

Appendices

Appendix F Noise Data

Appendices

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LOCAL REGULATIONS AND STANDARDS



Volume 3

ENVIRONMENTAL PERFORMANCE



IN THIS VOLUME

Conservation is at the crossroads of stewardship and equity. This Volume combines conservation of land with consideration of the natural resources that affect our health and well-being. Safety is an essential human need, and changes to the climate, Santa Ana winds, and the near year-round fire season make safety planning essential. Protecting people from less immediate danger such as poor air quality, flooding, and water quality impacts is equally important. The people most often affected by air quality impacts are those with the least resources. This Volume commits the City by design and by policy to ensuring that new development does not make air or water quality impacts worse in adjacent neighborhoods, or the city as a whole.

As new residents move in and existing residents move downtown the noises of city life will increase. Noises like sirens, train horns, garbage trucks, and leaf blowers will be balanced by good noise such as children laughing, outdoor music, and markets. The city is no longer a collection of homes surrounded by vineyards and farms, but rather a bustling center of commerce, employment, and transit. This Volume includes recognition that not everywhere can be quiet all the time and makes allowance for people to make a little noise while they are having fun.



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“A more environmentally friendly and energy efficient city should be our goal.”

***– Community Member
(Public input received from
the PlanRC Survey #2,
Summer 2020)***

RESOURCE CONSERVATION IS...

the act of ensuring that the development and operation of the City does not undermine the health of its residents. People are part of nature and time spent in the natural environment is known to reduce stress and improve the wellbeing of people. In addition to natural resources, such as air and water, this Chapter also includes policies that respects the City's history. The discussion and policies that follow illustrate the commitment made by the City to resource conservation and the importance of the natural environment.

Our history defines how the city developed and provides a foundation for improvement. World-class cities embrace their history and incorporate elements of the past into the future. The act of re-purposing buildings for new use is as old as construction and can be more environmentally sound than new construction. There is something about a classic building or landscape that has withstood time to remain part of the neighborhood. Perhaps old buildings or things like Historic Route 66 are touchstones reminding people that even with change some vestige of the past remains. This General Plan celebrates the City's long history, recognizes all the historic and natural elements that comprise our neighborhoods and sees these things as assets to the community worthy of recognition.

Air and water are essential for life and should be accessible to everyone regardless of their economic status or location in the city. Some land uses can impact these resources, and often affect residents far from the buildings themselves. Regulations can only go so far to protect them so this General Plan requires an assessment of the community benefit to be realized by the land use before they can be approved.

STATE LEGAL REQUIREMENTS

California law requires that a General Plan include a conservation chapter that addresses the use of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, wildlife, minerals, and other natural resources. This Chapter considers the effect of development as described in the Land Use and Community Character Chapter and is the foundation for implementation methods designed to protect water quality and prevent flooding. This Chapter was prepared to meet the requirements of Government Code Section 65302(d) and identifies water courses, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

This Chapter also addresses historic and cultural, and tribal cultural resources. In this context, historic and cultural resources consider the built environment since settling of the area. Tribal cultural resources are those of first residents of the area.

The exposure of residents to unclean air can be considered an environmental justice issue since the areas near major transportation routes are often lower income and are disproportionately affected by emissions from busy roadways and rail lines. The city is in the South Coast Air Basin (SCAB), where levels of airborne particulate matter (PM) from emissions and wildfires, and ozone related to both emissions and sunlight, exceed Federal and State air quality standards. Some types of industrial development concentrate truck traffic and their emissions can affect the health of nearby residents.

“I would like Rancho [Cucamonga] to be known for having the ideal balance between nature and infrastructure.”

***– Community Member
(Public input received from the PlanRC Visioning Survey,
Spring 2020)***



HEART OF THE MATTER

Although the entire city was once an agricultural area, few large open areas remain that would support commercial agricultural production today. While some agricultural uses are encouraged, and are allowed within all General Plan designations, the city today is too developed to support much in the way of large-scale agriculture. While this may change with time and technologies such as aeroponics, hydroponics, and indoor growing, agriculture is not a dominant land use in the city.

We know people thrive in a clean natural environment with fresh food and healthy choices. The less developed areas of the city see these benefits daily, while the more developed areas rely upon formal landscaping and small-lot gardens. Still other areas of the city lack these resources and it is important direction of this plan to improve the natural environment in these areas. This General Plan includes policies that support urban gardens, edible landscape, and similar close-to-consumer production of agricultural goods.

The air we breathe affects health and is often a visible measure of our quality of life. In general air quality has been improving since the 1970's, but there is still a long way to go. The city has air quality deficiencies that are partly a function of geography, and partly from trains, planes, automobiles, and trucks. During some weather conditions our air quality can adversely affect the health of children, senior citizens, and residents with respiratory health issues. Driving less, planting more, and generally becoming less dependent upon fossil fuels will help with some, but not all, of the air quality issues as the city is in a larger region and affected by emissions originating in other areas. For some projects, particularly those near busy roads, physical filtration may be the only way of ensuring healthy indoor air quality.

OVERVIEW OF THIS CHAPTER

The Resource Conservation Chapter ensures that development is done with care for the local and global resources that make this City special. The stewardship of natural resources is an important responsibility, and this Chapter ensures their consideration with every action.

The following overarching resource conservation goals serve to guide and direct long-term planning in the City of Rancho Cucamonga:

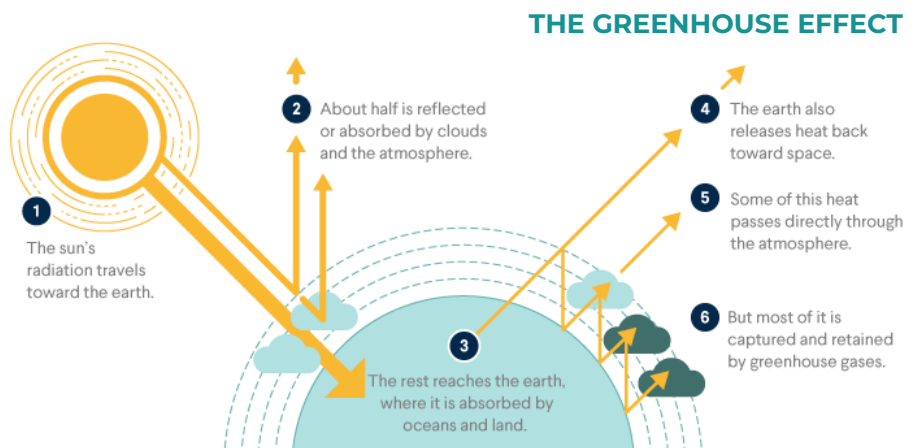
- + **Goal RC-1 Visual Resources.** A beautiful city with stunning views of the San Gabriel Mountains and the Inland Empire.

- + **Goal RC-2 Water Resources.** Reliable, readily available, and sustainable water supplies for the community and natural environment.
- + **Goal RC-3 Habitat Conservation.** Wildlife habitats that support various plants, mammals, and other wildlife species.
- + **Goal RC-4 Cultural Resources.** A community rich with historic and cultural resources.
- + **Goal RC-5 Local Air Quality.** Healthy air quality for all residents.
- + **Goal RC-6 Climate Change.** A resilient community that reduces its contributions to a changing climate and is prepared for the health and safety risks of climate change.
- + **Goal RC-7 Energy.** An energy efficient community that relies primarily on renewable and non-polluting energy sources.

Goal RC-1 reinforces the commitment made by the City to ensure that the grandeur of the views from the city are not overshadowed by new development. Goals RC-2 through RC-7 confirm the City's role as a world-class city in addressing both local and global issues such as air quality and climate change.

