	42.4	6.1
Adj Reference Time (s)	0.0	10.3	48.4	16.0
Permitted Option				
Adj Saturation A (vph)	0	101	1523	
Reference Time A (s)	0.0	86.6	42.4	
Adj Saturation B (vph	NA	NA	NA	
Reference Time B (s)	NA	NA	NA	
Reference Time (s)			86.6	
Adj Reference Time (s)			92.6	
Split Option				
Ref Time Combined (s)	0.0	5.8	42.4	
Ref Time Seperate (s)	0.9	4.8	42.4	
Reference Time (s)	42.4	42.4	42.4	
Adj Reference Time (s)	48.4	48.4	48.4	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	60	201	312	143	363	113	15	144	968	90	24	68
Pedestrians	19		3	3		19		13		7		7
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	5.5	5.5	4.5	5.5	5.5	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	60	201	312	143	363	113	0	159	968	90	0	92
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	0.4	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0
Pedestrian Frequency (%)		0.10			0.47				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	4.8	15.0	27.9	11.3	27.3	12.2	0.0	12.6	38.1	8.8	0.0	7.3
Adj Reference Time (s)	9.3	20.5	33.4	15.8	32.8	17.7	0.0	17.1	44.1	16.0	0.0	11.8
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	71.3	15.0		169.1	27.3		0.0	188.6	38.1		0.0	109.0
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		71.3			169.1				188.6			
Adj Reference Time (s)		76.8			174.6				194.6			
Split Option												
Ref Time Combined (s)	4.8	15.0		11.3	27.3		0.0	12.6	38.1		0.0	7.3
Ref Time Seperate (s)	4.8	15.0		11.3	27.3		1.2	11.4	38.1		1.9	5.4
Reference Time (s)	15.0	15.0		27.3	27.3		38.1	38.1	38.1		49.1	49.1
Adj Reference Time (s)	20.5	20.5		32.8	32.8		44.1	44.1	44.1		55.1	55.1

Summary	EB WB	NB SB	Combined
Protected Option (s)	42.0	72.2	
Permitted Option (s)	174.6	194.6	
Split Option (s)	53.3	99.2	
Minimum (s)	42.0	72.2	114.2

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	33.4	17.7	16.0	16.0
Cross Thru Ref Time (s)	72.2	55.9	20.5	32.8
Oncoming Left Ref Time (s)	15.8	9.3	11.8	17.1
Combined (s)	121.3	82.8	48.3	65.8

Intersection Summary			
Intersection Capacity Utilization	101.1%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Volume (vph)	1246	47
Pedestrians		13
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1246	47
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	1.6
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	49.1	5.7
Adj Reference Time (s)	55.1	16.0
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	49.1	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	109.0	
Adj Reference Time (s)	115.0	
Split Option		
Ref Time Combined (s)	49.1	
Ref Time Seperate (s)	49.1	
Reference Time (s)	49.1	
Adj Reference Time (s)	55.1	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	153	358	137	260	453	84	86	1226	160	2	42	1058
Pedestrians	5		15	15		5	5		8		8	
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		18.0			18.0			18.0				18.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	153	494	0	260	537	0	86	1226	160	0	45	1058
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	1.00
Saturated Flow (vph)	1520	2920	0	1520	2975	0	1520	3046	1360	0	1520	3046
Ped Intf Time (s)	0.0	0.5	1.8	0.0	0.1	0.6	0.0	0.0	1.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.39			0.15			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	12.1	20.8	0.0	20.5	21.8	0.0	6.8	48.3	15.2	0.0	3.5	41.7
Adj Reference Time (s)	16.6	25.3	0.0	25.0	26.3	0.0	11.3	52.8	22.5	0.0	9.5	46.2
Permitted Option												
Adj Saturation A (vph)	101	1460		101	1488		101	1523		0	101	1523
Reference Time A (s)	181.7	20.8		307.4	21.8		102.0	48.3		0.0	53.1	41.7
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		181.7			307.4			102.0				53.1
Adj Reference Time (s)		186.2			311.9			106.5				57.6
Split Option												
Ref Time Combined (s)	12.1	20.8		20.5	21.8		6.8	48.3		0.0	3.5	41.7
Ref Time Seperate (s)	12.1	15.2		20.5	18.4		6.8	48.3		0.2	3.4	41.7
Reference Time (s)	20.8	20.8		21.8	21.8		48.3	48.3		41.7	41.7	41.7
Adj Reference Time (s)	25.3	25.3		26.3	26.3		52.8	52.8		46.2	46.2	46.2

Summary	EB WB	NB SB	Combined
Protected Option (s)	50.3	62.3	
Permitted Option (s)	311.9	106.5	
Split Option (s)	51.6	99.0	
Minimum (s)	50.3	62.3	112.6

Right Turns	NBR	SBR
Adj Reference Time (s)	22.5	22.5
Cross Thru Ref Time (s)	25.3	26.3
Oncoming Left Ref Time (s)	9.5	11.3
Combined (s)	57.3	60.1

Intersection Summary			
Intersection Capacity Utilization	93.8%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	106
Pedestrians	5
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.5
Minimum Green (s)	5.0
Refr Cycle Length (s)	120
Volume Combined (vph)	106
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.6
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	10.0
Adj Reference Time (s)	22.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	817	269	204	1187	504	238	686	112	427	1055	106
Pedestrians	23		56	56		23	30		31	31		30
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.5	4.0	4.5	7.5	4.0
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	159	817	269	204	1187	504	238	798	0	427	1161	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.99	0.85
Saturated Flow (vph)	2952	3046	1360	2952	4358	1360	4428	4267	0	4428	4299	0
Ped Intf Time (s)	0.0	0.0	5.1	0.0	0.0	2.6	0.0	0.5	3.3	0.0	0.3	3.2
Pedestrian Frequency (%)		0.85			0.54			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.5	32.2	28.9	8.3	32.7	47.1	6.5	22.9	0.0	11.6	32.7	0.0
Adj Reference Time (s)	11.0	39.2	35.9	12.8	39.7	54.1	11.0	30.4	0.0	16.1	40.2	0.0
Permitted Option												
Adj Saturation A (vph)	98	1523		98	1453		98	1422		98	1433	
Reference Time A (s)	97.1	32.2		124.5	32.7		96.9	22.9		173.7	32.7	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		97.1			124.5			96.9			173.7	
Adj Reference Time (s)		104.1			131.5			104.4			181.2	
Split Option												
Ref Time Combined (s)	6.5	32.2		8.3	32.7		6.5	22.9		11.6	32.7	
Ref Time Seperate (s)	6.5	32.2		8.3	32.7		6.5	19.8		11.6	29.7	
Reference Time (s)	32.2	32.2		32.7	32.7		22.9	22.9		32.7	32.7	
Adj Reference Time (s)	39.2	39.2		39.7	39.7		30.4	30.4		40.2	40.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	52.0	51.2	
Permitted Option (s)	131.5	181.2	
Split Option (s)	78.8	70.6	
Minimum (s)	52.0	51.2	103.1

Right Turns	EBR	WBR
Adj Reference Time (s)	35.9	54.1
Cross Thru Ref Time (s)	40.2	30.4
Oncoming Left Ref Time (s)	12.8	11.0
Combined (s)	88.9	95.4

Intersection Summary			
Intersection Capacity Utilization	85.9%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	21	20	68	73	48	38	139	1089	145	1	61	834
Pedestrians	4					4			7		7	
Ped Button					Yes			No				
Pedestrian Timing (s)					16.0			16.0				
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.5	5.5	4.5	4.5	4.5
Minimum Green (s)	6.0	6.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	110	0	0	122	38	139	1089	145	0	63	887
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.91
Turning Factor (vph)	0.95	0.90	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.99
Saturated Flow (vph)	0	1436	0	0	3104	1360	1520	4358	1360	0	1520	4319
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.9	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.12			1.00				0.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			0.0			3.8	11.0	30.0	13.7	0.0	4.9	24.7
Adj Reference Time (s)			0.0			15.0	16.0	35.5	19.2	0.0	9.4	29.2
Permitted Option												
Adj Saturation A (vph)	0	365		0	1229		101	1453		0	101	1440
Reference Time A (s)	0.0	36.1		0.0	11.9		164.9	30.0		0.0	74.1	24.7
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	9.7	17.2		10.9	12.7		NA	NA		NA	NA	NA
Reference Time (s)		17.2			11.9			164.9				74.1
Adj Reference Time (s)		22.2			16.9			170.4				78.6
Split Option												
Ref Time Combined (s)	0.0	9.2		0.0	4.7		11.0	30.0		0.0	4.9	24.7
Ref Time Seperate (s)	1.7	1.7		2.9	3.6		11.0	30.0		0.1	4.8	23.2
Reference Time (s)	9.2	9.2		4.7	4.7		30.0	30.0		24.7	24.7	24.7
Adj Reference Time (s)	14.2	14.2		15.0	15.0		35.5	35.5		29.2	29.2	29.2

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	45.1	
Permitted Option (s)	22.2	170.4	
Split Option (s)	29.2	64.6	
Minimum (s)	22.2	45.1	67.3

Right Turns	WBR	NBR
Adj Reference Time (s)	15.0	19.2
Cross Thru Ref Time (s)	44.9	14.2
Oncoming Left Ref Time (s)	14.2	9.4
Combined (s)	74.1	42.8

Intersection Summary			
Intersection Capacity Utilization	61.7%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	53
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

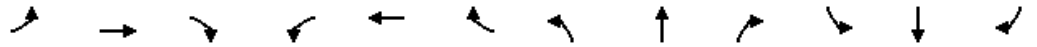
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	96	15	73	142	432	19	552	261	394	610	81
Pedestrians			3	3			1		2	2		1
Ped Button		Yes						No			No	
Pedestrian Timing (s)		16.0						16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.5	5.0	4.0	4.5	5.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	10.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	40	111	0	73	142	432	19	813	0	394	691	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	1567	0	1520	1600	1360	1520	2900	0	1520	4281	0
Ped Intf Time (s)	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.10			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	8.5	0.0	5.8	10.6	38.1	1.5	33.7	0.0	31.1	19.4	0.0
Adj Reference Time (s)	9.0	13.5	0.0	10.8	15.6	43.1	8.5	38.7	0.0	35.6	24.4	0.0
Permitted Option												
Adj Saturation A (vph)	101	1567		101	1600		101	1450		101	1427	
Reference Time A (s)	47.5	8.5		86.6	10.6		22.4	33.7		466.7	19.4	
Adj Saturation B (vph	NA	NA		0	1600		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		13.8	10.6		NA	NA		NA	NA	
Reference Time (s)		47.5			13.8			33.7			466.7	
Adj Reference Time (s)		52.5			18.8			38.7			471.7	
Split Option												
Ref Time Combined (s)	3.2	8.5		5.8	10.6		1.5	33.7		31.1	19.4	
Ref Time Seperate (s)	3.2	7.4		5.8	10.6		1.5	22.9		31.1	17.1	
Reference Time (s)	8.5	8.5		10.6	10.6		33.7	33.7		31.1	31.1	
Adj Reference Time (s)	13.5	13.5		15.6	15.6		38.7	38.7		36.1	36.1	

Summary	EB WB	NB SB	Combined
Protected Option (s)	24.6	74.3	
Permitted Option (s)	52.5	471.7	
Split Option (s)	29.2	74.8	
Minimum (s)	24.6	74.3	99.0

Right Turns	WBR
Adj Reference Time (s)	43.1
Cross Thru Ref Time (s)	38.7
Oncoming Left Ref Time (s)	9.0
Combined (s)	90.8

Intersection Summary			
Intersection Capacity Utilization	82.5%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.



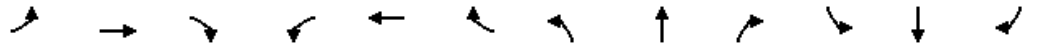
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	506	17	105	868	107	52	365	172	135	264	73
Pedestrians	86		19	19		86	7		51	51		7
Ped Button		No			No			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.0	4.0	5.5	5.0	4.0
Minimum Green (s)	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	34	523	0	105	976	0	0	589	0	0	472	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.95	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	3032	0	1520	2996	0	0	2900	0	0	2933	0
Ped Intf Time (s)	0.0	0.1	2.2	0.0	0.7	6.6	0.0	1.4	4.8	0.0	0.1	0.9
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	2.7	20.8	0.0	8.3	39.8	0.0			0.0			0.0
Adj Reference Time (s)	12.5	26.3	0.0	13.8	45.3	0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	101	1516		101	1498		0	279		0	98	
Reference Time A (s)	40.5	20.8		124.4	39.8		0.0	83.4		0.0	165.2	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		40.5			124.4			83.4			165.2	
Adj Reference Time (s)		46.0			129.9			88.4			170.2	
Split Option												
Ref Time Combined (s)	2.7	20.8		8.3	39.8		0.0	25.8		0.0	19.4	
Ref Time Seperate (s)	2.7	20.1		8.3	35.5		4.1	16.5		10.6	10.9	
Reference Time (s)	20.8	20.8		39.8	39.8		25.8	25.8		19.4	19.4	
Adj Reference Time (s)	26.3	26.3		45.3	45.3		30.8	30.8		24.4	24.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	57.8	NA	
Permitted Option (s)	129.9	170.2	
Split Option (s)	71.6	55.2	
Minimum (s)	57.8	55.2	113.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	94.2%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.



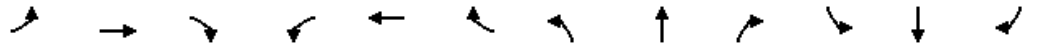
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	767	0	210	0	1187	362	0	860	294
Pedestrians									7			3
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	767	0	210	0	1187	362	0	860	294
Lane Utilization Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	0	0	2952	0	1360	0	4358	1360	0	4358	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.4
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	31.2	0.0	18.5	0.0	32.7	32.9	0.0	23.7	26.3
Adj Reference Time (s)	0.0	0.0	0.0	35.7	0.0	23.0	0.0	37.2	37.4	0.0	28.2	30.8
Permitted Option												
Adj Saturation A (vph)	0	0		98	0		0	1453		0	1453	
Reference Time A (s)	0.0	0.0		467.7	0.0		0.0	32.7		0.0	23.7	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	0.0	0.0		39.2	0.0		NA	NA		NA	NA	
Reference Time (s)		0.0			39.2			32.7			23.7	
Adj Reference Time (s)		8.0			43.2			37.2			28.2	
Split Option												
Ref Time Combined (s)	0.0	0.0		31.2	0.0		0.0	32.7		0.0	23.7	
Ref Time Seperate (s)	0.0	0.0		31.2	0.0		0.0	32.7		0.0	23.7	
Reference Time (s)	0.0	0.0		31.2	31.2		32.7	32.7		23.7	23.7	
Adj Reference Time (s)	0.0	0.0		35.2	35.2		37.2	37.2		28.2	28.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	35.7	37.2	
Permitted Option (s)	43.2	37.2	
Split Option (s)	35.2	65.4	
Minimum (s)	35.2	37.2	72.4

Right Turns	WBR	NBR	SBR
Adj Reference Time (s)	23.0	37.4	30.8
Cross Thru Ref Time (s)	37.2	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	60.2	37.4	30.8

Intersection Summary			
Intersection Capacity Utilization	60.3%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	0	308	0	0	0	0	1280	946	0	1604	1
Pedestrians												7
Ped Button											No	
Pedestrian Timing (s)											18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	363	205	0	0	0	0	1596	631	0	1604	1
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	2954	1360	0	0	0	1520	2956	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Pedestrian Frequency (%)		0.00			0.00			0.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			18.1			0.0	0.0	64.8	55.7	0.0	63.2	1.0
Adj Reference Time (s)			22.6			0.0	9.5	69.3	60.2	0.0	67.7	22.5
Permitted Option												
Adj Saturation A (vph)	0	250		0	0		101	1478		0	1523	
Reference Time A (s)	0.0	174.3		0.0	0.0		0.0	64.8		0.0	63.2	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	18.3	22.8		0.0	0.0		NA	NA		NA	NA	
Reference Time (s)		22.8			0.0			64.8			63.2	
Adj Reference Time (s)		27.3			8.0			69.3			67.7	
Split Option												
Ref Time Combined (s)	0.0	14.8		0.0	0.0		0.0	64.8		0.0	63.2	
Ref Time Seperate (s)	10.3	0.0		0.0	0.0		0.0	52.0		0.0	63.2	
Reference Time (s)	14.8	14.8		0.0	0.0		64.8	64.8		63.2	63.2	
Adj Reference Time (s)	19.3	19.3		0.0	0.0		69.3	69.3		67.7	67.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	77.2	
Permitted Option (s)	27.3	69.3	
Split Option (s)	19.3	136.9	
Minimum (s)	19.3	69.3	88.5

Right Turns	EBR	NBR	SBR
Adj Reference Time (s)	22.6	60.2	22.5
Cross Thru Ref Time (s)	67.7	19.3	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	90.3	79.4	22.5