HEALTH EFFECTS

High particulate matter (PM) and ground-level ozone concentrations usually come from cars, trucks, and trains, but can also come from new industry. High particulate matter can result in adverse health effects for residents, including lung inflammation, reduced lung function, coughing, wheezing, chest pain, burning in the chest, and shortness of breath. These effects are especially severe in children, older adults, and people with asthma or other existing lung conditions. People in the city who live near heavily traveled roads and railroad tracks are exposed to pollutants at a greater level than other locations in the city. Land uses that generate a similar pollutant should need to demonstrate a community benefit that exceeds their damage to the community. These benefits should be seen in the areas of the city most affected by the increase in trucks or building emissions and discussed with those neighborhoods before approving the development. The community benefit should be included in a plan, publicly discussed, and adopted as part of any project. Anything less would be a disservice to the residents of this world-class city.





Historic Cucamonga Service Station

Climate change associated with greenhouse gases, may worsen air quality in the city with rising temperatures that will result in more ground-level ozone formation and result in more ozone accumulating in the air. A larger number of extreme heat days and heat wave events may result in more days when air quality standards are exceeded. Another impact of climate change is the potential for more frequent regional wildfire-events that will produce substantial amounts of smoke that contains unhealthy particulate matter.

Greenhouse gases contribute to climate change, which affects everyone. The State, and much of the world, is actively trying to reduce greenhouse gases to slow climate change. As the climate continues to change, we can anticipate more severe weather, longer droughts, hotter heat waves, and more severe storms.

CONSERVATION OF LAND & HISTORIC RESOURCES

HISTORIC RESOURCES

As Rancho Cucamonga developed out of vineyards and citrus groves into the existing residential neighborhoods and industrial and commercial centers, some of the City's long-standing historical buildings have been torn down. Other structures have been lost to disrepair, neglect, redevelopment, and fire. Recognizing that economic prosperity and growth can sometimes overrun the historic fabric of the community, historic preservation groups and the City have made efforts to protect the historical buildings and landmarks that remain. This General Plan reinforces this commitment to recognizing, protecting, and maintaining Rancho Cucamonga's past. While 50 years old is considered the starting point for consideration of historic structures, there is no age requirement for being deemed historic and even newer buildings or areas can be historic if considered so by the community. Several neighborhoods within the city will be turning 50 soon, and this may create challenges for both new construction and remodeling certain buildings within these older neighborhoods. There is no one set of policies or procedures that can be applied uniformly as each project is unique. Certainly not all that is old is worth preserving, but neither should it all be replaced. A balance and respect for the history of the City is the intent. Policies in this plan are designed to allow adaptive reuse of historic structures so that they can remain a part of the city. This is reflected in the Land Use and Community Character Chapter, as well as the context for this General Plan.

Foothill Boulevard is a unique historic route for the City of Rancho Cucamonga, Southern California, and the western United States. Officially, the numerical designation 66 was assigned to the Chicago-to-

Los Angeles route in the summer of 1926. From the outset, public road planners intended Route 66 to connect the main streets of rural and urban communities along its course for the most practical of reasons: most small towns had no prior access to a major national thoroughfare. Historic Route 66 runs east to west through Rancho Cucamonga and contains historic resources potentially significant for their association with Route 66.

TRIBAL RESOURCES

[Pending completion of SB-18 and AB-52]



North Etiwanda Preserve

CONSERVATION AREAS

As illustrated in Figure RC-1, Conservation Areas, there are several existing and proposed conservation areas within the city. The existing conservation areas, which are managed by several different entities, have been protected from development by the recordation of conservation deed restrictions, with some further protected by the preparation and adoption of conservation management plans.

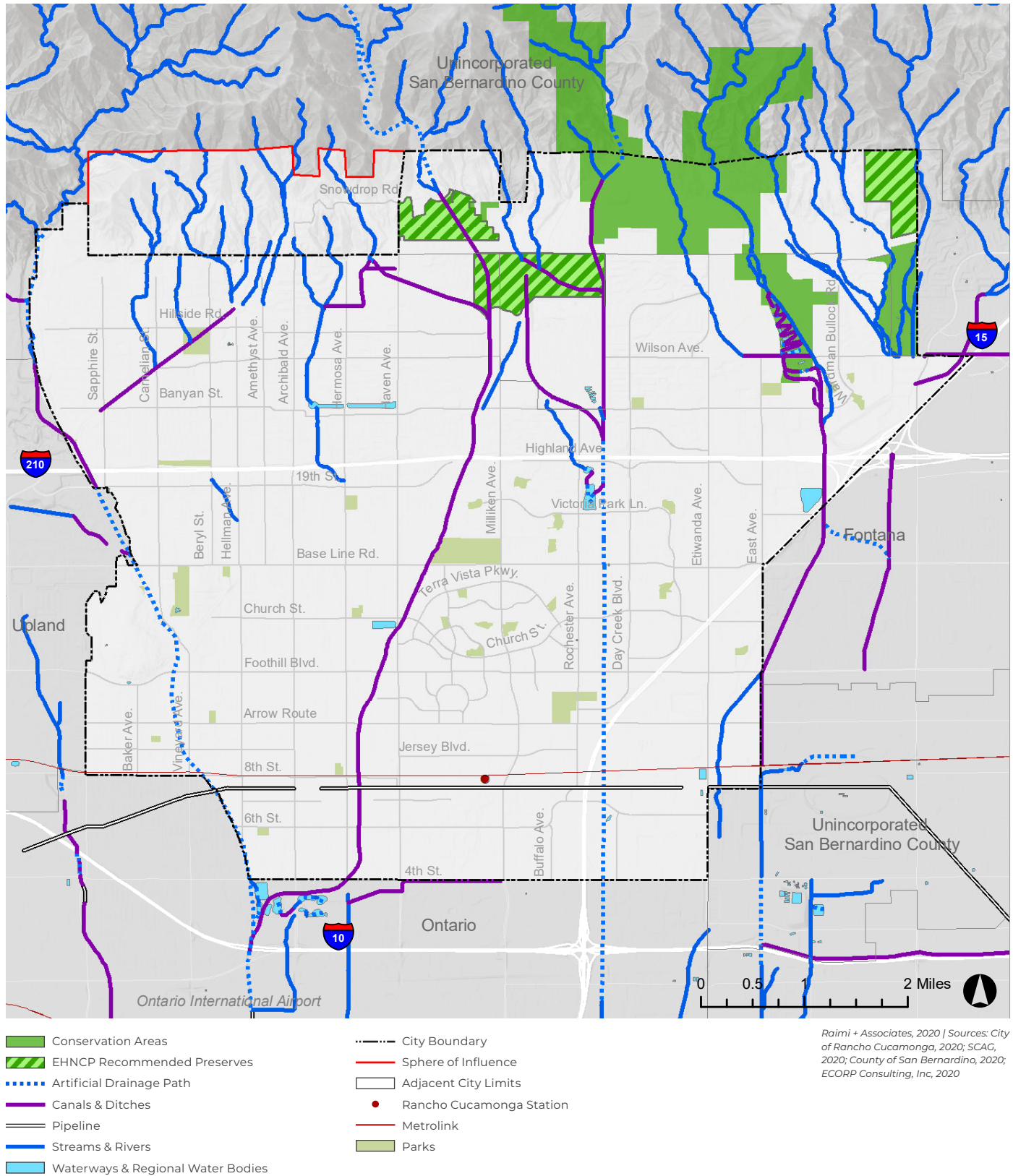
These conservation areas protect habitats such as alluvial fan sage scrub, sycamore alluvial woodland, California walnut woodland, and freshwater marsh, providing important habitat and corridors for wildlife, ecosystem services, and recreational resources for the public. In total, these areas encompass approximately 1,812 acres of habitat within the General Plan Area and will remain critical to the survival of sensitive species and wildlife occupying these habitats.

As part of the Etiwanda Heights Neighborhood and Conservation Plan (EHNCP), three new conservation areas are proposed, as identified in Figure RC-1. The EHNCP created a regulatory and management framework for securing, expanding, linking, and managing these areas, and systematically transforming areas of threatened habitat and rural open space with a few islands of partial conservation, to an area of permanently conserved, well-managed habitat with a few small islands of rural living in harmony with nature. As growth and development occur it will be essential that preservation remains a priority for sensitive land resources that have significant native vegetation and/or habitat value.

Habitat and vegetation types are shown in Figure RC-2, Habitat, and naturally favor the northern edge of the city along the base of the mountains. The city also has natural and man-made drainages that provide a means for wildlife to enter deep into the developed areas of the city. This General Plan continues the conservation and design attention provided to these areas for protection of nature and the enrichment of the people who enjoy the trails that provide entry into them. The City is committed to protecting natural drainages shown in Figure RC-1 and incorporating them into conservation areas and project design, including by requiring the clustering of development or enabling the transfer of development rights to protect these important resources. The drainages not only provide life through running water, but they allow groundwater recharge and are part of the larger water quality system that helps protect downstream waters from pollutants that may be in the stormwater runoff.

Transfer of Development Rights

Through the Etiwanda Heights Neighborhood and Conservation Plan and City Hillside Ordinance, the City can allow property owners to transfer their development rights for hillsides and future planning areas to preserve natural resources, and to avoid geologic and seismic hazards. This General

FIGURE RC-1 CONSERVATION AREAS



Riversidean Alluvial Fan Sage Scrub is a key vegetation community that supports biodiversity

Plan includes policies that would extend the potential for a transfer of development rights throughout the Sphere of Influence (See Figure RC-1) to encourage conservation and a more compact urban form.

Grading and the Natural Form

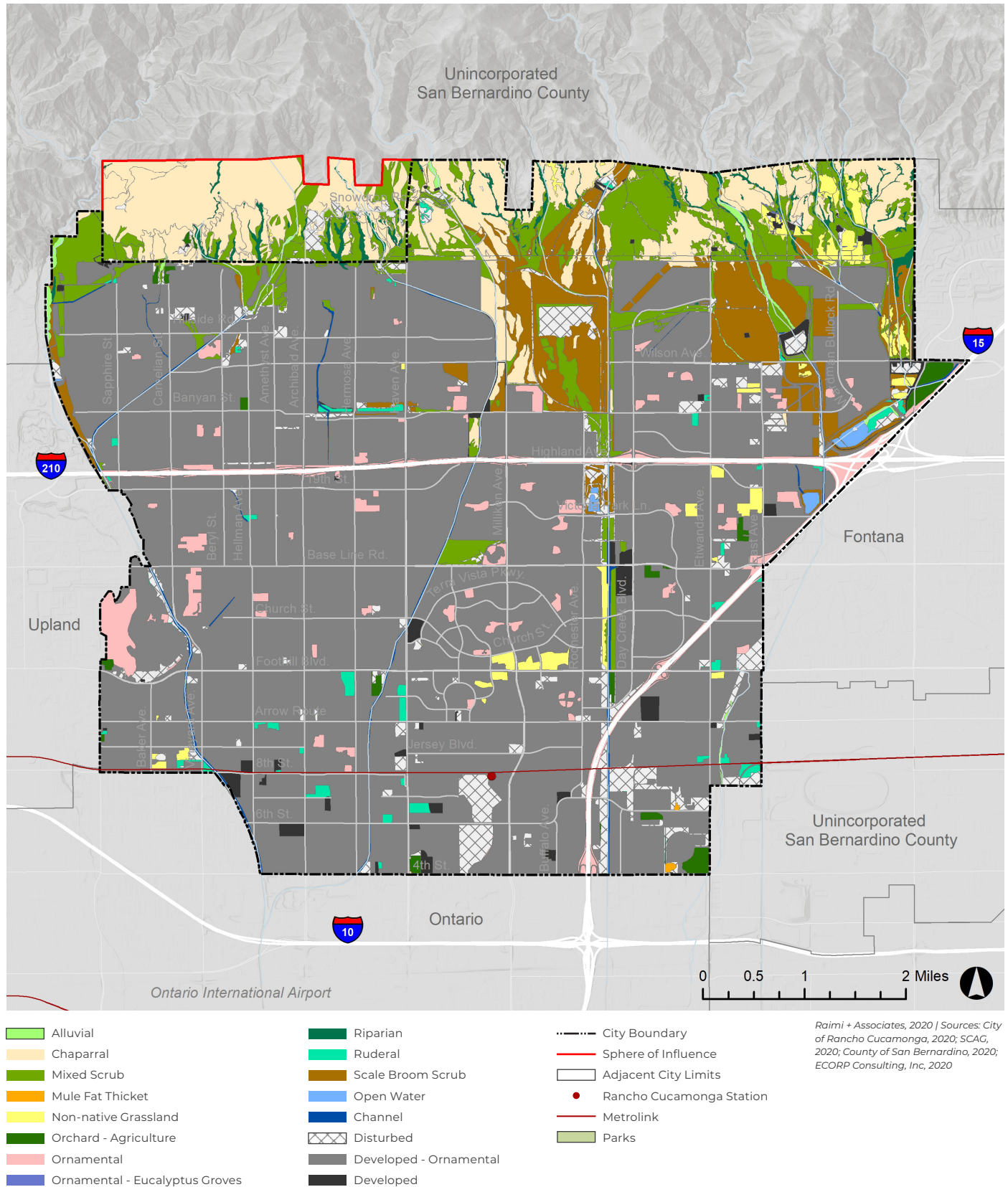
Modern construction is efficient at moving soil and building on flat surfaces. While people benefit from being able to move around easily on these flatter surfaces, we tend to lose topography and the natural beauty found in our hillsides and slopes. Construction also removes geographic features and elements of the landscape that have served as landmarks for generations. The irony is that after the grading, significant resources are spent in replanting and contouring to shadow the original landform. This General Plan requires that grading in hillside or slope areas result in a naturally appearing form and discourages the use of retaining walls or terracing that would destroy the natural beauty of the hills and change the character of these areas forever.

Protected Species

Habitat for several protected plant and animal species are known to occur within the General Plan Area. This General Plan includes policies to avoid or lessen impacts to these species and their habitats. [See Figure RC-2.] Regional connectivity between habitats is essential to the wellbeing of local wildlife. The northern periphery of the city plays an important role in connecting two expansive areas of the Angeles and San Bernardino National Forests. This mountainous area and its associated foothills include corridors, drainages, and open areas attractive to wildlife. With the existing and proposed conservation areas and supporting policies for hillside development and transfer of development rights, any future development in the northern portion of the city will consider and protect the regional flow of wildlife. The undeveloped Day Creek utility and flood control open space corridor may facilitate wildlife movement from the mountains north of the city south through the southern end of the city providing a throughfare for wildlife.

Urban Forest

The urban forest and trees provide many great economic and environmental benefits to planned communities. Trees provide a wonderful aesthetic to the city and are also essential to physical and mental health. Not only our health, but that of migratory birds, raptors, songbirds, and mammals. Trees reduce building cooling costs and make it more inviting to walk along streets and pathways. Water shed trees protect water quality and help prevent flooding, help reduce climate change associated with greenhouse gases, and are our best natural filter for particulate pollution. Our urban forest also helps to mitigate summer air temperatures. As the climate changes, it will be important to replant trees with tree species that can handle the new conditions.