Intersection Summary			
Intersection Capacity Utilization	75.2%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	545	136	202	120	91	217	11	119	1294	87	11	299
Pedestrians			32			37						
Ped Button		Yes			Yes							
Pedestrian Timing (s)		16.0			16.0							
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	545	136	202	0	211	217	0	130	1382	0	0	309
Lane Utilization Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.97	0.85	0.95	0.95	0.99	0.85	0.95	0.95
Saturated Flow (vph)	2952	1600	1360	0	3109	1360	0	2952	4317	0	0	2952
Ped Intf Time (s)	0.0	0.0	3.4	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.66			0.71				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			21.2			23.0	0.0	5.3	38.4	0.0	0.0	12.6
Adj Reference Time (s)			25.7			27.5	0.0	9.8	43.4	0.0	0.0	17.1
Permitted Option												
Adj Saturation A (vph)	98	1600		0	318		0	98	1439		0	98
Reference Time A (s)	332.4	10.2		0.0	79.7		0.0	79.2	38.4		0.0	188.5
Adj Saturation B (vph	0	1600		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	30.2	10.2		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		30.2			79.7				79.2			
Adj Reference Time (s)		34.7			84.2				84.2			
Split Option												
Ref Time Combined (s)	22.2	10.2		0.0	8.2		0.0	5.3	38.4		0.0	12.6
Ref Time Seperate (s)	22.2	10.2		4.8	6.8		0.8	4.8	36.0		0.8	12.1
Reference Time (s)	22.2	22.2		8.2	8.2		38.4	38.4	38.4		30.5	30.5
Adj Reference Time (s)	26.7	26.7		12.7	12.7		43.4	43.4	43.4		35.5	35.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	60.5	
Permitted Option (s)	84.2	193.5	
Split Option (s)	39.3	78.9	
Minimum (s)	39.3	60.5	99.8

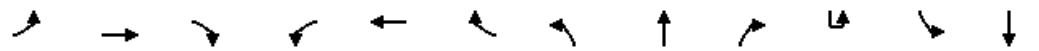
Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	25.7	27.5	51.4
Cross Thru Ref Time (s)	45.3	60.5	12.7
Oncoming Left Ref Time (s)	12.7	26.7	9.8
Combined (s)	83.6	114.6	73.9

Intersection Summary			
Intersection Capacity Utilization	95.5%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑↑	↱
Volume (vph)	1107	510
Pedestrians		12
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	5.0	5.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1107	510
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	4358	1360
Ped Intf Time (s)	0.0	1.5
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	30.5	46.4
Adj Reference Time (s)	35.5	51.4
Permitted Option		
Adj Saturation A (vph)	1453	
Reference Time A (s)	30.5	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	188.5	
Adj Reference Time (s)	193.5	
Split Option		
Ref Time Combined (s)	30.5	
Ref Time Seperate (s)	30.5	
Reference Time (s)	30.5	
Adj Reference Time (s)	35.5	

Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	346	433	120	19	322	275	142	840	25	21	269	830
Pedestrians						2			8			
Ped Button					Yes			No				No
Pedestrian Timing (s)					16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.5	6.0	4.0	5.0	5.0	6.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	4.0	4.0	4.0	6.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	779	120	0	341	275	142	865	0	0	290	1082
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.97	0.91
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.96
Saturated Flow (vph)	0	3129	1360	0	3038	1360	2952	4340	0	0	2952	4206
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.3
Pedestrian Frequency (%)		0.00			0.06			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			10.6			24.5	5.8	23.9	0.0	0.0	11.8	31.2
Adj Reference Time (s)			16.1			30.0	10.3	29.9	0.0	0.0	16.8	37.2
Permitted Option												
Adj Saturation A (vph)	0	396		0	486		98	1447		0	98	1402
Reference Time A (s)	0.0	235.9		0.0	32.8		86.3	23.9		0.0	177.0	31.2
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		235.9			32.8			86.3				177.0
Adj Reference Time (s)		241.4			38.3			92.3				183.0
Split Option												
Ref Time Combined (s)	0.0	29.9		0.0	13.5		5.8	23.9		0.0	11.8	31.2
Ref Time Seperate (s)	13.6	32.5		1.5	12.7		5.8	23.3		1.7	10.9	24.0
Reference Time (s)	32.5	32.5		13.5	13.5		23.9	23.9		31.2	31.2	31.2
Adj Reference Time (s)	38.0	38.0		19.0	19.0		29.9	29.9		37.2	37.2	37.2

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	47.5	
Permitted Option (s)	241.4	183.0	
Split Option (s)	56.9	67.2	
Minimum (s)	56.9	47.5	104.4

Right Turns	EBR	WBR
Adj Reference Time (s)	16.1	30.0
Cross Thru Ref Time (s)	37.2	46.7
Oncoming Left Ref Time (s)	19.0	38.0
Combined (s)	72.3	114.7

Intersection Summary			
Intersection Capacity Utilization	95.6%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	253
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	79	0	46	48	892	0	0	933	8	178	15	17
Pedestrians	11					3						11
Ped Button					No					Yes		
Pedestrian Timing (s)					16.0					16.0		
Free Right			No			No			No		No	No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0
Minimum Green (s)	4.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	79	0	46	48	892	0	0	942	0	199	0	11
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.94	0.85	0.85
Saturated Flow (vph)	1520	0	1360	1520	3046	0	0	3042	0	2921	0	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0	1.4
Pedestrian Frequency (%)		0.00			1.00			0.00		0.31		
Protected Option Allowed		No			Yes			Yes		No		
Reference Time (s)			4.1	3.8	35.1	0.0	0.0	37.1	0.0		0.0	2.3
Adj Reference Time (s)			9.1	15.0	40.1	0.0	0.0	42.1	0.0		0.0	9.0
Permitted Option												
Adj Saturation A (vph)	101	0		101	1523		0	1521		97		
Reference Time A (s)	93.6	0.0		57.3	35.1		0.0	37.1		122.8		
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA		
Reference Time (s)					57.3			37.1				
Adj Reference Time (s)					62.3			42.1				
Split Option												
Ref Time Combined (s)	6.2	0.0		3.8	35.1		0.0	37.1		8.3		
Ref Time Seperate (s)	6.2	0.0		3.8	35.1		0.0	36.8		7.5		
Reference Time (s)	6.2	6.2		35.1	35.1		37.1	37.1		8.3		
Adj Reference Time (s)	10.2	10.2		40.1	40.1		42.1	42.1		13.3		

Summary	EB	NB SB	SW	Combined
Protected Option (s)	NA	57.1	NA	
Permitted Option (s)	Err	62.3	Err	
Split Option (s)	10.2	82.3	13.3	
Minimum (s)	10.2	57.1	13.3	80.7

Right Turns	EBR	SWR2
Adj Reference Time (s)	9.1	9.0
Cross Thru Ref Time (s)	42.1	40.1
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	51.2	49.1

Intersection Summary			
Intersection Capacity Utilization	67.2%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	111	48	99	14	25	15	85	262	37	7	179	55
Pedestrians			3			3	3		4	1		3
Ped Button		Yes			No			No			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	4.0	8.0	8.0	8.0	8.0	8.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	159	99	0	54	0	85	262	37	0	242	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.96	0.85
Saturated Flow (vph)	0	1544	1360	0	1512	0	1520	1600	1360	0	1543	0
Ped Intf Time (s)	0.0	0.0	0.4	0.0	0.1	0.4	0.0	0.0	0.5	0.0	0.1	0.4
Pedestrian Frequency (%)		0.10			1.00			1.00			0.10	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			9.1			0.0			3.7			0.0
Adj Reference Time (s)			14.1			0.0			13.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	670		0	302		146	1600		0	1089	
Reference Time A (s)	0.0	28.5		0.0	21.7		69.9	19.6		0.0	26.8	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	16.8	20.4		9.1	12.4		NA	NA		NA	NA	
Reference Time (s)		20.4			12.4			69.9			26.8	
Adj Reference Time (s)		25.4			17.4			74.9			31.8	
Split Option												
Ref Time Combined (s)	0.0	12.4		0.0	4.4		6.7	19.6		0.0	18.9	
Ref Time Seperate (s)	8.8	3.6		1.1	2.1		6.7	19.6		0.6	14.0	
Reference Time (s)	12.4	12.4		4.4	4.4		19.6	19.6		18.9	18.9	
Adj Reference Time (s)	17.4	17.4		11.0	11.0		24.6	24.6		23.9	23.9	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	25.4	74.9	
Split Option (s)	28.4	48.6	
Minimum (s)	25.4	48.6	73.9

Right Turns	SER	NER
Adj Reference Time (s)	14.1	13.0
Cross Thru Ref Time (s)	23.9	17.4
Oncoming Left Ref Time (s)	11.0	23.9
Combined (s)	49.0	54.3

Intersection Summary			
Intersection Capacity Utilization	61.6%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	14	21	22	104	25	14	34	375	130	30	251	15
Pedestrians	6		4	4		6	2		9	9		2
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	35	22	0	143	0	34	505	0	30	267	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.95	0.85	0.95	0.96	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1568	1360	0	1519	0	1520	2929	0	1520	3020	0
Ped Intf Time (s)	0.0	0.0	0.5	0.0	0.1	0.8	0.0	0.3	1.1	0.0	0.0	0.3
Pedestrian Frequency (%)		0.12			0.18			0.26			0.06	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			2.5			0.0	2.7	21.0	0.0	2.3	10.6	0.0
Adj Reference Time (s)			9.5			0.0	8.0	25.0	0.0	8.0	15.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1570		0	127		101	1464		101	1510	
Reference Time A (s)	0.0	2.7		0.0	134.7		40.5	21.0		34.9	10.6	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.1	10.7		16.2	19.4		NA	NA		NA	NA	
Reference Time (s)		2.7			19.4			40.5			34.9	
Adj Reference Time (s)		9.5			23.4			44.5			38.9	
Split Option												
Ref Time Combined (s)	0.0	2.7		0.0	11.4		2.7	21.0		2.3	10.6	
Ref Time Seperate (s)	1.1	1.6		8.2	2.0		2.7	15.7		2.3	10.0	
Reference Time (s)	2.7	2.7		11.4	11.4		21.0	21.0		10.6	10.6	
Adj Reference Time (s)	9.5	9.5		16.2	16.2		25.0	25.0		15.0	15.0	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	33.0	
Permitted Option (s)	23.4	44.5	
Split Option (s)	25.7	39.9	
Minimum (s)	23.4	33.0	56.3

Right Turns	SER
Adj Reference Time (s)	9.5
Cross Thru Ref Time (s)	15.0
Oncoming Left Ref Time (s)	16.2
Combined (s)	40.7

Intersection Summary			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	135	608	32	14	494	118	22	303	7	124	166	97
Pedestrians	7		11	11		7	7		10	7		10
Ped Button		Yes			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.5	5.5	5.5	5.5	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	135	640	0	14	612	0	22	303	7	124	263	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.94	0.85
Saturated Flow (vph)	1520	3024	0	1520	2958	0	1520	3046	1360	1520	2878	0
Ped Intf Time (s)	0.0	0.1	1.4	0.0	0.2	0.9	0.0	0.0	1.2	0.0	0.5	1.2
Pedestrian Frequency (%)		0.31			1.00			0.28			0.28	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.6	25.4	0.0	1.1	25.0	0.0	1.8	11.9	1.9	9.8	11.4	0.0
Adj Reference Time (s)	16.1	30.9	0.0	15.5	30.5	0.0	11.5	17.4	11.5	15.3	16.9	0.0
Permitted Option												
Adj Saturation A (vph)	101	1512		101	1479		101	1523		101	1439	
Reference Time A (s)	159.3	25.4		16.8	25.0		26.6	11.9		146.7	11.4	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		159.3			25.0			26.6			146.7	
Adj Reference Time (s)		164.8			30.5			32.1			152.2	
Split Option												
Ref Time Combined (s)	10.6	25.4		1.1	25.0		1.8	11.9		9.8	11.4	
Ref Time Seperate (s)	10.6	24.2		1.1	20.2		1.8	11.9		9.8	7.4	
Reference Time (s)	25.4	25.4		25.0	25.0		11.9	11.9		11.4	11.4	
Adj Reference Time (s)	30.9	30.9		30.5	30.5		17.4	17.4		16.9	16.9	

Summary	NW SE	NE SW	Combined
Protected Option (s)	46.6	32.7	
Permitted Option (s)	164.8	152.2	
Split Option (s)	61.5	34.4	
Minimum (s)	46.6	32.7	79.4

Right Turns	NER
Adj Reference Time (s)	11.5
Cross Thru Ref Time (s)	30.9
Oncoming Left Ref Time (s)	15.3
Combined (s)	57.7

Intersection Summary			
Intersection Capacity Utilization	66.1%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	177	411	78	119	339	99	2	140	925	309	11	146
Pedestrians			8			16				24		
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	6.0	4.0	4.5	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	177	489	0	119	339	99	0	143	925	309	0	157
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	2974	0	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.2	1.0	0.0	0.0	1.9	0.0	0.0	0.0	2.7	0.0	0.0
Pedestrian Frequency (%)		0.23			0.41				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	14.0	19.9	0.0	9.4	25.4	10.7	0.0	11.3	36.4	30.0	0.0	12.4
Adj Reference Time (s)	18.5	25.9	0.0	13.9	31.4	16.7	0.0	15.8	42.4	36.0	0.0	16.9
Permitted Option												
Adj Saturation A (vph)	101	1487		101	1600		0	101	1523		0	101
Reference Time A (s)	209.6	19.9		141.1	25.4		0.0	169.1	36.4		0.0	185.8
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		209.6			141.1				169.1			
Adj Reference Time (s)		215.6			147.1				175.1			
Split Option												
Ref Time Combined (s)	14.0	19.9		9.4	25.4		0.0	11.3	36.4		0.0	12.4
Ref Time Seperate (s)	14.0	16.7		9.4	25.4		0.2	11.1	36.4		0.8	11.6
Reference Time (s)	19.9	19.9		25.4	25.4		36.4	36.4	36.4		36.3	36.3
Adj Reference Time (s)	25.9	25.9		31.4	31.4		42.4	42.4	42.4		42.3	42.3

Summary	NW SE	NE SW	Combined
Protected Option (s)	49.9	59.3	
Permitted Option (s)	215.6	191.8	
Split Option (s)	57.3	84.8	
Minimum (s)	49.9	59.3	109.2

Right Turns	NWR	NER	SWR
Adj Reference Time (s)	16.7	36.0	25.6
Cross Thru Ref Time (s)	59.3	25.9	31.4
Oncoming Left Ref Time (s)	18.5	16.9	15.8
Combined (s)	94.5	78.7	72.8

Intersection Summary			
Intersection Capacity Utilization	91.0%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWT	SWR
Lane Configurations	↑↑	↱
Volume (vph)	923	212
Pedestrians		7
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	6.0	6.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	923	212
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.9
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	36.3	19.6
Adj Reference Time (s)	42.3	25.6
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	36.3	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	185.8	
Adj Reference Time (s)	191.8	
Split Option		
Ref Time Combined (s)	36.3	
Ref Time Seperate (s)	36.3	
Reference Time (s)	36.3	
Adj Reference Time (s)	42.3	

Summary

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	129	432	529	1	286	506	47	0	0	0	27	47
Pedestrians	7		6		6		7					
Ped Button		No				No						
Pedestrian Timing (s)		16.0				16.0						
Free Right			No				No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.7	4.9	4.0	3.7	3.7	4.9	4.0	4.1	4.1	4.1	4.1	4.1
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	129	961	0	0	287	553	0	0	0	0	27	47
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00
Saturated Flow (vph)	1520	2795	0	0	2952	3007	0	0	1600	1360	1520	1600
Ped Intf Time (s)	0.0	0.4	0.8	0.0	0.0	0.1	0.9	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		1.00				1.00			0.00			0.00
Protected Option Allowed		Yes				Yes			No			No
Reference Time (s)	10.2	41.7	0.0	0.0	11.7	22.2	0.0			0.0		
Adj Reference Time (s)	14.2	46.6	0.0	0.0	15.7	27.1	0.0			14.1		
Permitted Option												
Adj Saturation A (vph)	101	1397		0	98	1504		0	1600		101	1600
Reference Time A (s)	152.3	41.7		0.0	174.9	22.2		0.0	0.0		32.1	3.5
Adj Saturation B (vph	NA	NA		NA	NA	NA		0	1600		0	1600
Reference Time B (s)	NA	NA		NA	NA	NA		0.0	0.0		10.1	3.5
Reference Time (s)		152.3				174.9			0.0			10.1
Adj Reference Time (s)		157.2				179.8			14.1			14.2
Split Option												
Ref Time Combined (s)	10.2	41.7		0.0	11.7	22.2		0.0	0.0		2.1	3.5
Ref Time Seperate (s)	10.2	19.0		0.1	11.6	20.3		0.0	0.0		2.1	3.5
Reference Time (s)	41.7	41.7		22.2	22.2	22.2		0.0	0.0		3.5	3.5
Adj Reference Time (s)	46.6	46.6		27.1	27.1	27.1		0.0	0.0		14.1	14.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	62.2	NA	
Permitted Option (s)	179.8	14.2	
Split Option (s)	73.6	14.1	
Minimum (s)	62.2	14.1	76.3