FIGURE RC-2 HABITAT




Open water catch basin



Upper Cucamonga storm drain

WATER RESOURCES

WATER QUANTITY

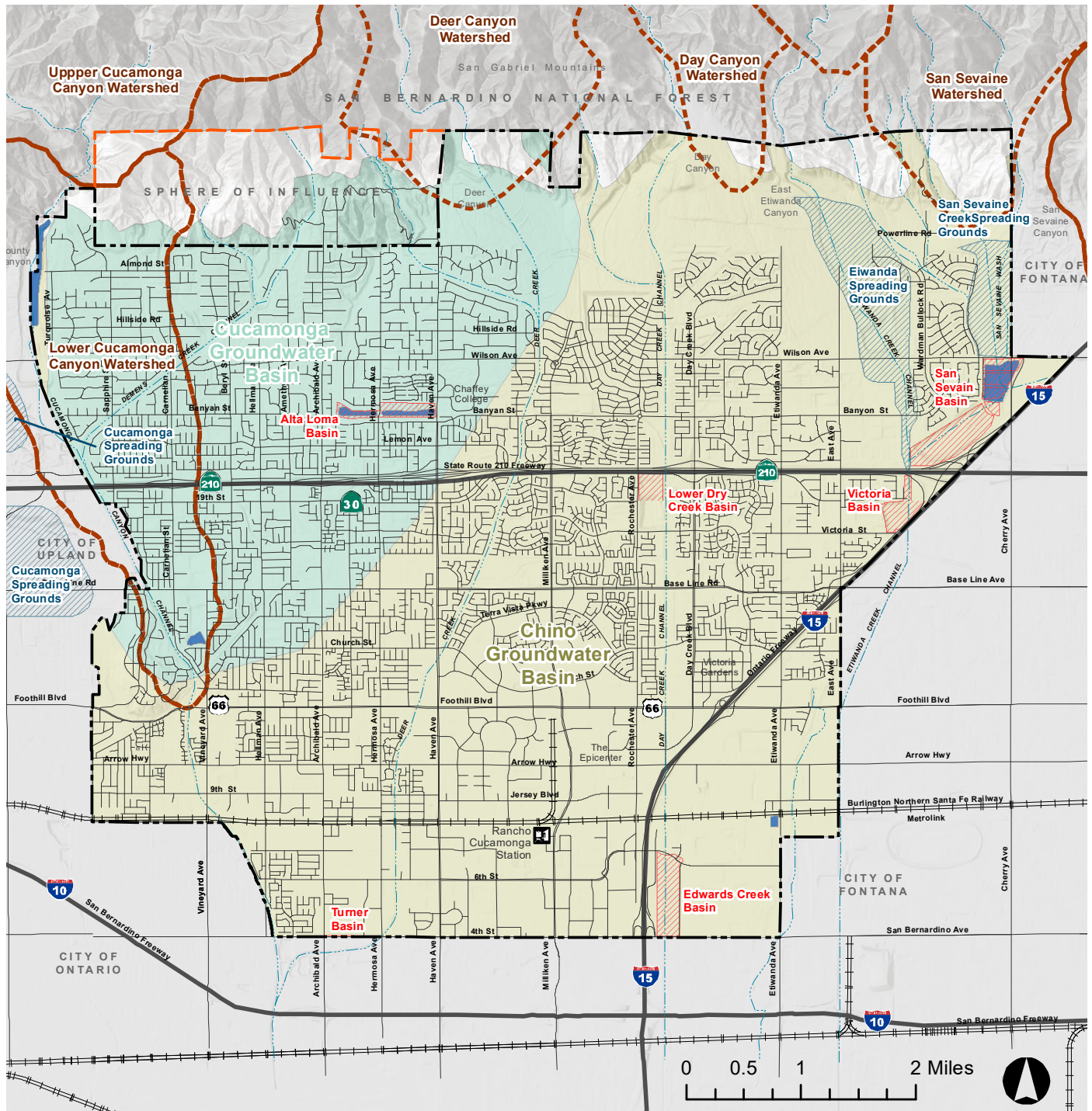
The city relies primarily upon the Cucamonga Valley Water District to provide water for development. A close working relationship between the City and the District is needed to ensure that our growth does not exceed their ability to provide service. In addition to a collaborative development process, the City also encourages water conservation and actively reviews policies to ensure that water is used efficiently in all development.

The City is also fortunate to contribute to groundwater recharge. Figure RC-3, Water Resources, shows several flood control basins and natural channels throughout the city that are designed to allow for recharge of groundwater through rainfall. This General Plan continues to conserve these areas and includes additional policies to preserve natural drainages. One key component of stormwater management as implemented by the City is that development is required to retain some stormwater on-site.

SURFACE WATER QUALITY

Unchecked, stormwater runoff from the city can pollute local waterways and even groundwater, causing contamination that can last for generations. Current stormwater retention and filtration requirements address this for new development, however large areas of the city have already been built and the stormwater capture requirements only take effect once additional construction is proposed. As a result, the city relies on stormwater basins to capture debris and slow the speed of runoff to reduce erosion. Many water quality issues can be addressed by providing information to residents on the importance of keeping pollutants out of the stormwater system. This General Plan continues and expands the City's public service announcements, advertisements, or signage that reminds people of the connection between water features in the city.

FIGURE RC-3 WATER RESOURCES

**Groundwater Basins**

- Chino Basin
- Cucamonga Basin

Recharge Basins and Spreading Grounds

- Recharge Basin
- Spreading Grounds
- Watersheds

- City Boundary
- Sphere of Influence
- Waterways

City of Rancho Cucamonga, 2020
 Sources: Caltrans Department of
 Water Resources, 1997 and California
 Resources Agency, 2006



Pacific Electric Inland Empire Trail

AIR RESOURCES

MOBILE EMISSIONS

Vehicles are the largest source of the pollutants that react in the air to form ozone. Several major freeways and roadways that run through Rancho Cucamonga, including Interstate 15 (I-15), State Route 210 (SR-210), and Foothill Boulevard, are major thoroughfares contributing to the poor air quality experienced by many residents of Rancho Cucamonga. This includes notably high levels of diesel particulate matter (diesel PM), especially in areas of the city within 500 feet of these freeways and major roadways. This increased exposure to toxic air contaminants (TACs) places city residents, and especially any sensitive individuals in these areas, at higher risk for experiencing adverse cancer and noncancer health effects.

Reducing the need to use a vehicle by siting goods and services near homes, and providing attractive, safe, and convenient ways to walk, bike, rollerblade or use other means of getting there without the need of an internal combustion engine, is the most effective way of improving local air quality. While there will always be a need for some trips, the expectation of this General Plan is that residents will have the multiple options for getting around. Policies in other chapters that require connectivity between neighborhoods, completion of road grids, trails, and paths, will all help to address both air quality and greenhouse gas emissions.

STATIONARY EMISSIONS

Large stationary sources emitting more than ten tons of at least one health-impacting pollutant per year within the City are rare and regulated by the South Coast Air Quality Management District (SCAQMD). New industrial development that would be a large emitter of pollutants is unlikely to be permitted within the city.

COMMUNITY BENEFIT PLAN

Large industrial projects require high volumes of trucks that are known to cause damage to local roadways, cause air pollution that affects the health and wellbeing of nearby residents through air pollution and an increase in noise. Unfortunately, the trend of these types of industry is to hire fewer workers and low paying wages, resulting in little social or fiscal benefit to the City. This General Plan requires larger industrial projects that generate significant truck traffic to demonstrate community benefit outside of their project boundaries. This can include improvements to neighborhoods most affected by the increase in truck traffic, reconstruction of roadways affected by the increase in traffic, or other offset features that allow the City to balance the negative impacts of the project with positive long-term benefits to the community.

CLIMATE

GREENHOUSE GASES

In 2016, the State passed Senate Bill (SB) 32, which sets a statewide goal of reducing emissions 40 percent below 1990 emission levels by the year 2030. The State has also set long-term goals for an 80 percent reduction by the year 2050, and recently, Executive Order B-55-18 set a steeper goal for the State to achieve economy-wide carbon neutrality by 2045. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of carbon dioxide equivalent (CO₂-eq) from the atmosphere, including through sequestration in forests, soils, and other natural landscapes. The State's current goals and targets are listed in Table RC-1 below.

Metric tons of carbon dioxide equivalent or MTCO₂e is the unit of measurement in this tool. The unit "CO₂e" represents an amount of a GHG whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO₂), based on the global warming potential (GWP) of the gas. A metric ton is equal to 1 kilogram or 2,204.6 pounds.

TABLE RC-1 STATE OF CALIFORNIA GHG EMISSIONS REDUCTION GOALS AND TARGETS

Target Year	Goal/Target	Authority
2020	Reduce GHG emissions to 1990 levels	Assembly Bill 32 (2006)
2030	Reduce GHG emissions 40 percent below 1990 levels	Senate Bill 32 (2016)
2045	Net carbon neutral emissions	Executive Order B-55-18 (2018)
2050	Reduce GHG emissions 80 percent below 1990 levels	Executive Order S-03-05 (2005)

In support of these newer GHG reduction targets and carbon neutrality goals, the State has funded and pursued research, program development and implementation, rulemaking, and incentives. The State's Building Energy Efficiency Standards, Green Building Code, and Appliance Efficiency Regulations have been and are expected to be updated every three years to meet the State's goals for zero net energy buildings as outlined in the State's Energy Efficiency Strategic Plan, further developed in Action Plans. In addition, the State has set zero emissions goals for the transportation sector, zero carbon goals for the energy sector, and related goals to support reductions in the waste sector and from climate pollutants.

GREENHOUSE EFFECT

The release of gases, such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), creates a blanket around the earth that allows light to pass through but traps heat at the surface preventing its escape into space.



View toward the San Gabriel Mountains

These gases function similarly to the glass panes of a greenhouse, which allow sunlight to pass into the building but trap heat inside, hence the name for this process: the greenhouse effect. While the greenhouse effect is a naturally occurring process that is vital for the existence of life, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of greenhouse gases in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

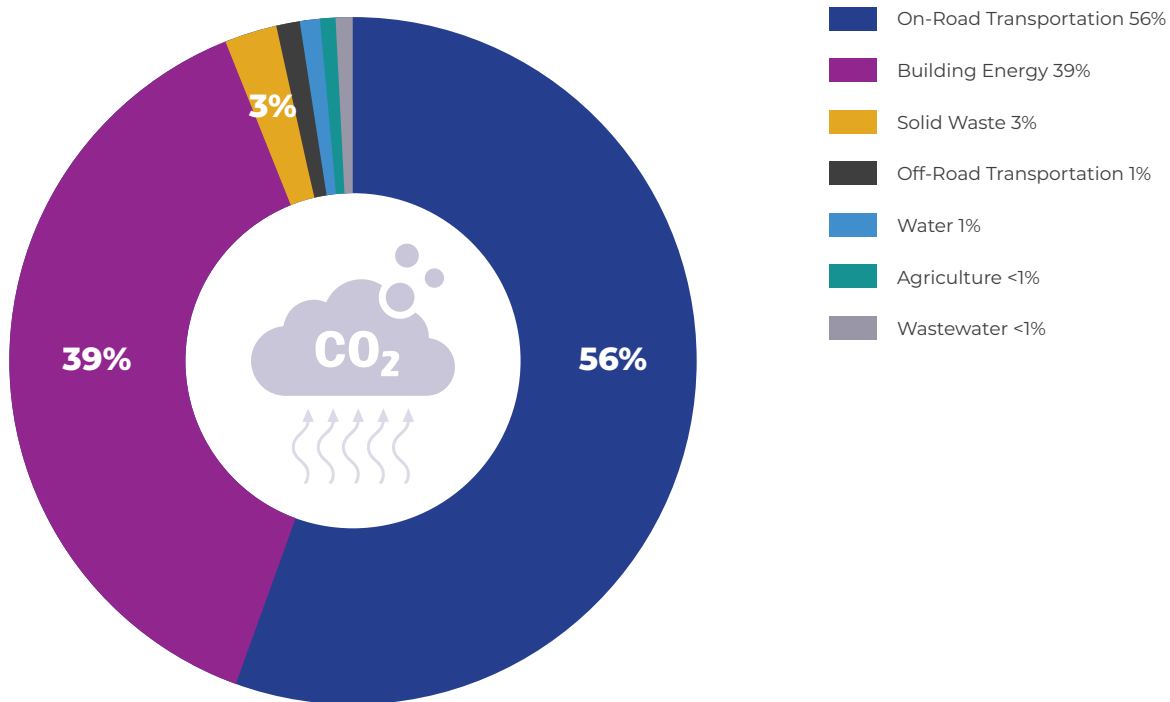
In California, transportation, and the generation of electricity account for over half of all greenhouse gas emissions. Figure RC-4 shows the greenhouse gas emissions by sector in the city. The greenhouse gas generation for the City is like that of the State with transportation and building energy contributing most of the impact. It is important then, to realize that a reduction in trips and more efficient buildings will result in the largest reduction in greenhouse gas emissions.

The development envisioned by this General Plan is intended to reduce the need to drive by improving access by sidewalk, pathway, and trail, and by, arranging land uses close to where people live to give them options for moving around with or without their vehicle. To a certain extent changes in vehicle technology, more energy efficient homes, education, and changes to the building code to encourage solar panels, will reduce greenhouse gas emissions. In addition to these technologies there are some low-tech methods of addressing this issue. These can include maintaining an urban forest of trees, parks, and landscaping, connecting pedestrian paths and bikeways throughout the city to encourage active transportation, giving priority to transit, and encouraging a more compact urban form, all of which are embedded in this General Plan.

This plan also allows for the City to create a program that would allow new development in one part of the city to offset some of its greenhouse gas emission by improving areas of the city where additional pedestrian trails, trees, and other modernization would reduce greenhouse gas emission. This is a smaller and local version of the statewide cap and trade program available to large industries.

CLIMATE CHANGE

Since the early 1990s, scientific consensus holds that the world's population is releasing GHGs faster than the earth's natural systems can absorb them. These gases are released as byproducts of fossil fuel combustion, waste disposal, industrial processes, land-use changes, and other human activities. While often used interchangeably, there is a difference between the terms "climate change" and "global warming." According to the National Academy of Sciences, climate change refers to any significant, measurable change of climate lasting for an extended period that can be caused by both natural factors and human activities. Global warming, on the other hand, is an average increase in the temperature of the atmosphere caused by increased GHG emissions. The use of the term "climate change" is more accurate because it encompasses all changes to climate, not just temperature.

FIGURE RC-4 2018 GREENHOUSE GAS GENERATION BY THE CITY

CLIMATE ACTION PLAN

The State of California Scoping Plan includes guidance for local jurisdictions to reduce GHG emissions through local planning and permitting. The State recommends that local governments evaluate and adopt robust and quantitative locally-appropriate GHG reduction goals that align with the statewide per capita targets of no more than six metric tons of carbon dioxide equivalent (MTCO₂e) per capita by 2030 and no more than two MTCO₂e per capita by 2050. Recognizing that not all statewide emissions can be reduced at the local level, the guidance also states that it is appropriate for local jurisdictions to derive evidence-based local per capita goals based on local emissions sectors and population projections. Local GHG reduction strategies to achieve the statewide targets can be implemented through standalone documents such as Climate Action Plans (CAPs) or can be integrated into other planning documents with policies that include GHG emissions reduction targets. The City has prepared a CAP as a companion to this General Plan. The updated CAP will contain locally set GHG goals and can serve as a performance metric for later projects. Additionally, a qualified climate action plan can help streamline project-level environmental review.

Green Technology is technology that is intended to mitigate or reverse the effects of human activity on the environment.

GOALS AND POLICIES

GOAL RC-1 VISUAL RESOURCES. A beautiful city with stunning views of the San Gabriel Mountains and the Inland Empire.

- RC-1.1 View Corridors.** Protect and preserve existing signature public views of the mountains and the valleys along roadways, open space corridors, and at other key locations.
- RC-1.2 Orient toward View Corridors.** Encourage new development to orient views toward view corridors, valley and mountains.
- RC-1.3 Transfer of Development Rights.** Allow the transfer of development rights from conservation areas to select development areas throughout the city and Sphere of Influence to protect hillsides, natural resources, and views and to avoid hazards and further the City's conservation goals.
- RC-1.4 Dark Sky.** Limit light pollution from outdoor sources, especially in the rural, neighborhood, hillside, and open spaces to maintain darkness for night sky viewing.
- RC-1.5 Transit Corridor Views.** Require that new development along major transit routes and travel corridors include 360-project design and landscape or design screening of outdoor activity, and storage, including views from the transit routes and travel corridors.
- RC-1.6 Hillside Grading.** Grading of hillsides shall be minimized, following natural landform to the maximum extent possible. Retaining walls shall be discouraged and if necessary screened from view.
- RC-1.7 Preservation of Natural Land Features.** Preserve significant natural features and incorporate into all developments. Such features may include ridges, rock outcroppings, natural drainage courses, wetland and riparian areas, steep topography, important or landmark trees and views.