Right Turns	NER	SWR
Adj Reference Time (s)	14.1	22.2
Cross Thru Ref Time (s)	0.0	27.1
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	0.0	49.3

Intersection Summary			
Intersection Capacity Utilization	63.6%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	205
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.1
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	205
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	18.1
Adj Reference Time (s)	22.2
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWU	NWL	NWT
Lane Configurations												
Volume (vph)	260	12	96	124	162	93	63	809	100	2	341	330
Pedestrians									2			
Ped Button								No				No
Pedestrian Timing (s)								16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.0	3.7	4.9	4.9	3.7	3.7	4.9
Minimum Green (s)	10.0	10.0	10.0	9.9	9.9	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	271	96	0	379	0	63	809	100	0	343	406
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.95	0.97
Saturated Flow (vph)	0	1523	1360	0	1516	0	1520	3046	1360	0	1520	2961
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			8.4			0.0	4.9	31.9	9.1	0.0	27.1	16.6
Adj Reference Time (s)			14.1			0.0	14.0	36.8	14.9	0.0	31.1	21.5
Permitted Option												
Adj Saturation A (vph)	0	620		0	250		101	1523		0	101	1481
Reference Time A (s)	0.0	52.6		0.0	182.0		74.1	31.9		0.0	406.6	16.6
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		17.8	38.0		NA	NA		NA	NA	NA
Reference Time (s)		52.6			38.0			74.1				406.6
Adj Reference Time (s)		56.7			42.1			79.0				411.5
Split Option												
Ref Time Combined (s)	0.0	21.4		0.0	30.0		4.9	31.9		0.0	27.1	16.6
Ref Time Seperate (s)	20.5	0.9		9.8	12.8		4.9	31.9		0.2	26.9	13.5
Reference Time (s)	21.4	21.4		30.0	30.0		31.9	31.9		27.1	27.1	27.1
Adj Reference Time (s)	25.5	25.5		34.1	34.1		36.8	36.8		32.0	32.0	32.0

Summary	NB SB	NW SE	Combined
Protected Option (s)	NA	67.9	
Permitted Option (s)	56.7	411.5	
Split Option (s)	59.6	68.8	
Minimum (s)	56.7	67.9	124.6

Right Turns	NBR	SER
Adj Reference Time (s)	14.1	14.9
Cross Thru Ref Time (s)	67.9	34.1
Oncoming Left Ref Time (s)	34.1	31.1
Combined (s)	116.1	80.1

Intersection Summary			
Intersection Capacity Utilization	103.8%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NWR
Lane Configurations	
Volume (vph)	76
Pedestrians	5
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.6
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	188	661	74	94	258	79	84	1107	140	51	150	1020
Pedestrians	16		10	10		16			11			
Ped Button		Yes			No			No				Yes
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.5	6.0	4.0	3.5	3.5	6.0
Minimum Green (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	4.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	188	735	0	94	337	0	84	1247	0	0	201	1159
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.98	0.85	0.95	0.95	0.98
Saturated Flow (vph)	1520	3000	0	1520	2939	0	1520	2995	0	0	1520	2991
Ped Intf Time (s)	0.0	0.1	1.2	0.0	0.4	1.9	0.0	0.2	1.4	0.0	0.0	0.1
Pedestrian Frequency (%)		0.28			1.00			1.00				0.18
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	14.8	29.5	0.0	7.5	14.2	0.0	6.6	50.1	0.0	0.0	15.8	46.6
Adj Reference Time (s)	20.8	35.5	0.0	13.5	20.2	0.0	10.6	56.1	0.0	0.0	19.8	52.6
Permitted Option												
Adj Saturation A (vph)	101	1500		101	1470		101	1497		0	101	1496
Reference Time A (s)	222.2	29.5		111.8	14.2		99.2	50.1		0.0	237.6	46.6
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		222.2			111.8			99.2				237.6
Adj Reference Time (s)		228.2			117.8			105.2				243.6
Split Option												
Ref Time Combined (s)	14.8	29.5		7.5	14.2		6.6	50.1		0.0	15.8	46.6
Ref Time Seperate (s)	14.8	26.6		7.5	11.0		6.6	44.5		4.0	11.8	41.0
Reference Time (s)	29.5	29.5		14.2	14.2		50.1	50.1		46.6	46.6	46.6
Adj Reference Time (s)	35.5	35.5		20.2	20.2		56.1	56.1		52.6	52.6	52.6

Summary	NW SE	NE SW	Combined
Protected Option (s)	49.0	76.0	
Permitted Option (s)	228.2	243.6	
Split Option (s)	55.8	108.7	
Minimum (s)	49.0	76.0	124.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	104.1%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	139
Pedestrians	6
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.8
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	7	170	497	182	2	132	375	92	24	90	983	90
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No				No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0	4.0	4.0	6.0	6.0	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	177	497	182	0	135	375	92	0	113	983	90
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360	0	1520	3046	1360	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00				0.00				0.00	
Protected Option Allowed			Yes				Yes				Yes	
Reference Time (s)	0.0	14.0	19.6	16.0	0.0	10.6	14.8	8.1	0.0	8.9	38.7	7.9
Adj Reference Time (s)	0.0	18.5	25.6	22.0	0.0	14.6	20.8	14.1	0.0	13.4	44.7	16.0
Permitted Option												
Adj Saturation A (vph)	0	101	1523		0	101	1523		0	101	1523	
Reference Time A (s)	0.0	209.6	19.6		0.0	159.3	14.8		0.0	134.1	38.7	
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time B (s)	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time (s)			209.6				159.3				134.1	
Adj Reference Time (s)			215.6				165.3				140.1	
Split Option												
Ref Time Combined (s)	0.0	14.0	19.6		0.0	10.6	14.8		0.0	8.9	38.7	
Ref Time Seperate (s)	0.6	13.4	19.6		0.2	10.4	14.8		1.9	7.1	38.7	
Reference Time (s)	19.6	19.6	19.6		14.8	14.8	14.8		38.7	38.7	38.7	
Adj Reference Time (s)	25.6	25.6	25.6		20.8	20.8	20.8		44.7	44.7	44.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	40.2	71.3	
Permitted Option (s)	215.6	233.8	
Split Option (s)	46.3	102.5	
Minimum (s)	40.2	71.3	111.5

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	22.0	14.1	16.0	16.0
Cross Thru Ref Time (s)	71.3	64.4	40.2	39.3
Oncoming Left Ref Time (s)	14.6	18.5	19.7	13.4
Combined (s)	107.9	97.0	75.9	68.7

Intersection Summary			
Intersection Capacity Utilization	92.9%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Volume (vph)	40	152	1316	58
Pedestrians				
Ped Button				
Pedestrian Timing (s)				
Free Right				No
Ideal Flow	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120
Volume Combined (vph)	0	192	1316	58
Lane Utilization Factor	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00	
Protected Option Allowed			Yes	
Reference Time (s)	0.0	15.2	51.8	5.1
Adj Reference Time (s)	0.0	19.7	57.8	16.0
Permitted Option				
Adj Saturation A (vph)	0	101	1523	
Reference Time A (s)	0.0	227.8	51.8	
Adj Saturation B (vph	NA	NA	NA	
Reference Time B (s)	NA	NA	NA	
Reference Time (s)			227.8	
Adj Reference Time (s)			233.8	
Split Option				
Ref Time Combined (s)	0.0	15.2	51.8	
Ref Time Seperate (s)	3.2	12.0	51.8	
Reference Time (s)	51.8	51.8	51.8	
Adj Reference Time (s)	57.8	57.8	57.8	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	110	363	315	135	181	104	25	136	1067	93	50	110
Pedestrians						11				4		
Ped Button					Yes				No			
Pedestrian Timing (s)					16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	5.5	5.5	4.5	5.5	5.5	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	110	363	315	135	181	104	0	160	1067	93	0	159
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.5	0.0	0.0
Pedestrian Frequency (%)		0.00			0.31				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	8.7	27.3	27.8	10.6	13.5	10.5	0.0	12.7	42.0	8.7	0.0	12.6
Adj Reference Time (s)	13.2	32.8	33.3	15.1	19.0	16.0	0.0	17.2	48.0	16.0	0.0	17.1
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	130.0	27.3		159.3	13.5		0.0	190.0	42.0		0.0	188.6
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		130.0			159.3				190.0			
Adj Reference Time (s)		135.5			164.8				196.0			
Split Option												
Ref Time Combined (s)	8.7	27.3		10.6	13.5		0.0	12.7	42.0		0.0	12.6
Ref Time Seperate (s)	8.7	27.3		10.6	13.5		2.0	10.7	42.0		3.9	8.7
Reference Time (s)	27.3	27.3		13.5	13.5		42.0	42.0	42.0		55.1	55.1
Adj Reference Time (s)	32.8	32.8		19.0	19.0		48.0	48.0	48.0		61.1	61.1

Summary	EB WB	NB SB	Combined
Protected Option (s)	47.9	78.3	
Permitted Option (s)	164.8	196.0	
Split Option (s)	51.8	109.1	
Minimum (s)	47.9	78.3	126.2

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	33.3	16.0	16.0	16.0
Cross Thru Ref Time (s)	78.3	65.1	32.8	19.0
Oncoming Left Ref Time (s)	15.1	13.2	17.1	17.2
Combined (s)	126.7	94.3	65.8	52.2

Intersection Summary			
Intersection Capacity Utilization	105.6%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Volume (vph)	1399	51
Pedestrians		3
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1399	51
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.4
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	55.1	4.9
Adj Reference Time (s)	61.1	16.0
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	55.1	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	188.6	
Adj Reference Time (s)	194.6	
Split Option		
Ref Time Combined (s)	55.1	
Ref Time Seperate (s)	55.1	
Reference Time (s)	55.1	
Adj Reference Time (s)	61.1	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	160	647	91	217	422	41	98	1346	208	5	53	1130
Pedestrians			7			7			9			
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	160	738	0	217	464	0	98	1346	208	0	58	1130
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	1.00
Saturated Flow (vph)	1520	2990	0	1520	3006	0	1520	3046	1360	0	1520	3046
Ped Intf Time (s)	0.0	0.1	0.9	0.0	0.1	0.9	0.0	0.0	1.1	0.0	0.0	0.0
Pedestrian Frequency (%)		0.21			0.21			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	12.7	29.7	0.0	17.1	18.6	0.0	7.7	53.0	19.4	0.0	4.6	44.5
Adj Reference Time (s)	17.2	34.2	0.0	21.6	23.1	0.0	12.2	57.5	23.9	0.0	9.1	49.0
Permitted Option												
Adj Saturation A (vph)	101	1495		101	1503		101	1523		0	101	1523
Reference Time A (s)	190.0	29.7		257.1	18.6		116.0	53.0		0.0	68.5	44.5
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		190.0			257.1			116.0				68.5
Adj Reference Time (s)		194.5			261.6			120.5				73.0
Split Option												
Ref Time Combined (s)	12.7	29.7		17.1	18.6		7.7	53.0		0.0	4.6	44.5
Ref Time Seperate (s)	12.7	26.1		17.1	16.9		7.7	53.0		0.4	4.2	44.5
Reference Time (s)	29.7	29.7		18.6	18.6		53.0	53.0		44.5	44.5	44.5
Adj Reference Time (s)	34.2	34.2		23.1	23.1		57.5	57.5		49.0	49.0	49.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	55.8	66.6	
Permitted Option (s)	261.6	120.5	
Split Option (s)	57.3	106.6	
Minimum (s)	55.8	66.6	122.4

Right Turns	NBR	SBR
Adj Reference Time (s)	23.9	14.5
Cross Thru Ref Time (s)	34.2	23.1
Oncoming Left Ref Time (s)	9.1	12.2
Combined (s)	67.2	49.8

Intersection Summary			
Intersection Capacity Utilization	102.0%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	101
Pedestrians	2
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.5
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	101
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.3
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	9.2
Adj Reference Time (s)	14.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

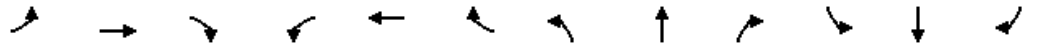
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	997	218	237	1003	582	405	1320	74	598	881	172
Pedestrians			50			25			14			49
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.5	4.0	4.5	7.5	4.0
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	256	997	218	237	1003	582	405	1395	0	598	1054	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	2952	3046	1360	2952	4358	1360	4428	4324	0	4428	4252	0
Ped Intf Time (s)	0.0	0.0	4.8	0.0	0.0	2.8	0.0	0.1	1.7	0.0	0.8	4.7
Pedestrian Frequency (%)		0.81			0.57			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.4	39.3	24.0	9.6	27.6	54.1	11.0	38.8	0.0	16.2	30.5	0.0
Adj Reference Time (s)	14.9	46.3	31.0	14.1	34.6	61.1	15.5	46.3	0.0	20.7	38.0	0.0
Permitted Option												
Adj Saturation A (vph)	98	1523		98	1453		98	1441		98	1417	
Reference Time A (s)	156.1	39.3		144.6	27.6		164.5	38.8		243.2	30.5	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		156.1			144.6			164.5			243.2	
Adj Reference Time (s)		163.1			151.6			172.0			250.7	
Split Option												
Ref Time Combined (s)	10.4	39.3		9.6	27.6		11.0	38.8		16.2	30.5	
Ref Time Seperate (s)	10.4	39.3		9.6	27.6		11.0	36.7		16.2	25.6	
Reference Time (s)	39.3	39.3		27.6	27.6		38.8	38.8		30.5	30.5	
Adj Reference Time (s)	46.3	46.3		34.6	34.6		46.3	46.3		38.0	38.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	60.4	67.0	
Permitted Option (s)	163.1	250.7	
Split Option (s)	80.9	84.3	
Minimum (s)	60.4	67.0	127.4

Right Turns	EBR	WBR
Adj Reference Time (s)	31.0	61.1
Cross Thru Ref Time (s)	38.0	46.3
Oncoming Left Ref Time (s)	14.1	14.9
Combined (s)	83.2	122.3

Intersection Summary			
Intersection Capacity Utilization	106.2%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.



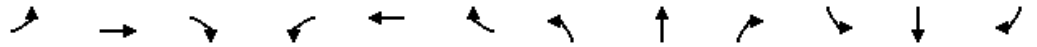
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	427	47	158	41	87	72	52	745	334	199	1199	52
Pedestrians						6			15			1
Ped Button					Yes			No			No	
Pedestrian Timing (s)					16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.5	5.5	4.5	4.5	4.0
Minimum Green (s)	6.0	6.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	632	0	0	129	72	52	745	334	199	1251	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1488	0	0	3149	1360	1520	4358	1360	1520	4331	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.8	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.18			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			0.0			7.1	4.1	20.5	31.3	15.7	34.7	0.0
Adj Reference Time (s)			0.0			15.0	9.1	26.0	36.8	20.2	39.2	0.0
Permitted Option												
Adj Saturation A (vph)	0	132		0	3139		101	1453		101	1444	
Reference Time A (s)	0.0	573.9		0.0	4.9		61.5	20.5		236.2	34.7	
Adj Saturation B (vph	0	0		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	41.7	59.0		NA	NA		NA	NA		NA	NA	
Reference Time (s)		59.0			4.9			61.5			236.2	
Adj Reference Time (s)		64.0			15.0			67.0			240.7	
Split Option												
Ref Time Combined (s)	0.0	51.0		0.0	4.9		4.1	20.5		15.7	34.7	
Ref Time Seperate (s)	33.7	4.0		1.6	6.5		4.1	20.5		15.7	33.2	
Reference Time (s)	51.0	51.0		6.5	6.5		20.5	20.5		34.7	34.7	
Adj Reference Time (s)	56.0	56.0		15.0	15.0		26.0	26.0		39.2	39.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	48.3	
Permitted Option (s)	64.0	240.7	
Split Option (s)	71.0	65.2	
Minimum (s)	64.0	48.3	112.3

Right Turns	WBR	NBR
Adj Reference Time (s)	15.0	36.8
Cross Thru Ref Time (s)	46.2	56.0
Oncoming Left Ref Time (s)	56.0	20.2
Combined (s)	117.3	113.0

Intersection Summary			
Intersection Capacity Utilization	97.7%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	190	14	83	63	381	13	546	249	612	632	58
Pedestrians												1
Ped Button											No	
Pedestrian Timing (s)											16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.5	5.0	4.0	4.5	5.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	10.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	65	204	0	83	63	381	13	795	0	612	690	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.99	0.85
Saturated Flow (vph)	1520	1583	0	1520	1600	1360	1520	2903	0	1520	4304	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			0.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.1	15.5	0.0	6.5	4.7	33.6	1.0	32.9	0.0	48.3	19.3	0.0
Adj Reference Time (s)	10.1	20.5	0.0	11.5	9.7	38.6	8.5	37.9	0.0	52.8	24.3	0.0
Permitted Option												
Adj Saturation A (vph)	101	1583		101	1600		101	1452		101	1435	
Reference Time A (s)	76.9	15.5		97.8	4.7		15.4	32.9		725.2	19.3	
Adj Saturation B (vph	0	1583		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	13.1	15.5		NA	NA		NA	NA		NA	NA	
Reference Time (s)		15.5			97.8			32.9			725.2	
Adj Reference Time (s)		20.5			102.8			37.9			730.2	
Split Option												
Ref Time Combined (s)	5.1	15.5		6.5	4.7		1.0	32.9		48.3	19.3	
Ref Time Seperate (s)	5.1	14.4		6.5	4.7		1.0	22.6		48.3	17.6	
Reference Time (s)	15.5	15.5		6.5	6.5		32.9	32.9		48.3	48.3	
Adj Reference Time (s)	20.5	20.5		11.5	11.5		37.9	37.9		53.3	53.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	32.0	90.7	
Permitted Option (s)	102.8	730.2	
Split Option (s)	32.0	91.2	
Minimum (s)	32.0	90.7	122.7