GOAL RC-2 WATER RESOURCES. Reliable, readily available, and sustainable water supplies for the community and natural environment.

- RC-2.1 Water Supplies.** Protect lands critical to replenishment of groundwater supplies and local surface waters (Figure RC-3).
- RC-2.2 Groundwater Recharge.** Preserve and enhance the existing system of stormwater capture for groundwater recharge.
- RC-2.3 Riparian Resources.** Promote the retention and protection of natural stream courses from encroachment, erosion, and polluted urban runoff.

- RC-2.4 Waterways as Amenities.** When considering new development applications and infrastructure improvements where waterways are on-site, adjacent, or nearby, incorporate the waterway into the design as a feature.
- RC-2.5 Water Conservation.** Require the use of cost-effective methods to conserve water in new developments and promote appropriate water conservation and efficiency measures for existing businesses and residences.
- RC-2.6 Irrigation.** Encourage the conversion of water-intensive turf/landscape areas to landscaping that uses climate- and wildfire-appropriate native or non-invasive plants, efficient irrigation systems, greywater, and water efficient site maintenance.
- RC-2.7 Greywater.** Allow and encourage the use of greywater to meet or offset on-site non-potable water demand.

GOAL RC-3 HABITAT CONSERVATION. Wildlife habitats that support various plants, mammals, and other wildlife species.

- RC-3.1 Sensitive Habitat.** Encourage the preservation of the integrity of sensitive land resources that have significant native vegetation and/or habitat value such as riparian habitat areas, creek corridors, Riversidean Alluvial Fan Sage Scrub (RAFSS), wetlands, and sensitive wildlife habitat that supports biological resources.
- RC-3.2 Biological Preserves.** Allow and encourage the expansion of sensitive biological preserve areas (e.g., North Etiwanda Preserve, Day Creek Preserve, and San Sevaine Preserve) and other important habitat areas with an emphasis on wildlife connectivity between habitats and connectivity to the national forest.
- RC-3.3 Wildlife Corridors.** Encourage the creation, maintenance, and protection of open space areas that provide strategic wildlife corridors and vital connectivity between habitat areas.
- RC-3.4 Landscape Design.** Encourage new development to incorporate native vegetation materials into landscape plans and prohibit the use of species known to be invasive according to the California Invasive Plant Inventory.
- RC-3.5 Buffers from New Development.** Require new developments adjacent to identified plant and wildlife habitat areas to establish and maintain a protective buffer.
- RC-3.6 Grading and Vegetation Removal.** Limit grading and vegetation removal of new development activities to the minimum extent necessary for construction and to reduce erosion and sedimentation.

- RC-3.7 Urban Forestry Plan.** Minimize damage associated with wind- and fire-related hazards and risks and address climate change and urban heat island effects through the development of an urban forestry plan that addresses and proper and appropriate landscaping, plant and tree selection and replacement, planting and vegetation management techniques.

GOAL RC-4 CULTURAL RESOURCES. A community rich with historic and cultural resources.

- RC-4.1 Disturbance of Human Remains.** In areas where there is a high chance that human remains may be present, the City will require proposed projects to conduct a survey to establish occurrence of human remains, and measures to prevent impacts to human remains if found.
- RC-4.2 Discovery of Human Remains.** Require that any human remains discovered during implementation of public and private projects within the city be treated with respect and dignity and fully comply with the California Native American Graves Protection and Repatriation Act and other appropriate laws.
- RC-4.3 Protected Sites.** Require sites with significant cultural resources to be protected.
- RC-4.4 Preservation of Historic Resources.** Encourage the preservation of historic resources, buildings, and landscapes.
- RC-4.5 Historic Buildings.** Encourage the feasible rehabilitation and adaptive reuse of older buildings.
- RC-4.6 Paleontological Resources.** Require any paleontological artifacts found within the city or the Sphere of Influence to be preserved, reported, and offered for curation at local museums or research facilities.

GOAL RC-5 LOCAL AIR QUALITY. Healthy air quality for all residents.

- RC-5.1 Pollutant Sources.** Minimize increases of new air pollutant emissions in the city and encourage the use of advance control technologies and clean manufacturing techniques.
- RC-5.2 Air Quality Land Use Compatibility.** Avoid siting of homes, schools, hospitals, and childcare facilities and land uses within 500 feet of land uses that are considered large emitters.
- RC-5.3 Barriers and Buffers.** Require design features such as site and building orientation, trees or other landscaped barriers, artificial barriers, ventilation and filtration, construction, and operational practices to reduce air quality impacts during

construction and operation of large stationary and mobile sources.

- RC-5.4 Health Risk Assessment.** Consider the health impacts of development of sensitive receptors within 500 feet of a freeway, rail line, arterial, collector or transit corridor sources using health risk assessments to understand potential impacts.
- RC-5.5 Impacts to Air Quality.** Ensure new development does not disproportionately burden residents, due to age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, with health effects from air pollution. Prioritize resource allocation, investments, and decision making that improves air quality for residents disproportionately burdened by air pollution because of historical land use planning decisions and overarching institutional and structural inequities.
- RC-5.6 Community Benefit Plan.** Require that any land use generating or accommodating more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week, provide a community benefit plan demonstrating an offset to community impacts of the truck traffic.
- RC-5.7 New Sensitive Receptors Near Existing Industrial Uses.** Avoid placing homes, schools, hospitals, and childcare facilities within 1,000 feet of a land use that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week.
- RC-5.8 New Localized Air Pollution Sources Near Existing Sensitive Receptors.** Avoid placing land uses that accommodate more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week within 1,000 feet of homes, schools, hospitals, and childcare facilities.
- RC-5.9 Truck Hook-Ups at New Industrial or Commercial Developments.** Require new industrial or commercial developments at which heavy-duty diesel trucks idle on-site to install electric truck hook-ups in docks, bays, and parking areas.
- RC-5.10 Clean and Green Industry.** Prioritize non-polluting industries and companies using zero or low air pollution technologies.
- RC-5.11 Dust and Odor.** Require new construction to include measures to minimize dust and odor during construction and operation.

GOAL RC-6 CLIMATE CHANGE. A resilient community that reduces its contributions to a changing climate and is prepared for the health and safety risks of climate change.

- RC-6.1 Climate Action Plan.** Maintain and implement a Climate Action Plan (CAP) that provides best management practices for reducing greenhouse gas emissions.
- RC-6.2 Renewable Energy.** Encourage renewable energy installations and facilitate green technology and business.
- RC-6.3 Reduce Energy Consumption.** Encourage a reduction in community-wide energy consumption.
- RC-6.4 Urban Forest.** Protect the city's healthy trees and plant new ones to provide shade, carbon sequestration, and purify the air.
- RC-6.5 GHG Reduction Goal.** Reduce emissions to 80 percent below 1990 levels by 2050 and achieve carbon neutrality by 2045.
- RC-6.6 Co-Benefits.** Prioritize the development and implementation of GHG reduction measures that also achieve economic, health, social, environmental, and other co-benefits for the City and its residents and businesses.
- RC-6.7 Structural Equity.** Encourage GHG reduction and climate adaptation measures such as trail completion, equipment upgrade, sidewalk connectivity, tree planting, and buffers be included in the City's Capital Improvement Program (CIP) to improve areas of the city where these features are lacking.
- RC-6.8 Reduce Vehicle Trips.** Require Transportation Demand Management (TDM) strategies, such as employer provided transit pass/parking credit, bicycle parking, bike lockers, high-speed communications infrastructure for telecommuting, and carpooling incentives, for large office, commercial, and industrial uses.
- RC-6.9 Access.** Require pedestrian, vehicle, and transit connectivity of streets, trails, and sidewalks, as well as between complementary adjacent land uses.
- RC-6.10 Green Building.** Encourage the construction of buildings that are certified Leadership in Energy and Environmental Design (LEED) or equivalent, emphasizing technologies that reduce GHG emissions.
- RC-6.11 Climate-Appropriate Building Types.** Encourage alternative building types that are more sensitive to and designed for passive heating and cooling within the arid environment found in Rancho Cucamonga.
- RC-6.12 Reduced Water Supplies.** When reviewing development proposals, consider the possibility of constrained future water supplies and require enhanced water conservation measures.