Right Turns	WBR
Adj Reference Time (s)	38.6
Cross Thru Ref Time (s)	37.9
Oncoming Left Ref Time (s)	10.1
Combined (s)	86.6

Intersection Summary			
Intersection Capacity Utilization	102.3%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	788	64	80	492	96	54	458	126	120	471	96
Pedestrians	12		5	5		12	8		8	8		8
Ped Button		No			No			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.0	4.0	5.5	5.0	4.0
Minimum Green (s)	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	112	852	0	80	588	0	0	638	0	0	687	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	0.97	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1520	3012	0	1520	2972	0	0	2943	0	0	2957	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.2	1.5	0.0	0.2	1.0	0.0	0.1	1.0
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	8.8	34.0	0.0	6.3	24.0	0.0			0.0			0.0
Adj Reference Time (s)	14.3	39.5	0.0	12.5	29.5	0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	101	1506		101	1486		0	297		0	99	
Reference Time A (s)	132.8	34.0		95.0	24.0		0.0	85.4		0.0	146.7	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		132.8			95.0			85.4			146.7	
Adj Reference Time (s)		138.3			100.5			90.4			151.7	
Split Option												
Ref Time Combined (s)	8.8	34.0		6.3	24.0		0.0	26.2		0.0	28.0	
Ref Time Seperate (s)	8.8	31.4		6.3	20.1		4.3	18.8		9.5	19.2	
Reference Time (s)	34.0	34.0		24.0	24.0		26.2	26.2		28.0	28.0	
Adj Reference Time (s)	39.5	39.5		29.5	29.5		31.2	31.2		33.0	33.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	52.0	NA	
Permitted Option (s)	138.3	151.7	
Split Option (s)	69.0	64.2	
Minimum (s)	52.0	64.2	116.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	96.9%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

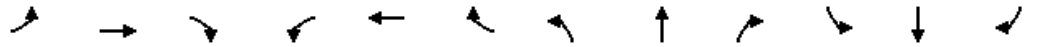
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	334	0	120	0	813	442	0	963	710
Pedestrians									7			2
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	334	0	120	0	813	442	0	963	710
Lane Utilization Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	0	0	2952	0	1360	0	4358	1360	0	4358	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.3
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	13.6	0.0	10.6	0.0	22.4	39.9	0.0	26.5	62.9
Adj Reference Time (s)	0.0	0.0	0.0	18.1	0.0	15.1	0.0	26.9	44.4	0.0	31.0	67.4
Permitted Option												
Adj Saturation A (vph)	0	0		98	0		0	1453		0	1453	
Reference Time A (s)	0.0	0.0		203.7	0.0		0.0	22.4		0.0	26.5	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	0.0	0.0		21.6	0.0		NA	NA		NA	NA	
Reference Time (s)		0.0			21.6			22.4			26.5	
Adj Reference Time (s)		8.0			25.6			26.9			31.0	
Split Option												
Ref Time Combined (s)	0.0	0.0		13.6	0.0		0.0	22.4		0.0	26.5	
Ref Time Seperate (s)	0.0	0.0		13.6	0.0		0.0	22.4		0.0	26.5	
Reference Time (s)	0.0	0.0		13.6	13.6		22.4	22.4		26.5	26.5	
Adj Reference Time (s)	0.0	0.0		17.6	17.6		26.9	26.9		31.0	31.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	18.1	31.0	
Permitted Option (s)	25.6	31.0	
Split Option (s)	17.6	57.9	
Minimum (s)	17.6	31.0	48.6

Right Turns	WBR	NBR	SBR
Adj Reference Time (s)	15.1	44.4	67.4
Cross Thru Ref Time (s)	26.9	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	42.0	44.4	67.4

Intersection Summary			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	0	290	0	0	0	0	1102	967	0	1380	1
Pedestrians							1		8	8		1
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	289	193	0	0	0	0	1424	645	0	1380	1
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	2938	1360	0	0	0	1520	2943	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			17.1			0.0	0.0	58.3	57.9	0.0	54.4	0.2
Adj Reference Time (s)			21.6			0.0	9.5	62.8	62.4	0.0	58.9	22.5
Permitted Option												
Adj Saturation A (vph)	0	264		0	0		101	1471		0	1523	
Reference Time A (s)	0.0	131.0		0.0	0.0		0.0	58.3		0.0	54.4	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	15.6	19.8		0.0	0.0		NA	NA		NA	NA	
Reference Time (s)		19.8			0.0			58.3			54.4	
Adj Reference Time (s)		24.3			8.0			62.8			58.9	
Split Option												
Ref Time Combined (s)	0.0	11.8		0.0	0.0		0.0	58.3		0.0	54.4	
Ref Time Seperate (s)	7.6	0.0		0.0	0.0		0.0	45.2		0.0	54.4	
Reference Time (s)	11.8	11.8		0.0	0.0		58.3	58.3		54.4	54.4	
Adj Reference Time (s)	16.3	16.3		0.0	0.0		62.8	62.8		58.9	58.9	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	68.4	
Permitted Option (s)	24.3	62.8	
Split Option (s)	16.3	121.7	
Minimum (s)	16.3	62.8	79.1

Right Turns	EBR	NBR	SBR
Adj Reference Time (s)	21.6	62.4	22.5
Cross Thru Ref Time (s)	58.9	16.3	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	80.4	78.7	22.5

Intersection Summary			
Intersection Capacity Utilization	67.0%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	92	38	50	24	58	103	4	27	1694	25	13	169
Pedestrians	2		21	21		2		7		20		20
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	92	38	50	0	82	103	0	31	1719	0	0	182
Lane Utilization Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	2952	1600	1360	0	3153	1360	0	2952	4349	0	0	2952
Ped Intf Time (s)	0.0	0.0	2.4	0.0	0.0	0.3	0.0	0.0	0.0	2.3	0.0	0.0
Pedestrian Frequency (%)		0.50			0.06				1.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			6.8			9.4	0.0	1.3	47.5	0.0	0.0	7.4
Adj Reference Time (s)			11.3			13.9	0.0	8.5	52.5	0.0	0.0	11.9
Permitted Option												
Adj Saturation A (vph)	98	1600		0	571		0	98	1450		0	98
Reference Time A (s)	56.1	2.9		0.0	17.2		0.0	18.9	47.5		0.0	111.0
Adj Saturation B (vph	0	1600		0	0		NA	NA	NA		NA	NA
Reference Time B (s)	11.7	2.9		8.9	11.1		NA	NA	NA		NA	NA
Reference Time (s)		11.7			11.1				47.5			
Adj Reference Time (s)		16.2			15.6				52.5			
Split Option												
Ref Time Combined (s)	3.7	2.9		0.0	3.1		0.0	1.3	47.5		0.0	7.4
Ref Time Seperate (s)	3.7	2.9		0.9	4.3		0.3	1.1	46.8		1.0	6.9
Reference Time (s)	3.7	3.7		4.3	4.3		47.5	47.5	47.5		34.6	34.6
Adj Reference Time (s)	8.5	8.5		8.8	8.8		52.5	52.5	52.5		39.6	39.6

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	64.4	
Permitted Option (s)	16.2	116.0	
Split Option (s)	17.4	92.0	
Minimum (s)	16.2	64.4	80.6

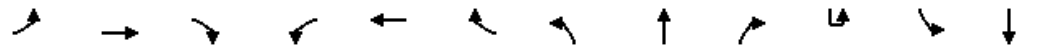
Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	11.3	13.9	33.2
Cross Thru Ref Time (s)	48.1	64.4	8.8
Oncoming Left Ref Time (s)	8.8	8.5	8.5
Combined (s)	68.2	86.7	50.5

Intersection Summary			
Intersection Capacity Utilization	72.3%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑↑	↱
Volume (vph)	1255	309
Pedestrians		7
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	5.0	5.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1255	309
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	4358	1360
Ped Intf Time (s)	0.0	0.9
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	34.6	28.2
Adj Reference Time (s)	39.6	33.2
Permitted Option		
Adj Saturation A (vph)	1453	
Reference Time A (s)	34.6	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	111.0	
Adj Reference Time (s)	116.0	
Split Option		
Ref Time Combined (s)	34.6	
Ref Time Seperate (s)	34.6	
Reference Time (s)	34.6	
Adj Reference Time (s)	39.6	

Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	223	167	68	25	609	545	98	782	4	48	224	743
Pedestrians	1		9	9		1	12		6		6	
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.5	6.0	4.0	5.0	5.0	6.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	4.0	4.0	4.0	6.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	223	167	68	25	609	545	98	786	0	0	272	1053
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97	0.91
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.96
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	2952	4355	0	0	2952	4166
Ped Intf Time (s)	0.0	0.0	1.1	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0	0.4
Pedestrian Frequency (%)		0.26			0.03			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	17.6	12.5	7.1	2.0	45.7	48.2	4.0	21.7	0.0	0.0	11.1	30.8
Adj Reference Time (s)	23.1	18.0	12.6	11.5	51.2	53.7	8.5	27.7	0.0	0.0	16.1	36.8
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		98	1452		0	98	1389
Reference Time A (s)	264.1	12.5		29.6	45.7		59.8	21.7		0.0	165.9	30.8
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		264.1			45.7			59.8				165.9
Adj Reference Time (s)		269.6			51.2			65.8				171.9
Split Option												
Ref Time Combined (s)	17.6	12.5		2.0	45.7		4.0	21.7		0.0	11.1	30.8
Ref Time Seperate (s)	17.6	12.5		2.0	45.7		4.0	21.6		3.8	9.1	21.8
Reference Time (s)	17.6	17.6		45.7	45.7		21.7	21.7		30.8	30.8	30.8
Adj Reference Time (s)	23.1	23.1		51.2	51.2		27.7	27.7		36.8	36.8	36.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	74.3	45.3	
Permitted Option (s)	269.6	171.9	
Split Option (s)	74.3	64.4	
Minimum (s)	74.3	45.3	119.5

Right Turns	EBR	WBR
Adj Reference Time (s)	12.6	53.7
Cross Thru Ref Time (s)	36.8	43.7
Oncoming Left Ref Time (s)	11.5	23.1
Combined (s)	60.9	120.5

Intersection Summary			
Intersection Capacity Utilization	100.5%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	310
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	53	0	18	33	952	0	0	864	15	98	3	10
Pedestrians	11					1	1					11
Ped Button					No					Yes		
Pedestrian Timing (s)					16.0					16.0		
Free Right			No			No			No		No	No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0
Minimum Green (s)	4.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	53	0	18	33	952	0	0	879	0	104	0	7
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.94	0.85	0.85
Saturated Flow (vph)	1520	0	1360	1520	3046	0	0	3039	0	2934	0	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	1.4
Pedestrian Frequency (%)		0.00			1.00			0.00		0.31		
Protected Option Allowed		No			Yes			Yes		No		
Reference Time (s)			1.6	2.6	37.5	0.0	0.0	34.7	0.0		0.0	1.9
Adj Reference Time (s)			9.0	15.0	42.5	0.0	0.0	39.7	0.0		0.0	9.0
Permitted Option												
Adj Saturation A (vph)	101	0		101	1523		0	1519		98		
Reference Time A (s)	62.8	0.0		39.1	37.5		0.0	34.7		64.1		
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA		
Reference Time (s)					39.1			34.7				
Adj Reference Time (s)					44.1			39.7				
Split Option												
Ref Time Combined (s)	4.2	0.0		2.6	37.5		0.0	34.7		4.3		
Ref Time Seperate (s)	4.2	0.0		2.6	37.5		0.0	34.1		4.1		
Reference Time (s)	4.2	4.2		37.5	37.5		34.7	34.7		4.3		
Adj Reference Time (s)	8.2	8.2		42.5	42.5		39.7	39.7		9.3		

Summary	EB	NB SB	SW	Combined
Protected Option (s)	NA	54.7	NA	
Permitted Option (s)	Err	44.1	Err	
Split Option (s)	8.2	82.2	9.3	
Minimum (s)	8.2	44.1	9.3	61.6

Right Turns	EBR	SWR2
Adj Reference Time (s)	9.0	9.0
Cross Thru Ref Time (s)	39.7	42.5
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	48.7	51.5

Intersection Summary			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	27	11	24	0	11	0	29	280	7	0	449	133
Pedestrians	3		8	8		3			4	4		
Ped Button		Yes			No			No				
Pedestrian Timing (s)		16.0			16.0			16.0				
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	4.0	8.0	8.0	8.0	8.0	8.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	38	24	0	11	0	29	280	7	0	582	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85
Saturated Flow (vph)	0	1543	1360	0	1600	0	1520	1600	1360	0	1545	0
Ped Intf Time (s)	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.0
Pedestrian Frequency (%)		0.23			1.00			1.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			3.1			0.0			1.1			0.0
Adj Reference Time (s)			11.0			0.0			13.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	132		0	1600		101	1600		0	1545	
Reference Time A (s)	0.0	34.6		0.0	0.8		34.3	21.0		0.0	45.2	
Adj Saturation B (vph	0	0		0	1600		NA	NA		NA	NA	
Reference Time B (s)	10.1	11.0		0.0	0.8		NA	NA		NA	NA	
Reference Time (s)		11.0			0.8			34.3			45.2	
Adj Reference Time (s)		16.0			11.0			39.3			50.2	
Split Option												
Ref Time Combined (s)	0.0	3.0		0.0	0.8		2.3	21.0		0.0	45.2	
Ref Time Seperate (s)	2.1	0.8		0.0	0.8		2.3	21.0		0.0	34.9	
Reference Time (s)	3.0	3.0		0.8	0.8		21.0	21.0		45.2	45.2	
Adj Reference Time (s)	11.0	11.0		11.0	11.0		26.0	26.0		50.2	50.2	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	16.0	50.2	
Split Option (s)	22.0	76.2	
Minimum (s)	16.0	50.2	66.2

Right Turns	SER	NER
Adj Reference Time (s)	11.0	13.0
Cross Thru Ref Time (s)	50.2	11.0
Oncoming Left Ref Time (s)	11.0	50.2
Combined (s)	72.2	74.2

Intersection Summary			
Intersection Capacity Utilization	61.8%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	7	7	163	135	7	29	287	49	16	389	22
Pedestrians	1		5	5		1	1		17	17		1
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	12	7	0	305	0	29	336	0	16	411	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.97	0.85	0.95	0.98	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1567	1360	0	1552	0	1520	2980	0	1520	3022	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.3	2.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.15			0.03			0.43			0.03	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			1.3			0.0	2.3	13.8	0.0	1.3	16.3	0.0
Adj Reference Time (s)			9.8			0.0	8.0	18.8	0.0	8.0	20.3	0.0
Permitted Option												
Adj Saturation A (vph)	0	1371		0	168		101	1490		101	1511	
Reference Time A (s)	0.0	1.1		0.0	218.4		34.3	13.8		18.9	16.3	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		20.9	31.6		NA	NA		NA	NA	
Reference Time (s)		1.1			31.6			34.3			18.9	
Adj Reference Time (s)		9.8			35.6			38.3			22.9	
Split Option												
Ref Time Combined (s)	0.0	0.9		0.0	23.6		2.3	13.8		1.3	16.3	
Ref Time Seperate (s)	0.4	0.5		12.9	10.2		2.3	11.9		1.3	15.5	
Reference Time (s)	0.9	0.9		23.6	23.6		13.8	13.8		16.3	16.3	
Adj Reference Time (s)	9.8	9.8		27.6	27.6		18.8	18.8		20.3	20.3	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	28.3	
Permitted Option (s)	35.6	38.3	
Split Option (s)	37.4	39.1	
Minimum (s)	35.6	28.3	63.9

Right Turns	SER
Adj Reference Time (s)	9.8
Cross Thru Ref Time (s)	20.3
Oncoming Left Ref Time (s)	27.6
Combined (s)	57.8