- RC-6.13 Designing for Warming Temperatures.** When reviewing development proposals, encourage applicants and designers to consider warming temperatures in the design of cooling systems.
- RC-6.14 Designing for Changing Precipitation Patterns.** When reviewing development proposals, encourage applicants to consider stormwater control strategies and systems for sensitivity to changes in precipitation regimes and consider adjusting those strategies to accommodate future precipitation regimes.
- RC-6.15 Heat Island Reductions.** Require heat island reduction strategies in new developments such as light-colored paving, permeable paving, right-sized parking requirements, vegetative cover and planting, substantial tree canopy coverage, and south and west side tree planting.
- RC-6.16 Public Realm Shading.** Strive to improve shading in public spaces, such as bus stops, sidewalks and public parks and plazas, through the use of trees, shelters, awnings, gazebos, fabric shading and other creative cooling strategies.
- RC-6.17 Offsite GHG Mitigation.** Allow the use of creative mitigation efforts such as offsite mitigation and in lieu fee programs as mechanisms for reducing project-specific GHG emissions.
- RC-6.18 Water Sources with Low GHG Emissions.** Encourage local and regional water utilities to obtain water from sources with low or no GHG emissions.

GOAL RC-7 ENERGY. An energy efficient community that relies primarily on renewable and non-polluting energy sources.

- RC-7.1 Electric Vehicle (EV) Charging on City Property.** As funding is available, encourage the installation of publicly available electric vehicle charging stations at City-owned buildings, facilities, property, and in the public right-of-way.
- RC-7.2 New EV Charging.** Require new multifamily residential, commercial, office, and industrial development to include charging stations, or include the wiring for them.
- RC-7.3 EV Charging Retrofits.** Encourage existing development to retrofit to include charging stations.
- RC-7.4 New Off-Road Equipment.** When feasible, require that off-road equipment such as forklifts and yard tugs necessary for the operations of all new commercial and industrial developments be electric or fueled using clean fuel sources.
- RC-7.5 Municipal Vehicle Fleet.** Reduce fossil fuel consumption of the City's vehicle fleet by increasing the number of electric or zero emissions vehicles.

- RC-7.6 Efficiency Retrofits.** Encourage existing private property owners to implement energy efficiency retrofits during substantial improvement as defined by the California Building Code.
- RC-7.7 Sustainable Design.** Encourage sustainable building and site design that meets the standards of Leadership in Energy and Environmental Design (LEED), Sustainable Sites, Living Building Challenge, or similar certification.
- RC-7.8 Farmers Market, Fork to Table.** Support microscale agriculture and farmers markets, and similar methods of encouraging locally grown and consumed produce.
- RC-7.9 Passive Solar Design.** Require new buildings to incorporate energy efficient building and site design strategies for the arid environment that include appropriate solar orientation, thermal mass, use of natural daylight and ventilation, and shading.
- RC-7.10 Alternative Energy.** Continue to promote the incorporation of alternative energy generation (e.g., solar, wind, biomass) in public and private development.
- RC-7.11 Community Development Subdivisions.** When reviewing applications for new subdivisions, require residences be oriented along an east-west access, minimizing western sun exposure, to maximize energy efficiency.
- RC-7.12 Solar Access.** Prohibit new development and renovations that impair adjacent buildings' solar access, unless it can be demonstrated that the shading benefits substantially offset the impacts of solar energy generation potential.
- RC-7.13 Energy-Efficient Infrastructure.** Whenever possible, use energy-efficient models and technology when replacing or providing new city infrastructure such as streetlights, traffic signals, water conveyance pumps, or other public infrastructure.
- RC-7.14 Energy Storage Facilities.** The City of Rancho Cucamonga supports the development of energy storage facilities on property owned or controlled by Southern California Edison and will cooperate with Southern California Edison on the development of such facilities in a manner that balances the interests of the community with the need for clean, reliable energy.
- RC-7.15 Utility Preservation.** Public and private development within the City, including multi-purpose trails, shall not interfere with safe and reliable transmission, storage, and generation of electricity. With the exception of utility infrastructure and other public improvements that do not interfere with such infrastructure, permanent structures are not allowed within utility corridors.



Electric Vehicle Charging Station



Solar panels in Central Park



Opening Day at Los Amigos Park



Pacific Electric Inland Empire Trail



Wind energy



Drought tolerant landscape



“Public safety needs to keep up with population growth; people want to move to a safe community.”

***– Community Member
(Public input received during
Forum On Our Future,
July 2020)***

SAFETY IS...

recognizing that natural and human-caused hazards have the potential to harm people and things, the economic impact to people is another form of harm. It is prudent to plan for emergencies and uncertainty that can threaten the safety and security of residents and businesses. Three earthquake faults either bisect the City or pass-through areas nearby, and the city is adjacent to the Angeles and San Bernardino National Forests which increases the potential wildfire. Combined with these threats are the Santa Ana wind conditions that can cause damage even without wildfire. Making matters worse is climate change that could increase the intensity of these threats by resulting in drier and hotter weather. Wetter and more intense winter storms could inundate parts of the city that have never experienced flooding or result in slope instability causing landslides or mudslides.

This Chapter identifies hazards that would affect the city and supports plans to deal with the hazard. While it is not possible to prevent these hazards, the fact that this City has plans, and will allocate the resources to deal with the hazard, will provide comfort to the people affected by them.

STATE LEGAL REQUIREMENTS

State law requires that the General Plan include an element that identifies hazards such as flooding, wildfire, and ground disturbance (Government Code Section 65302 (g)). This Chapter meets the legal requirements for a Safety Element and includes policies intended to reduce injury to people and damage to the city. Relevant issues addressed in this Chapter include seismic and geologic hazards (seismically induced surface rupture, ground shaking, ground failure, slope instability leading to mudslides and landslides, and liquefaction), flooding (includes dam failure), wildland and urban fires, evacuation routes, climate adaptation, and human-caused hazards. Other issues required under this government code section do not apply to the city and are not addressed. The Chapter is also in alignment with other chapters, as required by State law, including: (1) Housing, (2) Land Use, (3) Mobility, and (4) Open Space and Conservation. Rancho Cucamonga has also developed and adopted a Local Hazard Mitigation Plan (LHMP), an Emergency Operations Plan (EOP), a Community Wildfire Protection Plan (CWPP), and an Evacuation Assessment, all of which allow the City to become eligible for federal grant funding to mitigate many of these natural hazards.

The Local Hazard Mitigation Plan (LHMP) serves to reduce injury, loss of life, property damage, and loss of services from natural disasters. This LHMP provides a comprehensive analysis of the natural and human-caused hazards that threaten the city, with a focus on mitigation, allowing the City to remain eligible to receive additional federal and state funding to assist with emergency response and recovery, as permitted by the federal Disaster Mitigation Act of 2000 and California Government Code Sections 8685.9 and 65302.6; and it complements the efforts undertaken by the Safety Element.