Intersection Summary			
Intersection Capacity Utilization	53.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	63	323	6	8	1133	96	11	158	5	39	180	204
Pedestrians	4		5	5		4	5		7	7		5
Ped Button		Yes			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.5	5.5	5.5	5.5	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	63	329	0	8	1229	0	11	158	5	39	384	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.92	0.85
Saturated Flow (vph)	1520	3038	0	1520	3011	0	1520	3046	1360	1520	2804	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.9	0.0	0.3	0.6
Pedestrian Frequency (%)		0.15			1.00			0.21			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.0	13.0	0.0	0.6	49.0	0.0	0.9	6.2	1.3	3.1	16.8	0.0
Adj Reference Time (s)	15.5	18.5	0.0	15.5	54.5	0.0	11.5	11.7	11.5	11.5	22.3	0.0
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1505		101	1523		101	1402	
Reference Time A (s)	74.6	13.0		9.5	49.0		13.0	6.2		46.2	16.8	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		74.6			49.0			13.0			46.2	
Adj Reference Time (s)		80.1			54.5			18.5			51.7	
Split Option												
Ref Time Combined (s)	5.0	13.0		0.6	49.0		0.9	6.2		3.1	16.8	
Ref Time Seperate (s)	5.0	12.8		0.6	45.2		0.9	6.2		3.1	8.0	
Reference Time (s)	13.0	13.0		49.0	49.0		6.2	6.2		16.8	16.8	
Adj Reference Time (s)	18.5	18.5		54.5	54.5		11.7	11.7		22.3	22.3	

Summary	NW SE	NE SW	Combined
Protected Option (s)	70.0	33.8	
Permitted Option (s)	80.1	51.7	
Split Option (s)	73.0	34.0	
Minimum (s)	70.0	33.8	103.8

Right Turns	NER
Adj Reference Time (s)	11.5
Cross Thru Ref Time (s)	18.5
Oncoming Left Ref Time (s)	11.5
Combined (s)	41.5

Intersection Summary			
Intersection Capacity Utilization	86.5%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	108	199	52	128	569	138	3	189	903	162	8	86
Pedestrians	17		11	11		17		6		13		13
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	108	199	52	128	569	138	0	192	903	162	0	94
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	1.4	0.0	0.0	2.0	0.0	0.0	0.0	1.6	0.0	0.0
Pedestrian Frequency (%)		0.31			0.43				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	8.5	14.9	5.9	10.1	42.7	14.2	0.0	15.2	35.6	15.9	0.0	7.4
Adj Reference Time (s)	13.0	20.9	12.0	14.6	48.7	20.2	0.0	19.7	41.6	21.9	0.0	11.9
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	127.9	14.9		151.6	42.7		0.0	227.4	35.6		0.0	111.3
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		127.9			151.6				227.4			
Adj Reference Time (s)		133.9			157.6				233.4			
Split Option												
Ref Time Combined (s)	8.5	14.9		10.1	42.7		0.0	15.2	35.6		0.0	7.4
Ref Time Seperate (s)	8.5	14.9		10.1	42.7		0.2	14.9	35.6		0.6	6.8
Reference Time (s)	14.9	14.9		42.7	42.7		35.6	35.6	35.6		47.2	47.2
Adj Reference Time (s)	20.9	20.9		48.7	48.7		41.6	41.6	41.6		53.2	53.2

Summary	NW SE	NE SW	Combined
Protected Option (s)	61.7	72.9	
Permitted Option (s)	157.6	233.4	
Split Option (s)	69.6	94.8	
Minimum (s)	61.7	72.9	134.6

Right Turns	SER	NWR	NER	SWR
Adj Reference Time (s)	12.0	20.2	21.9	30.2
Cross Thru Ref Time (s)	72.9	53.5	20.9	48.7
Oncoming Left Ref Time (s)	14.6	13.0	11.9	19.7
Combined (s)	99.5	86.7	54.7	98.6

Intersection Summary			
Intersection Capacity Utilization	112.2%	ICU Level of Service	H

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWT	SWR
Lane Configurations		
Volume (vph)	1199	266
Pedestrians		6
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	6.0	6.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1199	266
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.8
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	47.2	24.2
Adj Reference Time (s)	53.2	30.2
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	47.2	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	111.3	
Adj Reference Time (s)	117.3	
Split Option		
Ref Time Combined (s)	47.2	
Ref Time Seperate (s)	47.2	
Reference Time (s)	47.2	
Adj Reference Time (s)	53.2	

Summary

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	36	366	744	3	258	821	20	3	13	1	28	18
Pedestrians	3		3		3		3					
Ped Button		No				No						
Pedestrian Timing (s)		16.0				16.0						
Free Right			No				No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.7	4.9	4.0	3.7	3.7	4.9	4.0	4.1	4.1	4.1	4.1	4.1
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	36	1110	0	0	261	841	0	0	16	1	28	18
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.90	0.85	0.95	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00
Saturated Flow (vph)	1520	2740	0	0	2952	3036	0	0	1585	1360	1520	1600
Ped Intf Time (s)	0.0	0.3	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		1.00				1.00			0.00			0.00
Protected Option Allowed		Yes				Yes			No			No
Reference Time (s)	2.8	48.9	0.0	0.0	10.6	33.3	0.0			0.1		
Adj Reference Time (s)	14.0	53.8	0.0	0.0	14.6	38.2	0.0			14.1		
Permitted Option												
Adj Saturation A (vph)	101	1370		0	98	1518		0	413		101	1600
Reference Time A (s)	42.6	48.9		0.0	159.2	33.3		0.0	4.7		33.2	1.4
Adj Saturation B (vph	NA	NA		NA	NA	NA		0	0		0	1600
Reference Time B (s)	NA	NA		NA	NA	NA		8.2	9.2		10.2	1.4
Reference Time (s)		48.9				159.2			4.7			10.2
Adj Reference Time (s)		53.8				164.1			14.1			14.3
Split Option												
Ref Time Combined (s)	2.8	48.9		0.0	10.6	33.3		0.0	1.2		2.2	1.4
Ref Time Seperate (s)	2.8	16.3		0.2	10.5	32.5		0.2	1.0		2.2	1.4
Reference Time (s)	48.9	48.9		33.3	33.3	33.3		1.2	1.2		2.2	2.2
Adj Reference Time (s)	53.8	53.8		38.2	38.2	38.2		14.1	14.1		14.1	14.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	68.4	NA	
Permitted Option (s)	164.1	14.3	
Split Option (s)	91.9	28.2	
Minimum (s)	68.4	14.3	82.7

Right Turns	NER	SWR
Adj Reference Time (s)	14.1	14.1
Cross Thru Ref Time (s)	68.4	38.2
Oncoming Left Ref Time (s)	14.1	14.1
Combined (s)	96.6	66.4

Intersection Summary			
Intersection Capacity Utilization	80.5%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	62
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.1
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	62
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	5.5
Adj Reference Time (s)	14.1
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWU	NWL	NWT
Lane Configurations												
Volume (vph)	72	2	73	186	537	108	34	987	202	1	378	304
Pedestrians							3		2		2	
Ped Button								No				No
Pedestrian Timing (s)								16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.0	3.7	4.9	4.9	3.7	3.7	4.9
Minimum Green (s)	10.0	10.0	10.0	9.9	9.9	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	74	73	0	831	0	34	987	202	0	379	355
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.98
Saturated Flow (vph)	0	1522	1360	0	1551	0	1520	3046	1360	0	1520	2981
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			6.4			0.0	2.7	38.9	18.1	0.0	29.9	14.3
Adj Reference Time (s)			14.1			0.0	14.0	43.8	23.0	0.0	33.9	19.2
Permitted Option												
Adj Saturation A (vph)	0	452		0	351		101	1523		0	101	1490
Reference Time A (s)	0.0	19.6		0.0	284.1		40.3	38.9		0.0	448.8	14.3
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		22.7	72.3		NA	NA		NA	NA	NA
Reference Time (s)		19.6			72.3			40.3				448.8
Adj Reference Time (s)		23.7			76.4			45.2				453.7
Split Option												
Ref Time Combined (s)	0.0	5.8		0.0	64.3		2.7	38.9		0.0	29.9	14.3
Ref Time Seperate (s)	5.7	0.1		14.7	41.3		2.7	38.9		0.1	29.8	12.3
Reference Time (s)	5.8	5.8		64.3	64.3		38.9	38.9		29.9	29.9	29.9
Adj Reference Time (s)	14.1	14.1		68.4	68.4		43.8	43.8		34.8	34.8	34.8

Summary	NB SB	NW SE	Combined
Protected Option (s)	NA	77.7	
Permitted Option (s)	76.4	453.7	
Split Option (s)	82.5	78.6	
Minimum (s)	76.4	77.7	154.1

Right Turns	NBR	SER
Adj Reference Time (s)	14.1	23.0
Cross Thru Ref Time (s)	77.7	68.4
Oncoming Left Ref Time (s)	68.4	33.9
Combined (s)	160.2	125.3

Intersection Summary			
Intersection Capacity Utilization	133.5%	ICU Level of Service	H

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NWR
Lane Configurations	
Volume (vph)	51
Pedestrians	3
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.4
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	119	383	77	143	608	101	109	1194	64	27	124	1203
Pedestrians	14		12	12		14	12		7		7	
Ped Button		Yes			No			No				Yes
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.5	6.0	4.0	3.5	3.5	6.0
Minimum Green (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	4.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	119	460	0	143	709	0	109	1258	0	0	151	1336
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.98	0.85	0.95	0.99	0.85	0.95	0.95	0.99
Saturated Flow (vph)	1520	2970	0	1520	2981	0	1520	3023	0	0	1520	3001
Ped Intf Time (s)	0.0	0.2	1.5	0.0	0.2	1.7	0.0	0.0	0.9	0.0	0.0	0.1
Pedestrian Frequency (%)		0.33			1.00			1.00				0.33
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	9.4	18.8	0.0	11.3	28.8	0.0	8.6	50.0	0.0	0.0	11.9	53.6
Adj Reference Time (s)	15.4	24.8	0.0	17.3	34.8	0.0	12.6	56.0	0.0	0.0	15.9	59.6
Permitted Option												
Adj Saturation A (vph)	101	1485		101	1491		101	1512		0	101	1500
Reference Time A (s)	140.9	18.8		169.3	28.8		129.1	50.0		0.0	178.8	53.6
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		140.9			169.3			129.1				178.8
Adj Reference Time (s)		146.9			175.3			135.1				184.8
Split Option												
Ref Time Combined (s)	9.4	18.8		11.3	28.8		8.6	50.0		0.0	11.9	53.6
Ref Time Seperate (s)	9.4	15.7		11.3	24.7		8.6	47.4		2.1	9.8	48.3
Reference Time (s)	18.8	18.8		28.8	28.8		50.0	50.0		53.6	53.6	53.6
Adj Reference Time (s)	24.8	24.8		34.8	34.8		56.0	56.0		59.6	59.6	59.6

Summary	NW SE	NE SW	Combined
Protected Option (s)	50.2	72.2	
Permitted Option (s)	175.3	184.8	
Split Option (s)	59.6	115.5	
Minimum (s)	50.2	72.2	122.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	102.0%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	133
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	5	67	373	100	2	173	723	159	13	145	1001	90
Pedestrians		16		16		16		16		14		39
Ped Button			Yes				Yes				No	
Pedestrian Timing (s)			16.0				16.0				16.0	
Free Right				No				No				No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0	4.0	4.0	6.0	6.0	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	72	373	100	0	175	723	159	0	158	1001	90
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360	0	1520	3046	1360	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0	0.0	4.0
Pedestrian Frequency (%)			0.41				0.41				1.00	
Protected Option Allowed			Yes				Yes				Yes	
Reference Time (s)	0.0	5.7	14.7	10.7	0.0	13.8	28.5	15.9	0.0	12.5	39.4	11.9
Adj Reference Time (s)	0.0	10.2	20.7	16.7	0.0	17.8	34.5	21.9	0.0	17.0	45.4	17.9
Permitted Option												
Adj Saturation A (vph)	0	101	1523		0	101	1523		0	101	1523	
Reference Time A (s)	0.0	85.3	14.7		0.0	207.2	28.5		0.0	187.1	39.4	
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time B (s)	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time (s)			85.3				207.2				187.1	
Adj Reference Time (s)			91.3				213.2				193.1	
Split Option												
Ref Time Combined (s)	0.0	5.7	14.7		0.0	13.8	28.5		0.0	12.5	39.4	
Ref Time Seperate (s)	0.4	5.3	14.7		0.2	13.7	28.5		1.0	11.4	39.4	
Reference Time (s)	14.7	14.7	14.7		28.5	28.5	28.5		39.4	39.4	39.4	
Adj Reference Time (s)	20.7	20.7	20.7		34.5	34.5	34.5		45.4	45.4	45.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	44.7	73.7	
Permitted Option (s)	213.2	193.1	
Split Option (s)	55.2	102.2	
Minimum (s)	44.7	73.7	118.4

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	16.7	21.9	17.9	16.0
Cross Thru Ref Time (s)	73.7	57.3	38.5	44.7
Oncoming Left Ref Time (s)	17.8	10.2	11.8	17.0
Combined (s)	108.3	89.4	68.3	77.6

Intersection Summary			
Intersection Capacity Utilization	98.7%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Volume (vph)	24	69	1289	48
Pedestrians		39		14
Ped Button			No	
Pedestrian Timing (s)			16.0	
Free Right				No
Ideal Flow	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120
Volume Combined (vph)	0	93	1289	48
Lane Utilization Factor	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	1.7
Pedestrian Frequency (%)			1.00	
Protected Option Allowed			Yes	
Reference Time (s)	0.0	7.3	50.8	5.9
Adj Reference Time (s)	0.0	11.8	56.8	16.0
Permitted Option				
Adj Saturation A (vph)	0	101	1523	
Reference Time A (s)	0.0	110.1	50.8	
Adj Saturation B (vph	NA	NA	NA	
Reference Time B (s)	NA	NA	NA	
Reference Time (s)			110.1	
Adj Reference Time (s)			116.1	
Split Option				
Ref Time Combined (s)	0.0	7.3	50.8	
Ref Time Seperate (s)	1.9	5.4	50.8	
Reference Time (s)	50.8	50.8	50.8	
Adj Reference Time (s)	56.8	56.8	56.8	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	61	208	314	144	376	114	15	145	1001	90	24	69
Pedestrians	19		3	3		19		13		7		7
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	5.5	5.5	4.5	5.5	5.5	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	61	208	314	144	376	114	0	160	1001	90	0	93
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	0.4	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0
Pedestrian Frequency (%)		0.10			0.47				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	4.8	15.6	28.1	11.4	28.2	12.3	0.0	12.6	39.4	8.8	0.0	7.3
Adj Reference Time (s)	9.3	21.1	33.6	15.9	33.7	17.8	0.0	17.1	45.4	16.0	0.0	11.8
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	72.2	15.6		170.5	28.2		0.0	189.5	39.4		0.0	110.1
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		72.2			170.5				189.5			
Adj Reference Time (s)		77.7			176.0				195.5			
Split Option												
Ref Time Combined (s)	4.8	15.6		11.4	28.2		0.0	12.6	39.4		0.0	7.3
Ref Time Seperate (s)	4.8	15.6		11.4	28.2		1.2	11.4	39.4		1.9	5.4
Reference Time (s)	15.6	15.6		28.2	28.2		39.4	39.4	39.4		50.8	50.8
Adj Reference Time (s)	21.1	21.1		33.7	33.7		45.4	45.4	45.4		56.8	56.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	43.0	73.9	
Permitted Option (s)	176.0	195.5	
Split Option (s)	54.8	102.2	
Minimum (s)	43.0	73.9	116.9

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	33.6	17.8	16.0	16.0
Cross Thru Ref Time (s)	73.9	57.3	21.1	33.7
Oncoming Left Ref Time (s)	15.9	9.3	11.8	17.1
Combined (s)	123.4	84.4	48.9	66.8

Intersection Summary			
Intersection Capacity Utilization	102.8%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Volume (vph)	1289	48
Pedestrians		13
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1289	48
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	1.6
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	50.8	5.8
Adj Reference Time (s)	56.8	16.0
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	50.8	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	110.1	
Adj Reference Time (s)	116.1	
Split Option		
Ref Time Combined (s)	50.8	
Ref Time Seperate (s)	50.8	
Reference Time (s)	50.8	
Adj Reference Time (s)	56.8	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	154	369	141	268	467	86	89	1265	166	2	44	1092
Pedestrians	5		15	15		5	5		8		8	
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		18.0			18.0			18.0				18.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	154	510	0	268	553	0	89	1265	166	0	46	1092
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	1.00
Saturated Flow (vph)	1520	2920	0	1520	2975	0	1520	3046	1360	0	1520	3046
Ped Intf Time (s)	0.0	0.5	1.8	0.0	0.1	0.6	0.0	0.0	1.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.39			0.15			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	12.2	21.5	0.0	21.2	22.4	0.0	7.0	49.8	15.7	0.0	3.6	43.0
Adj Reference Time (s)	16.7	26.0	0.0	25.7	26.9	0.0	11.5	54.3	22.5	0.0	9.5	47.5
Permitted Option												
Adj Saturation A (vph)	101	1460		101	1488		101	1523		0	101	1523
Reference Time A (s)	182.4	21.5		317.4	22.4		105.4	49.8		0.0	54.5	43.0
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		182.4			317.4			105.4				54.5
Adj Reference Time (s)		186.9			321.9			109.9				59.0
Split Option												
Ref Time Combined (s)	12.2	21.5		21.2	22.4		7.0	49.8		0.0	3.6	43.0
Ref Time Seperate (s)	12.2	15.7		21.2	18.9		7.0	49.8		0.2	3.5	43.0
Reference Time (s)	21.5	21.5		22.4	22.4		49.8	49.8		43.0	43.0	43.0
Adj Reference Time (s)	26.0	26.0		26.9	26.9		54.3	54.3		47.5	47.5	47.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	51.6	63.8	
Permitted Option (s)	321.9	109.9	
Split Option (s)	52.9	101.8	
Minimum (s)	51.6	63.8	115.4

Right Turns	NBR	SBR
Adj Reference Time (s)	22.5	22.5
Cross Thru Ref Time (s)	26.0	26.9
Oncoming Left Ref Time (s)	9.5	11.5
Combined (s)	58.0	60.9

Intersection Summary			
Intersection Capacity Utilization	96.2%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	110
Pedestrians	5
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.5
Minimum Green (s)	5.0
Refr Cycle Length (s)	120
Volume Combined (vph)	110
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.6
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	10.3
Adj Reference Time (s)	22.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	817	269	204	1187	504	238	686	112	427	1055	107
Pedestrians	23		56	56		23	30		31	31		30
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.5	4.0	4.5	7.5	4.0
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	159	817	269	204	1187	504	238	798	0	427	1162	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.99	0.85
Saturated Flow (vph)	2952	3046	1360	2952	4358	1360	4428	4267	0	4428	4298	0
Ped Intf Time (s)	0.0	0.0	5.1	0.0	0.0	2.6	0.0	0.5	3.3	0.0	0.3	3.2
Pedestrian Frequency (%)		0.85			0.54			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.5	32.2	28.9	8.3	32.7	47.1	6.5	22.9	0.0	11.6	32.7	0.0
Adj Reference Time (s)	11.0	39.2	35.9	12.8	39.7	54.1	11.0	30.4	0.0	16.1	40.2	0.0
Permitted Option												
Adj Saturation A (vph)	98	1523		98	1453		98	1422		98	1433	
Reference Time A (s)	97.0	32.2		124.4	32.7		96.8	22.9		173.6	32.7	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		97.0			124.4			96.8			173.6	
Adj Reference Time (s)		104.0			131.4			104.3			181.1	
Split Option												
Ref Time Combined (s)	6.5	32.2		8.3	32.7		6.5	22.9		11.6	32.7	
Ref Time Seperate (s)	6.5	32.2		8.3	32.7		6.5	19.8		11.6	29.8	
Reference Time (s)	32.2	32.2		32.7	32.7		22.9	22.9		32.7	32.7	
Adj Reference Time (s)	39.2	39.2		39.7	39.7		30.4	30.4		40.2	40.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	52.0	51.2	
Permitted Option (s)	131.4	181.1	
Split Option (s)	78.9	70.7	
Minimum (s)	52.0	51.2	103.2

Right Turns	EBR	WBR
Adj Reference Time (s)	35.9	54.1
Cross Thru Ref Time (s)	40.2	30.4
Oncoming Left Ref Time (s)	12.8	11.0
Combined (s)	88.9	95.5

Intersection Summary			
Intersection Capacity Utilization	86.0%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	22	21	70	75	51	39	143	1143	149	1	63	876
Pedestrians	4					4			7		7	
Ped Button					Yes			No				
Pedestrian Timing (s)					16.0			16.0				
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.5	5.5	4.5	4.5	4.5
Minimum Green (s)	6.0	6.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	113	0	0	126	39	143	1143	149	0	64	930
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.91
Turning Factor (vph)	0.95	0.90	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	0.99
Saturated Flow (vph)	0	1437	0	0	3105	1360	1520	4358	1360	0	1520	4320
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.9	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.12			1.00				0.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			0.0			4.0	11.3	31.5	14.0	0.0	5.1	25.8
Adj Reference Time (s)			0.0			15.0	16.3	37.0	19.5	0.0	9.6	30.3
Permitted Option												
Adj Saturation A (vph)	0	363		0	1245		101	1453		0	101	1440
Reference Time A (s)	0.0	37.3		0.0	12.1		169.3	31.5		0.0	75.8	25.8
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	9.7	17.4		11.0	12.9		NA	NA		NA	NA	NA
Reference Time (s)		17.4			12.1			169.3				75.8
Adj Reference Time (s)		22.4			17.1			174.8				80.3
Split Option												
Ref Time Combined (s)	0.0	9.4		0.0	4.9		11.3	31.5		0.0	5.1	25.8
Ref Time Seperate (s)	1.7	1.8		3.0	3.8		11.3	31.5		0.1	5.0	24.3
Reference Time (s)	9.4	9.4		4.9	4.9		31.5	31.5		25.8	25.8	25.8
Adj Reference Time (s)	14.4	14.4		15.0	15.0		37.0	37.0		30.3	30.3	30.3

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	46.6	
Permitted Option (s)	22.4	174.8	
Split Option (s)	29.4	67.3	
Minimum (s)	22.4	46.6	69.1

Right Turns	WBR	NBR
Adj Reference Time (s)	15.0	19.5
Cross Thru Ref Time (s)	46.5	14.4
Oncoming Left Ref Time (s)	14.4	9.6
Combined (s)	76.0	43.5

Intersection Summary			
Intersection Capacity Utilization	63.3%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	54
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	100	15	74	148	436	19	578	263	398	640	82
Pedestrians			3	3			1		2	2		1
Ped Button		Yes						No			No	
Pedestrian Timing (s)		16.0						16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.5	5.0	4.0	4.5	5.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	10.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	41	115	0	74	148	436	19	841	0	398	722	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	1569	0	1520	1600	1360	1520	2903	0	1520	4284	0
Ped Intf Time (s)	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.10			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	8.8	0.0	5.8	11.1	38.5	1.5	34.8	0.0	31.4	20.2	0.0
Adj Reference Time (s)	9.0	13.8	0.0	10.8	16.1	43.5	8.5	39.8	0.0	35.9	25.2	0.0
Permitted Option												
Adj Saturation A (vph)	101	1569		101	1600		101	1452		101	1428	
Reference Time A (s)	48.6	8.8		87.6	11.1		22.5	34.8		471.3	20.2	
Adj Saturation B (vph	NA	NA		0	1600		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		13.8	11.1		NA	NA		NA	NA	
Reference Time (s)		48.6			13.8			34.8			471.3	
Adj Reference Time (s)		53.6			18.8			39.8			476.3	
Split Option												
Ref Time Combined (s)	3.2	8.8		5.8	11.1		1.5	34.8		31.4	20.2	
Ref Time Seperate (s)	3.2	7.7		5.8	11.1		1.5	24.0		31.4	17.9	
Reference Time (s)	8.8	8.8		11.1	11.1		34.8	34.8		31.4	31.4	
Adj Reference Time (s)	13.8	13.8		16.1	16.1		39.8	39.8		36.4	36.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	25.1	75.8	
Permitted Option (s)	53.6	476.3	
Split Option (s)	29.9	76.3	
Minimum (s)	25.1	75.8	100.9

Right Turns	WBR
Adj Reference Time (s)	43.5
Cross Thru Ref Time (s)	39.8
Oncoming Left Ref Time (s)	9.0
Combined (s)	92.3

Intersection Summary			
Intersection Capacity Utilization	84.1%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	531	17	106	911	109	52	383	174	136	277	74
Pedestrians	86		19	19		86	7		51	51		7
Ped Button		No			No			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.0	4.0	5.5	5.0	4.0
Minimum Green (s)	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	35	548	0	106	1020	0	0	609	0	0	487	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.95	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	3032	0	1520	2998	0	0	2903	0	0	2935	0
Ped Intf Time (s)	0.0	0.1	2.2	0.0	0.7	6.6	0.0	1.4	4.8	0.0	0.1	0.9
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	2.8	21.8	0.0	8.4	41.5	0.0			0.0			0.0
Adj Reference Time (s)	12.5	27.3	0.0	13.9	47.0	0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	101	1516		101	1499		0	291		0	98	
Reference Time A (s)	41.4	21.8		125.5	41.5		0.0	84.0		0.0	166.9	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		41.4			125.5			84.0			166.9	
Adj Reference Time (s)		46.9			131.0			89.0			171.9	
Split Option												
Ref Time Combined (s)	2.8	21.8		8.4	41.5		0.0	26.6		0.0	20.0	
Ref Time Seperate (s)	2.8	21.1		8.4	37.2		4.1	17.2		10.7	11.4	
Reference Time (s)	21.8	21.8		41.5	41.5		26.6	26.6		20.0	20.0	
Adj Reference Time (s)	27.3	27.3		47.0	47.0		31.6	31.6		25.0	25.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	59.5	NA	
Permitted Option (s)	131.0	171.9	
Split Option (s)	74.3	56.6	
Minimum (s)	59.5	56.6	116.1

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	96.8%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

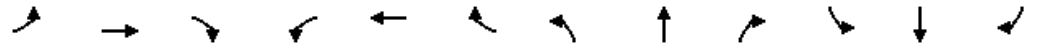
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	791	0	217	0	1427	374	0	1024	303
Pedestrians									7			3
Ped Button								No			No	
Pedestrian Timing (s)								18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	791	0	217	0	1427	374	0	1024	303
Lane Utilization Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	0	0	2952	0	1360	0	4358	1360	0	4358	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.4
Pedestrian Frequency (%)		0.00			0.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	32.2	0.0	19.1	0.0	39.3	33.9	0.0	28.2	27.1
Adj Reference Time (s)	0.0	0.0	0.0	36.7	0.0	23.6	0.0	43.8	38.4	0.0	32.7	31.6
Permitted Option												
Adj Saturation A (vph)	0	0		98	0		0	1453		0	1453	
Reference Time A (s)	0.0	0.0		482.3	0.0		0.0	39.3		0.0	28.2	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	0.0	0.0		40.2	0.0		NA	NA		NA	NA	
Reference Time (s)		0.0			40.2			39.3			28.2	
Adj Reference Time (s)		8.0			44.2			43.8			32.7	
Split Option												
Ref Time Combined (s)	0.0	0.0		32.2	0.0		0.0	39.3		0.0	28.2	
Ref Time Seperate (s)	0.0	0.0		32.2	0.0		0.0	39.3		0.0	28.2	
Reference Time (s)	0.0	0.0		32.2	32.2		39.3	39.3		28.2	28.2	
Adj Reference Time (s)	0.0	0.0		36.2	36.2		43.8	43.8		32.7	32.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	36.7	43.8	
Permitted Option (s)	44.2	43.8	
Split Option (s)	36.2	76.5	
Minimum (s)	36.2	43.8	79.9

Right Turns	WBR	NBR	SBR
Adj Reference Time (s)	23.6	38.4	31.6
Cross Thru Ref Time (s)	43.8	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	67.4	38.4	31.6

Intersection Summary			
Intersection Capacity Utilization	66.6%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	268	0	316	0	0	0	0	1495	971	0	1873	1
Pedestrians												7
Ped Button											No	
Pedestrian Timing (s)											18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	373	211	0	0	0	0	1819	647	0	1873	1
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	2955	1360	0	0	0	1520	2965	1360	0	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Pedestrian Frequency (%)		0.00			0.00			0.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			18.6			0.0	0.0	73.6	57.1	0.0	73.8	1.0
Adj Reference Time (s)			23.1			0.0	9.5	78.1	61.6	0.0	78.3	22.5
Permitted Option												
Adj Saturation A (vph)	0	250		0	0		101	1483		0	1523	
Reference Time A (s)	0.0	179.1		0.0	0.0		0.0	73.6		0.0	73.8	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	18.6	23.2		0.0	0.0		NA	NA		NA	NA	
Reference Time (s)		23.2			0.0			73.6			73.8	
Adj Reference Time (s)		27.7			8.0			78.1			78.3	
Split Option												
Ref Time Combined (s)	0.0	15.2		0.0	0.0		0.0	73.6		0.0	73.8	
Ref Time Seperate (s)	10.6	0.0		0.0	0.0		0.0	60.5		0.0	73.8	
Reference Time (s)	15.2	15.2		0.0	0.0		73.6	73.6		73.8	73.8	
Adj Reference Time (s)	19.7	19.7		0.0	0.0		78.1	78.1		78.3	78.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	87.8	
Permitted Option (s)	27.7	78.3	
Split Option (s)	19.7	156.4	
Minimum (s)	19.7	78.3	97.9

Right Turns	EBR	NBR	SBR
Adj Reference Time (s)	23.1	61.6	22.5
Cross Thru Ref Time (s)	78.3	19.7	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0
Combined (s)	101.4	81.3	22.5

Intersection Summary			
Intersection Capacity Utilization	84.5%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	588	157	207	139	105	222	11	122	1496	89	11	306
Pedestrians			32			37						
Ped Button		Yes			Yes							
Pedestrian Timing (s)		16.0			16.0							
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.0	4.0	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	588	157	207	0	244	222	0	133	1585	0	0	317
Lane Utilization Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.97	0.85	0.95	0.95	0.99	0.85	0.95	0.95
Saturated Flow (vph)	2952	1600	1360	0	3109	1360	0	2952	4322	0	0	2952
Ped Intf Time (s)	0.0	0.0	3.4	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.66			0.71				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			21.7			23.4	0.0	5.4	44.0	0.0	0.0	12.9
Adj Reference Time (s)			26.2			27.9	0.0	9.9	49.0	0.0	0.0	17.4
Permitted Option												
Adj Saturation A (vph)	98	1600		0	318		0	98	1441		0	98
Reference Time A (s)	358.6	11.8		0.0	92.1		0.0	81.1	44.0		0.0	193.3
Adj Saturation B (vph	0	1600		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	31.9	11.8		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		31.9			92.1				81.1			
Adj Reference Time (s)		36.4			96.6				86.1			
Split Option												
Ref Time Combined (s)	23.9	11.8		0.0	9.4		0.0	5.4	44.0		0.0	12.9
Ref Time Seperate (s)	23.9	11.8		5.5	7.9		0.9	5.0	41.5		0.9	12.4
Reference Time (s)	23.9	23.9		9.4	9.4		44.0	44.0	44.0		35.2	35.2
Adj Reference Time (s)	28.4	28.4		13.9	13.9		49.0	49.0	49.0		40.2	40.2

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	66.4	
Permitted Option (s)	96.6	198.3	
Split Option (s)	42.3	89.2	
Minimum (s)	42.3	66.4	108.7

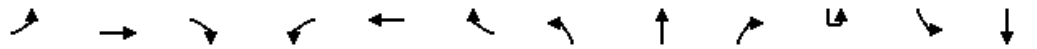
Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	26.2	27.9	52.5
Cross Thru Ref Time (s)	50.1	66.4	13.9
Oncoming Left Ref Time (s)	13.9	28.4	9.9
Combined (s)	90.2	122.7	76.4

Intersection Summary			
Intersection Capacity Utilization	102.3%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1279	522
Pedestrians		12
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	5.0	5.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1279	522
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	4358	1360
Ped Intf Time (s)	0.0	1.5
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	35.2	47.5
Adj Reference Time (s)	40.2	52.5
Permitted Option		
Adj Saturation A (vph)	1453	
Reference Time A (s)	35.2	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	193.3	
Adj Reference Time (s)	198.3	
Split Option		
Ref Time Combined (s)	35.2	
Ref Time Seperate (s)	35.2	
Reference Time (s)	35.2	
Adj Reference Time (s)	40.2	

Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	356	514	124	22	382	283	146	997	25	22	350	984
Pedestrians						2			8			
Ped Button					Yes			No				No
Pedestrian Timing (s)					16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.5	6.0	4.0	5.0	5.0	6.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	4.0	4.0	4.0	6.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	870	124	22	382	283	146	1022	0	0	372	1244
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.97	0.91
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.97
Saturated Flow (vph)	0	3135	1360	1520	1600	1360	2952	4342	0	0	2952	4222
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.3
Pedestrian Frequency (%)		0.00			0.06			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			10.9			25.2	5.9	28.3	0.0	0.0	15.1	35.7
Adj Reference Time (s)			16.4			30.7	10.4	34.3	0.0	0.0	20.1	41.7
Permitted Option												
Adj Saturation A (vph)	0	426		101	1600		98	1447		0	98	1407
Reference Time A (s)	0.0	245.2		26.1	28.6		89.0	28.3		0.0	226.8	35.7
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		245.2			28.6			89.0				226.8
Adj Reference Time (s)		250.7			34.1			95.0				232.8
Split Option												
Ref Time Combined (s)	0.0	33.3		1.7	28.6		5.9	28.3		0.0	15.1	35.7
Ref Time Seperate (s)	14.1	38.5		1.7	28.6		5.9	27.6		1.7	14.2	28.3
Reference Time (s)	38.5	38.5		28.6	28.6		28.3	28.3		35.7	35.7	35.7
Adj Reference Time (s)	44.0	44.0		34.1	34.1		34.3	34.3		41.7	41.7	41.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	54.4	
Permitted Option (s)	250.7	232.8	
Split Option (s)	78.2	75.9	
Minimum (s)	78.2	54.4	132.6

Right Turns	EBR	WBR
Adj Reference Time (s)	16.4	30.7
Cross Thru Ref Time (s)	41.7	54.4
Oncoming Left Ref Time (s)	34.1	44.0
Combined (s)	92.3	129.2

Intersection Summary			
Intersection Capacity Utilization	110.5%	ICU Level of Service	H

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	260
Pedestrians	12
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	1.5
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	83	0	48	51	1156	0	0	1210	9	231	20	17
Pedestrians	11					3						11
Ped Button					No					Yes		
Pedestrian Timing (s)					16.0					16.0		
Free Right			No			No			No		No	No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0
Minimum Green (s)	4.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	83	0	48	51	1156	0	0	1219	0	257	0	11
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.94	0.85	0.85
Saturated Flow (vph)	1520	0	1360	1520	3046	0	0	3043	0	2923	0	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0	1.4
Pedestrian Frequency (%)		0.00			1.00			0.00		0.31		
Protected Option Allowed		No			Yes			Yes		No		
Reference Time (s)			4.2	4.0	45.5	0.0	0.0	48.1	0.0		0.0	2.4
Adj Reference Time (s)			9.2	15.0	50.5	0.0	0.0	53.1	0.0		0.0	9.0
Permitted Option												
Adj Saturation A (vph)	101	0		101	1523		0	1522		97		
Reference Time A (s)	98.3	0.0		60.4	45.5		0.0	48.1		158.2		
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA		
Reference Time (s)					60.4			48.1				
Adj Reference Time (s)					65.4			53.1				
Split Option												
Ref Time Combined (s)	6.6	0.0		4.0	45.5		0.0	48.1		10.7		
Ref Time Seperate (s)	6.6	0.0		4.0	45.5		0.0	47.7		9.6		
Reference Time (s)	6.6	6.6		45.5	45.5		48.1	48.1		10.7		
Adj Reference Time (s)	10.6	10.6		50.5	50.5		53.1	53.1		15.7		

Summary	EB	NB SB	SW	Combined
Protected Option (s)	NA	68.1	NA	
Permitted Option (s)	Err	65.4	Err	
Split Option (s)	10.6	103.6	15.7	
Minimum (s)	10.6	65.4	15.7	91.6

Right Turns	EBR	SWR2
Adj Reference Time (s)	9.2	9.0
Cross Thru Ref Time (s)	53.1	50.5
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	62.3	59.5

Intersection Summary			
Intersection Capacity Utilization	76.4%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	125	87	41	17	45	17	96	471	41	13	322	63
Pedestrians			3			3	3		4	1		3
Ped Button		Yes			No			No			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	4.0	8.0	8.0	8.0	8.0	8.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	212	41	0	79	0	96	471	41	0	398	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.96	0.85	0.95	1.00	0.85	0.95	0.97	0.85
Saturated Flow (vph)	0	1553	1360	0	1532	0	1520	1600	1360	0	1559	0
Ped Intf Time (s)	0.0	0.0	0.4	0.0	0.1	0.4	0.0	0.0	0.5	0.0	0.1	0.4
Pedestrian Frequency (%)		0.10			1.00			1.00			0.10	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			4.0			0.0			4.1			0.0
Adj Reference Time (s)			11.0			0.0			13.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	670		0	358		151	1600		0	1064	
Reference Time A (s)	0.0	38.0		0.0	26.6		76.3	35.3		0.0	45.0	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	17.9	24.4		9.3	14.3		NA	NA		NA	NA	
Reference Time (s)		24.4			14.3			76.3			45.0	
Adj Reference Time (s)		29.4			19.3			81.3			50.0	
Split Option												
Ref Time Combined (s)	0.0	16.4		0.0	6.3		7.6	35.3		0.0	30.7	
Ref Time Seperate (s)	9.9	6.5		1.3	3.6		7.6	35.3		1.0	24.8	
Reference Time (s)	16.4	16.4		6.3	6.3		35.3	35.3		30.7	30.7	
Adj Reference Time (s)	21.4	21.4		11.3	11.3		40.3	40.3		35.7	35.7	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	29.4	81.3	
Split Option (s)	32.7	76.0	
Minimum (s)	29.4	76.0	105.4

Right Turns	SER	NER
Adj Reference Time (s)	11.0	13.0
Cross Thru Ref Time (s)	35.7	21.4
Oncoming Left Ref Time (s)	11.3	35.7
Combined (s)	58.0	70.1

Intersection Summary			
Intersection Capacity Utilization	87.8%	ICU Level of Service	E

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	37	25	116	43	16	38	645	145	51	432	17
Pedestrians	6		4	4		6	2		9	9		2
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	53	25	0	175	0	0	683	145	51	449	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1576	1360	0	1526	0	0	3038	1360	1520	3029	0
Ped Intf Time (s)	0.0	0.0	0.5	0.0	0.1	0.8	0.0	0.0	1.1	0.0	0.0	0.3
Pedestrian Frequency (%)		0.12			0.18			0.26			0.06	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			2.7			0.0			13.9			0.0
Adj Reference Time (s)			9.5			0.0			18.5			0.0
Permitted Option												
Adj Saturation A (vph)	0	1571		0	138		0	483		101	1515	
Reference Time A (s)	0.0	4.0		0.0	152.6		0.0	65.9		60.4	17.8	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.3	12.0		17.2	21.8		NA	NA		NA	NA	
Reference Time (s)		4.0			21.8			65.9			60.4	
Adj Reference Time (s)		9.5			25.8			69.9			64.4	
Split Option												
Ref Time Combined (s)	0.0	4.0		0.0	13.8		0.0	27.0		4.0	17.8	
Ref Time Seperate (s)	1.3	2.8		9.2	3.4		3.0	25.4		4.0	17.1	
Reference Time (s)	4.0	4.0		13.8	13.8		27.0	27.0		17.8	17.8	
Adj Reference Time (s)	9.5	9.5		18.2	18.2		31.0	31.0		21.8	21.8	

Summary	NW SE	NE SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	25.8	69.9	
Split Option (s)	27.8	52.8	
Minimum (s)	25.8	52.8	78.6

Right Turns	SER	NER
Adj Reference Time (s)	9.5	18.5
Cross Thru Ref Time (s)	21.8	9.5
Oncoming Left Ref Time (s)	18.2	21.8
Combined (s)	49.5	49.8

Intersection Summary			
Intersection Capacity Utilization	65.5%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	142	821	34	15	685	125	24	410	7	167	225	102
Pedestrians	7		11	11		7	7		10	7		10
Ped Button		Yes			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.5	5.5	5.5	5.5	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	142	855	0	15	810	0	24	410	7	167	327	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	1520	3028	0	1520	2976	0	1520	3046	1360	1520	2904	0
Ped Intf Time (s)	0.0	0.1	1.4	0.0	0.1	0.9	0.0	0.0	1.2	0.0	0.4	1.2
Pedestrian Frequency (%)		0.31			1.00			0.28			0.28	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	11.2	33.9	0.0	1.2	32.8	0.0	1.9	16.2	1.9	13.2	13.9	0.0
Adj Reference Time (s)	16.7	39.4	0.0	15.5	38.3	0.0	11.5	21.7	11.5	18.7	19.4	0.0
Permitted Option												
Adj Saturation A (vph)	101	1514		101	1488		101	1523		101	1452	
Reference Time A (s)	168.2	33.9		17.8	32.8		28.4	16.2		197.8	13.9	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		168.2			32.8			28.4			197.8	
Adj Reference Time (s)		173.7			38.3			33.9			203.3	
Split Option												
Ref Time Combined (s)	11.2	33.9		1.2	32.8		1.9	16.2		13.2	13.9	
Ref Time Seperate (s)	11.2	32.6		1.2	27.8		1.9	16.2		13.2	9.7	
Reference Time (s)	33.9	33.9		32.8	32.8		16.2	16.2		13.9	13.9	
Adj Reference Time (s)	39.4	39.4		38.3	38.3		21.7	21.7		19.4	19.4	

Summary	NW SE	NE SW	Combined
Protected Option (s)	55.0	40.3	
Permitted Option (s)	173.7	203.3	
Split Option (s)	77.7	41.1	
Minimum (s)	55.0	40.3	95.3

Right Turns	NER
Adj Reference Time (s)	11.5
Cross Thru Ref Time (s)	39.4
Oncoming Left Ref Time (s)	18.7
Combined (s)	69.6

Intersection Summary			
Intersection Capacity Utilization	79.5%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	189	521	83	133	429	106	3	150	1173	329	11	156
Pedestrians			8			16				24		
Ped Button		Yes			Yes				No			
Pedestrian Timing (s)		16.0			16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	189	521	83	133	429	106	0	153	1173	329	0	167
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	1.0	0.0	0.0	1.9	0.0	0.0	0.0	2.7	0.0	0.0
Pedestrian Frequency (%)		0.23			0.41				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	14.9	39.1	8.3	10.5	32.2	11.3	0.0	12.1	46.2	31.7	0.0	13.2
Adj Reference Time (s)	19.4	45.1	14.3	15.0	38.2	17.3	0.0	16.6	52.2	37.7	0.0	17.7
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	223.8	39.1		157.5	32.2		0.0	181.2	46.2		0.0	197.8
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		223.8			157.5				181.2			
Adj Reference Time (s)		229.8			163.5				187.2			
Split Option												
Ref Time Combined (s)	14.9	39.1		10.5	32.2		0.0	12.1	46.2		0.0	13.2
Ref Time Seperate (s)	14.9	39.1		10.5	32.2		0.2	11.8	46.2		0.9	12.3
Reference Time (s)	39.1	39.1		32.2	32.2		46.2	46.2	46.2		46.1	46.1
Adj Reference Time (s)	45.1	45.1		38.2	38.2		52.2	52.2	52.2		52.1	52.1

Summary	NW SE	NE SW	Combined
Protected Option (s)	60.1	69.9	
Permitted Option (s)	229.8	203.8	
Split Option (s)	83.3	104.3	
Minimum (s)	60.1	69.9	130.0

Right Turns	SER	NWR	NER	SWR
Adj Reference Time (s)	14.3	17.3	37.7	26.8
Cross Thru Ref Time (s)	68.7	69.9	45.1	38.2
Oncoming Left Ref Time (s)	15.0	19.4	17.7	16.6
Combined (s)	98.0	106.6	100.5	81.6

Intersection Summary			
Intersection Capacity Utilization	108.3%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWT	SWR
Lane Configurations	↑↑	↱
Volume (vph)	1170	226
Pedestrians		7
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	6.0	6.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1170	226
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.9
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	46.1	20.8
Adj Reference Time (s)	52.1	26.8
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	46.1	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	197.8	
Adj Reference Time (s)	203.8	
Split Option		
Ref Time Combined (s)	46.1	
Ref Time Seperate (s)	46.1	
Reference Time (s)	46.1	
Adj Reference Time (s)	52.1	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	144	588	591	319	750	53	0	0	0	30	70	230
Pedestrians	7		6	6		7						
Ped Button		No			No							
Pedestrian Timing (s)		16.0			16.0							
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.7	4.9	4.0	3.7	4.9	4.0	4.1	4.1	4.1	4.1	4.1	4.1
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	144	1179	0	319	803	0	0	0	0	30	70	230
Lane Utilization Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	2817	0	2952	3016	0	0	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.4	0.8	0.0	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		1.00			1.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	11.4	50.6	0.0	13.0	32.0	0.0			0.0			20.3
Adj Reference Time (s)	15.4	55.5	0.0	17.0	36.9	0.0			14.1			24.4
Permitted Option												
Adj Saturation A (vph)	101	1409		98	1508		0	1600		101	1600	
Reference Time A (s)	170.5	50.6		194.5	32.0		0.0	0.0		35.5	5.3	
Adj Saturation B (vph	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.0		10.4	5.3	
Reference Time (s)		170.5			194.5			0.0			10.4	
Adj Reference Time (s)		175.4			199.4			14.1			14.5	
Split Option												
Ref Time Combined (s)	11.4	50.6		13.0	32.0		0.0	0.0		2.4	5.3	
Ref Time Seperate (s)	11.4	25.4		13.0	29.9		0.0	0.0		2.4	5.3	
Reference Time (s)	50.6	50.6		32.0	32.0		0.0	0.0		5.3	5.3	
Adj Reference Time (s)	55.5	55.5		36.9	36.9		0.0	0.0		14.1	14.1	

Summary	NW SE	NE SW	Combined
Protected Option (s)	72.5	NA	
Permitted Option (s)	199.4	14.5	
Split Option (s)	92.4	14.1	
Minimum (s)	72.5	14.1	86.6

Right Turns	NER	SWR
Adj Reference Time (s)	14.1	24.4
Cross Thru Ref Time (s)	0.0	36.9
Oncoming Left Ref Time (s)	0.0	0.0
Combined (s)	0.0	61.3

Intersection Summary			
Intersection Capacity Utilization	72.1%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWU	NWL	NWT
Lane Configurations												
Volume (vph)	287	17	106	137	230	103	69	1152	111	3	388	470
Pedestrians									2			
Ped Button								No				No
Pedestrian Timing (s)								16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.0	3.7	4.9	4.9	3.7	3.7	4.9
Minimum Green (s)	10.0	10.0	10.0	9.9	9.9	4.0	10.0	10.0	10.0	10.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	304	106	0	470	0	69	1152	111	0	391	553
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.95	0.98
Saturated Flow (vph)	0	1524	1360	0	1525	0	1520	3046	1360	0	1520	2978
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			1.00				1.00
Protected Option Allowed		No			No			Yes				Yes
Reference Time (s)			9.4			0.0	5.4	45.4	10.1	0.0	30.9	22.4
Adj Reference Time (s)			14.1			0.0	14.0	50.3	15.0	0.0	34.9	27.3
Permitted Option												
Adj Saturation A (vph)	0	570		0	277		101	1523		0	101	1489
Reference Time A (s)	0.0	64.0		0.0	203.4		81.7	45.4		0.0	463.0	22.4
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		18.8	45.0		NA	NA		NA	NA	NA
Reference Time (s)		64.0			45.0			81.7				463.0
Adj Reference Time (s)		68.1			49.1			86.6				467.9
Split Option												
Ref Time Combined (s)	0.0	23.9		0.0	37.0		5.4	45.4		0.0	30.9	22.4
Ref Time Seperate (s)	22.7	1.3		10.8	18.1		5.4	45.4		0.2	30.6	19.0
Reference Time (s)	23.9	23.9		37.0	37.0		45.4	45.4		30.9	30.9	30.9
Adj Reference Time (s)	28.0	28.0		41.1	41.1		50.3	50.3		35.8	35.8	35.8

Summary	NB SB	NW SE	Combined
Protected Option (s)	NA	85.1	
Permitted Option (s)	68.1	467.9	
Split Option (s)	69.1	86.0	
Minimum (s)	68.1	85.1	153.2

Right Turns	NBR	SER
Adj Reference Time (s)	14.1	15.0
Cross Thru Ref Time (s)	85.1	41.1
Oncoming Left Ref Time (s)	41.1	34.9
Combined (s)	140.3	90.9

Intersection Summary			
Intersection Capacity Utilization	127.7%	ICU Level of Service	H

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NWR
Lane Configurations	
Volume (vph)	83
Pedestrians	5
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.6
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	199	831	79	100	325	84	89	1393	149	54	159	1283
Pedestrians	16		10	10		16			11			
Ped Button		Yes			No			No				Yes
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.5	6.0	4.0	3.5	3.5	6.0
Minimum Green (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	4.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	199	910	0	100	409	0	89	1542	0	0	213	1431
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.97	0.85	0.95	0.99	0.85	0.95	0.95	0.98
Saturated Flow (vph)	1520	3007	0	1520	2953	0	1520	3002	0	0	1520	2999
Ped Intf Time (s)	0.0	0.1	1.2	0.0	0.4	1.9	0.0	0.1	1.4	0.0	0.0	0.1
Pedestrian Frequency (%)		0.28			1.00			1.00				0.18
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	15.7	36.4	0.0	7.9	17.0	0.0	7.0	61.8	0.0	0.0	16.8	57.3
Adj Reference Time (s)	21.7	42.4	0.0	13.9	23.0	0.0	11.0	67.8	0.0	0.0	20.8	63.3
Permitted Option												
Adj Saturation A (vph)	101	1503		101	1476		101	1501		0	101	1500
Reference Time A (s)	235.7	36.4		118.4	17.0		105.4	61.8		0.0	252.2	57.3
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		235.7			118.4			105.4				252.2
Adj Reference Time (s)		241.7			124.4			111.4				258.2
Split Option												
Ref Time Combined (s)	15.7	36.4		7.9	17.0		7.0	61.8		0.0	16.8	57.3
Ref Time Seperate (s)	15.7	33.3		7.9	13.6		7.0	55.8		4.3	12.6	51.4
Reference Time (s)	36.4	36.4		17.0	17.0		61.8	61.8		57.3	57.3	57.3
Adj Reference Time (s)	42.4	42.4		23.0	23.0		67.8	67.8		63.3	63.3	63.3

Summary	NW SE	NE SW	Combined
Protected Option (s)	56.3	88.6	
Permitted Option (s)	241.7	258.2	
Split Option (s)	65.4	131.1	
Minimum (s)	56.3	88.6	144.9

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	120.8%	ICU Level of Service	H

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SWR
Lane Configurations	
Volume (vph)	148
Pedestrians	6
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.8
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	7	171	517	183	2	133	390	93	24	90	1022	90
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No				No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0	4.0	4.0	6.0	6.0	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	178	517	183	0	135	390	93	0	114	1022	90
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360	0	1520	3046	1360	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00				0.00				0.00	
Protected Option Allowed			Yes				Yes				Yes	
Reference Time (s)	0.0	14.1	20.4	16.1	0.0	10.7	15.4	8.2	0.0	9.0	40.3	7.9
Adj Reference Time (s)	0.0	18.6	26.4	22.1	0.0	14.7	21.4	14.2	0.0	13.5	46.3	16.0
Permitted Option												
Adj Saturation A (vph)	0	101	1523		0	101	1523		0	101	1523	
Reference Time A (s)	0.0	210.8	20.4		0.0	159.9	15.4		0.0	135.0	40.3	
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time B (s)	NA	NA	NA		NA	NA	NA		NA	NA	NA	
Reference Time (s)			210.8				159.9				135.0	
Adj Reference Time (s)			216.8				165.9				141.0	
Split Option												
Ref Time Combined (s)	0.0	14.1	20.4		0.0	10.7	15.4		0.0	9.0	40.3	
Ref Time Seperate (s)	0.6	13.5	20.4		0.2	10.5	15.4		1.9	7.1	40.3	
Reference Time (s)	20.4	20.4	20.4		15.4	15.4	15.4		40.3	40.3	40.3	
Adj Reference Time (s)	26.4	26.4	26.4		21.4	21.4	21.4		46.3	46.3	46.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	41.0	73.4	
Permitted Option (s)	216.8	234.6	
Split Option (s)	47.7	106.2	
Minimum (s)	41.0	73.4	114.4

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	22.1	14.2	16.0	16.0
Cross Thru Ref Time (s)	73.4	66.0	41.0	39.9
Oncoming Left Ref Time (s)	14.7	18.6	19.7	13.5
Combined (s)	110.2	98.8	76.8	69.4

Intersection Summary			
Intersection Capacity Utilization	95.4%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Volume (vph)	40	153	1369	58
Pedestrians				
Ped Button				
Pedestrian Timing (s)				
Free Right				No
Ideal Flow	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	6.0	6.0
Minimum Green (s)	4.0	4.0	10.0	10.0
Refr Cycle Length (s)	120	120	120	120
Volume Combined (vph)	0	193	1369	58
Lane Utilization Factor	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00	
Protected Option Allowed			Yes	
Reference Time (s)	0.0	15.2	53.9	5.1
Adj Reference Time (s)	0.0	19.7	59.9	16.0
Permitted Option				
Adj Saturation A (vph)	0	101	1523	
Reference Time A (s)	0.0	228.6	53.9	
Adj Saturation B (vph	NA	NA	NA	
Reference Time B (s)	NA	NA	NA	
Reference Time (s)			228.6	
Adj Reference Time (s)			234.6	
Split Option				
Ref Time Combined (s)	0.0	15.2	53.9	
Ref Time Seperate (s)	3.2	12.1	53.9	
Reference Time (s)	53.9	53.9	53.9	
Adj Reference Time (s)	59.9	59.9	59.9	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	111	378	318	136	188	105	25	137	1110	94	50	111
Pedestrians						11				4		
Ped Button					Yes				No			
Pedestrian Timing (s)					16.0				16.0			
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	5.5	5.5	4.5	5.5	5.5	4.5	4.5	6.0	6.0	4.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	111	378	318	136	188	105	0	162	1110	94	0	161
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	0	1520	3046	1360	0	1520
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.5	0.0	0.0
Pedestrian Frequency (%)		0.00			0.31				1.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	8.8	28.4	28.1	10.7	14.1	10.6	0.0	12.8	43.7	8.8	0.0	12.7
Adj Reference Time (s)	13.3	33.9	33.6	15.2	19.6	16.1	0.0	17.3	49.7	16.0	0.0	17.2
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		0	101	1523		0	101
Reference Time A (s)	131.4	28.4		161.1	14.1		0.0	191.8	43.7		0.0	190.7
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		131.4			161.1				191.8			
Adj Reference Time (s)		136.9			166.6				197.8			
Split Option												
Ref Time Combined (s)	8.8	28.4		10.7	14.1		0.0	12.8	43.7		0.0	12.7
Ref Time Seperate (s)	8.8	28.4		10.7	14.1		2.0	10.8	43.7		3.9	8.8
Reference Time (s)	28.4	28.4		14.1	14.1		43.7	43.7	43.7		57.4	57.4
Adj Reference Time (s)	33.9	33.9		19.6	19.6		49.7	49.7	49.7		63.4	63.4

Summary	EB WB	NB SB	Combined
Protected Option (s)	49.1	80.7	
Permitted Option (s)	166.6	197.8	
Split Option (s)	53.5	113.1	
Minimum (s)	49.1	80.7	129.8

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	33.6	16.1	16.0	16.0
Cross Thru Ref Time (s)	80.7	66.9	33.9	19.6
Oncoming Left Ref Time (s)	15.2	13.3	17.2	17.3
Combined (s)	129.5	96.3	67.1	52.9

Intersection Summary			
Intersection Capacity Utilization	108.1%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Volume (vph)	1457	51
Pedestrians		3
Ped Button	No	
Pedestrian Timing (s)	16.0	
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	6.0	6.0
Minimum Green (s)	10.0	10.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1457	51
Lane Utilization Factor	0.95	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	3046	1360
Ped Intf Time (s)	0.0	0.4
Pedestrian Frequency (%)	1.00	
Protected Option Allowed	Yes	
Reference Time (s)	57.4	4.9
Adj Reference Time (s)	63.4	16.0
Permitted Option		
Adj Saturation A (vph)	1523	
Reference Time A (s)	57.4	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	190.7	
Adj Reference Time (s)	196.7	
Split Option		
Ref Time Combined (s)	57.4	
Ref Time Seperate (s)	57.4	
Reference Time (s)	57.4	
Adj Reference Time (s)	63.4	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	161	671	94	225	438	43	102	1397	215	5	55	1173
Pedestrians			7			7			9			
Ped Button		Yes			Yes			No				No
Pedestrian Timing (s)		16.0			16.0			16.0				16.0
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	10.0	10.0	4.0	4.0	10.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	161	765	0	225	481	0	102	1397	215	0	60	1173
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	1.00
Saturated Flow (vph)	1520	2990	0	1520	3006	0	1520	3046	1360	0	1520	3046
Ped Intf Time (s)	0.0	0.1	0.9	0.0	0.1	0.9	0.0	0.0	1.1	0.0	0.0	0.0
Pedestrian Frequency (%)		0.21			0.21			1.00				1.00
Protected Option Allowed		Yes			Yes			Yes				Yes
Reference Time (s)	12.7	30.8	0.0	17.8	19.3	0.0	8.1	55.0	20.1	0.0	4.7	46.2
Adj Reference Time (s)	17.2	35.3	0.0	22.3	23.8	0.0	12.6	59.5	24.6	0.0	9.2	50.7
Permitted Option												
Adj Saturation A (vph)	101	1495		101	1503		101	1523		0	101	1523
Reference Time A (s)	190.7	30.8		266.4	19.3		120.8	55.0		0.0	71.1	46.2
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	NA
Reference Time (s)		190.7			266.4			120.8				71.1
Adj Reference Time (s)		195.2			270.9			125.3				75.6
Split Option												
Ref Time Combined (s)	12.7	30.8		17.8	19.3		8.1	55.0		0.0	4.7	46.2
Ref Time Seperate (s)	12.7	27.0		17.8	17.6		8.1	55.0		0.4	4.3	46.2
Reference Time (s)	30.8	30.8		19.3	19.3		55.0	55.0		46.2	46.2	46.2
Adj Reference Time (s)	35.3	35.3		23.8	23.8		59.5	59.5		50.7	50.7	50.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	57.6	68.8	
Permitted Option (s)	270.9	125.3	
Split Option (s)	59.1	110.2	
Minimum (s)	57.6	68.8	126.3

Right Turns	NBR	SBR
Adj Reference Time (s)	24.6	14.5
Cross Thru Ref Time (s)	35.3	23.8
Oncoming Left Ref Time (s)	9.2	12.6
Combined (s)	69.1	50.8

Intersection Summary			
Intersection Capacity Utilization	105.3%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBR
Lane Configurations	
Volume (vph)	105
Pedestrians	2
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.5
Minimum Green (s)	10.0
Refr Cycle Length (s)	120
Volume Combined (vph)	105
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	1360
Ped Intf Time (s)	0.3
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	9.5
Adj Reference Time (s)	14.5
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

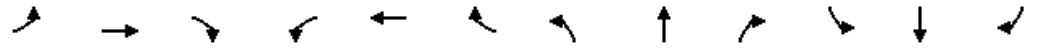
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	997	218	237	1003	582	405	1320	74	598	881	172
Pedestrians			50			25			14			49
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.5	4.0	4.5	7.5	4.0
Minimum Green (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	256	997	218	237	1003	582	405	1394	0	598	1053	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	2952	3046	1360	2952	4358	1360	4428	4324	0	4428	4252	0
Ped Intf Time (s)	0.0	0.0	4.8	0.0	0.0	2.8	0.0	0.1	1.7	0.0	0.8	4.7
Pedestrian Frequency (%)		0.81			0.57			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.4	39.3	24.0	9.6	27.6	54.2	11.0	38.8	0.0	16.2	30.5	0.0
Adj Reference Time (s)	14.9	46.3	31.0	14.1	34.6	61.2	15.5	46.3	0.0	20.7	38.0	0.0
Permitted Option												
Adj Saturation A (vph)	98	1523		98	1453		98	1441		98	1417	
Reference Time A (s)	156.1	39.3		144.5	27.6		164.6	38.8		243.1	30.5	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		156.1			144.5			164.6			243.1	
Adj Reference Time (s)		163.1			151.5			172.1			250.6	
Split Option												
Ref Time Combined (s)	10.4	39.3		9.6	27.6		11.0	38.8		16.2	30.5	
Ref Time Seperate (s)	10.4	39.3		9.6	27.6		11.0	36.7		16.2	25.6	
Reference Time (s)	39.3	39.3		27.6	27.6		38.8	38.8		30.5	30.5	
Adj Reference Time (s)	46.3	46.3		34.6	34.6		46.3	46.3		38.0	38.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	60.4	67.0	
Permitted Option (s)	163.1	250.6	
Split Option (s)	80.9	84.3	
Minimum (s)	60.4	67.0	127.4

Right Turns	EBR	WBR
Adj Reference Time (s)	31.0	61.2
Cross Thru Ref Time (s)	38.0	46.3
Oncoming Left Ref Time (s)	14.1	14.9
Combined (s)	83.1	122.3

Intersection Summary			
Intersection Capacity Utilization	106.2%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.



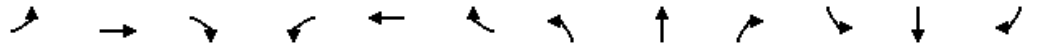
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	434	49	161	42	90	73	53	770	339	203	1240	53
Pedestrians						6			15			1
Ped Button					Yes			No			No	
Pedestrian Timing (s)					16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.5	5.5	4.5	4.5	4.0
Minimum Green (s)	6.0	6.0	4.0	10.0	10.0	10.0	4.0	10.0	10.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	644	0	0	132	73	53	770	339	203	1293	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1488	0	0	3149	1360	1520	4358	1360	1520	4332	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.8	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.18			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			0.0			7.2	4.2	21.2	31.7	16.0	35.8	0.0
Adj Reference Time (s)			0.0			15.0	9.2	26.7	37.2	20.5	40.3	0.0
Permitted Option												
Adj Saturation A (vph)	0	132		0	3140		101	1453		101	1444	
Reference Time A (s)	0.0	583.2		0.0	5.0		62.8	21.2		240.4	35.8	
Adj Saturation B (vph	0	0		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	42.3	59.9		NA	NA		NA	NA		NA	NA	
Reference Time (s)		59.9			5.0			62.8			240.4	
Adj Reference Time (s)		64.9			15.0			68.3			244.9	
Split Option												
Ref Time Combined (s)	0.0	51.9		0.0	5.0		4.2	21.2		16.0	35.8	
Ref Time Seperate (s)	34.3	4.2		1.7	6.8		4.2	21.2		16.0	34.4	
Reference Time (s)	51.9	51.9		6.8	6.8		21.2	21.2		35.8	35.8	
Adj Reference Time (s)	56.9	56.9		15.0	15.0		26.7	26.7		40.3	40.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	49.5	
Permitted Option (s)	64.9	244.9	
Split Option (s)	71.9	67.0	
Minimum (s)	64.9	49.5	114.4

Right Turns	WBR	NBR
Adj Reference Time (s)	15.0	37.2
Cross Thru Ref Time (s)	47.2	56.9
Oncoming Left Ref Time (s)	56.9	20.5
Combined (s)	119.2	114.7

Intersection Summary			
Intersection Capacity Utilization	99.3%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.



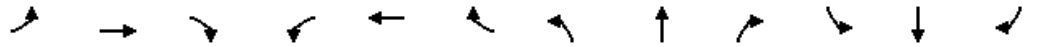
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	198	14	83	65	384	13	569	251	617	658	58
Pedestrians												1
Ped Button											No	
Pedestrian Timing (s)											16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.5	5.0	4.0	4.5	5.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	4.0	10.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	65	212	0	83	65	384	13	820	0	617	716	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.99	0.85
Saturated Flow (vph)	1520	1584	0	1520	1600	1360	1520	2907	0	1520	4305	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Pedestrian Frequency (%)		0.00			0.00			0.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.1	16.1	0.0	6.6	4.9	33.9	1.0	33.9	0.0	48.7	20.0	0.0
Adj Reference Time (s)	10.1	21.1	0.0	11.6	9.9	38.9	8.5	38.9	0.0	53.2	25.0	0.0
Permitted Option												
Adj Saturation A (vph)	101	1584		101	1600		101	1453		101	1435	
Reference Time A (s)	77.0	16.1		98.3	4.9		15.4	33.9		730.7	20.0	
Adj Saturation B (vph	0	1584		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	13.1	16.1		NA	NA		NA	NA		NA	NA	
Reference Time (s)		16.1			98.3			33.9			730.7	
Adj Reference Time (s)		21.1			103.3			38.9			735.7	
Split Option												
Ref Time Combined (s)	5.1	16.1		6.6	4.9		1.0	33.9		48.7	20.0	
Ref Time Seperate (s)	5.1	15.0		6.6	4.9		1.0	23.5		48.7	18.4	
Reference Time (s)	16.1	16.1		6.6	6.6		33.9	33.9		48.7	48.7	
Adj Reference Time (s)	21.1	21.1		11.6	11.6		38.9	38.9		53.7	53.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	32.6	92.1	
Permitted Option (s)	103.3	735.7	
Split Option (s)	32.6	92.6	
Minimum (s)	32.6	92.1	124.7

Right Turns	WBR
Adj Reference Time (s)	38.9
Cross Thru Ref Time (s)	38.9
Oncoming Left Ref Time (s)	10.1
Combined (s)	87.9

Intersection Summary			
Intersection Capacity Utilization	103.9%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	834	65	81	521	97	55	485	128	122	498	97
Pedestrians	12		5	5		12	8		8	8		8
Ped Button		No			No			No			No	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	5.5	5.0	4.0	5.5	5.0	4.0
Minimum Green (s)	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	114	899	0	81	618	0	0	668	0	0	717	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	0.97	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1520	3013	0	1520	2975	0	0	2947	0	0	2959	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.2	1.5	0.0	0.2	1.0	0.0	0.1	1.0
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	9.0	35.8	0.0	6.4	25.2	0.0			0.0			0.0
Adj Reference Time (s)	14.5	41.3	0.0	12.5	30.7	0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	101	1507		101	1487		0	309		0	99	
Reference Time A (s)	135.0	35.8		95.9	25.2		0.0	87.1		0.0	148.6	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		135.0			95.9			87.1			148.6	
Adj Reference Time (s)		140.5			101.4			92.1			153.6	
Split Option												
Ref Time Combined (s)	9.0	35.8		6.4	25.2		0.0	27.4		0.0	29.2	
Ref Time Seperate (s)	9.0	33.3		6.4	21.2		4.3	19.9		9.6	20.2	
Reference Time (s)	35.8	35.8		25.2	25.2		27.4	27.4		29.2	29.2	
Adj Reference Time (s)	41.3	41.3		30.7	30.7		32.4	32.4		34.2	34.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	53.8	NA	
Permitted Option (s)	140.5	153.6	
Split Option (s)	72.0	66.6	
Minimum (s)	53.8	66.6	120.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	100.4%	ICU Level of Service	G

Reference Times and Phasing Options do not represent an optimized timing plan.