The LHMP complies with all requirements set forth under the federal Disaster Mitigation Act of 2000 and received approval from the Federal Emergency Management Agency (FEMA) in 2021. Sections of this Chapter are supplemented by the LHMP, incorporated by reference in this Chapter, as allowed by California Government Code Section 65302(g).



HEART OF THE MATTER

The people of this City will continue to be vulnerable to hazards. Based on current mapping and understanding, areas of greatest concern include portions of the city north of State Route 210 and properties adjacent to flood management infrastructure. Evacuation of these areas would be improved through better roadway connectivity as addressed in the Mobility and Access Chapter. Policies in this General Plan address new development near hazard areas. It is also important that existing and new infrastructure be ready for hazards and be designed for climate change resilience.

Key concerns include the following:

- + Areas along the northern portion of the city are located within Special Study Zones due to active or potentially active earthquake faults. A better understanding of the location of these faults and historic seismic activity will allow the City to mitigate potential seismic hazards.
- + Developed and undeveloped properties within the northern portion of the city are vulnerable to wildfire risks due to their proximity to forested lands and land adapted to periodic wildfire events. New and existing development should effectively manage vegetative fuel loads and maintain adequate fuel modification zones to reduce wildfire potential and spread.
- + Areas of the city north of State Route 210 should be evaluated and analyzed for evacuation purposes to ensure that the circulation network is adequately designed and maintained for daily and emergency purposes.
- + Investments in community amenities and infrastructure should anticipate changes in future conditions resulting from extreme weather events and climatic conditions that diminish these assets' effectiveness.
- + Future developments and community investments should prioritize locations in reduced hazard areas, which will ensure safer future operations and risk reduction.

To better address the potential harm that could result in injury, loss of life, property damage, and monetary loss, Rancho Cucamonga has developed a comprehensive suite of plans and analyses that address these concerns. Each plan plays a critical role in protecting residents and businesses and ensuring continuity of operations and governance. For greater detail and understanding of the issues affecting Rancho Cucamonga along with plans to address those concerns, refer to the following documents:

- + Natural Hazards Existing Conditions Report (2020)
- + Rancho Cucamonga Local Hazard Mitigation Plan Update (2021)
- + PlanRC Evacuation Assessment (2021)
- + Rancho Cucamonga Emergency Operations Plan (2021)
- + Rancho Cucamonga Community Wildfire Protection Plan (2021)

OVERVIEW OF THIS CHAPTER

Safety is a fundamental human need, and this Chapter ensures that people who live in the city, as well as those who will live here in the future, are protected. Constant training for disaster and vigilance for changing threats continues in the city, as will review of new development and the potential for threats.

The following safety goals serve to guide and direct long-term planning in the City of Rancho Cucamonga:

- **Goal S-1 Leadership.** A city that is recognized for its leadership role in resilience and preparedness.
- **Goal S-2 Seismic and Geologic Hazards.** A built environment that minimizes risks from seismic and geologic hazards.
- **Goal S-3 Wildfire Hazards.** A community where wildfire impacts are minimized or reduced through investments in planning and resilience.
- **Goal S-4 Flood Hazards.** A community where developed areas are not impacted by flooding and inundation hazards.
- **Goal S-5 Emerging Hazards.** A built environment that incorporates new data and understanding about changing hazard conditions and climate stressors.
- **Goal S-6 Human Caused Hazards.** A community with minimal risk from airport hazards and hazardous materials.

Goal S-1 affirms the leadership role of the City in the region for hazards planning. Goals S-2 through S-6 ensures that new development is aware of existing hazards and plans for changes anticipated over time. The overarching goal is to maximize training and preparation for unforeseen events and ensure that new development does not put people in harm's way.

The PlanRC Evacuation Assessment identifies the routes predominantly used by the City during emergency incidents that require evacuation. As part of this assessment, the City has identified the scenarios that are most likely to involve evacuation efforts and areas of the city that have limited evacuation routes and/or constraints in conformance with the requirements of Government Code Section 65302 (g) 5 [SB 99] and 65302.15 (AB 747).



Seismically damaged road

SEISMIC HAZARDS

Rancho Cucamonga is susceptible to earthquakes and other seismically induced effects. Seismic hazards can be categorized as primary or secondary, as indicated below. Primary seismic hazards refer to seismic shaking and fault rupture. Secondary seismic hazards refer to liquefaction and earthquake-induced landslides.

SEISMIC SHAKING (PRIMARY)

Seismic shaking is the movement of the Earth's surface during an earthquake, which is generally the primary cause of earthquake damage. Generally, the greater the earthquake magnitude and proximity to the epicenter, the greater the potential for damage and/or loss. The intensity of seismic shaking directly relates to the amount of energy released by the seismic event, which is dictated by the depth of the fault movement and the length of the fault that has moved. Shaking intensity is typically dictated by the proximity to the location of the seismic event. The closer to the epicenter (point of origin for an earthquake), the greater the shaking felt. Seismic shaking is of particular concern to Rancho Cucamonga due to the proximity to active faults like the Cucamonga Fault, Red Hill-Etiwanda Avenue fault (both located within the city), the San Andreas Fault (15.5 miles northeast of the city), and the San Jacinto Fault (14 miles northeast of the city). Both the San Andreas and San Jacinto faults can generate earthquakes with magnitudes greater than 7.0 on the Richter scale.

FAULT RUPTURE (PRIMARY)

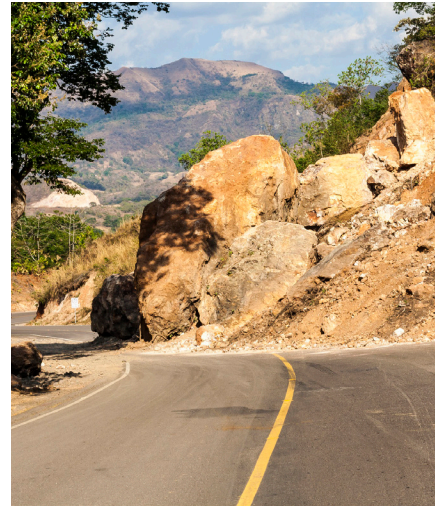
Earth is covered in tectonic plates in constant movement, shifting and moving closer together, or further apart, or even past one another. This movement past one another commonly causes friction, resulting in plates that "stick." An earthquake is the release of built-up pressure from sticking plates, releasing the build-up of energy. These rapid movements can potentially cause earthquake fault rupture. Fault rupture is hazardous if structures are built on top of faults or if infrastructure crosses faults. If fault rupture occurs, structures within the area of movement could be damaged. Areas of known fault rupture hazard in California are identified in Alquist-Priolo Special Study Zones. For Rancho Cucamonga, two faults are identified within these zones (Cucamonga Fault and Etiwanda Fault Scarp), as depicted in Figure S-1, Rancho Cucamonga Special Study Fault Zones. The City has designated a fault hazard zone for the Red Hill Fault, which requires the same level of analysis required by the California Geological Survey in compliance with the Alquist Priolo Earthquake Zoning Act.

LIQUEFACTION (SECONDARY)

Liquefaction is a phenomenon that occurs when seismic shaking causes saturated soils to lose strength and behave like a liquid. This behavior poses significant difficulties for any building or structure in areas where liquefaction can occur. Additionally, underground structures, pipelines, or storage facilities are also vulnerable to liquefaction. Within the city, small areas near Hellman Avenue and Base Line Road, and west of Vineyard Avenue and south of Base Line Road (Figure S-2) are identified as having liquefaction potential requiring additional analysis and potential mitigation

EARTHQUAKE-INDUCED LANDSLIDE (SECONDARY)

Earthquake-induced landslide areas are defined as steep topography areas and weak geologic formations that become unstable during an intense seismic event. These areas are predominantly located in the undeveloped northern portions of the city, as shown in Figure S-2, Potential Liquefaction and Earthquake-Induced Landslides. Additional analysis and potential mitigation may be required for lands within these areas. For additional details on slope stability issues and concerns, please refer to the Rancho Cucamonga Local Hazard Mitigation Plan Update.

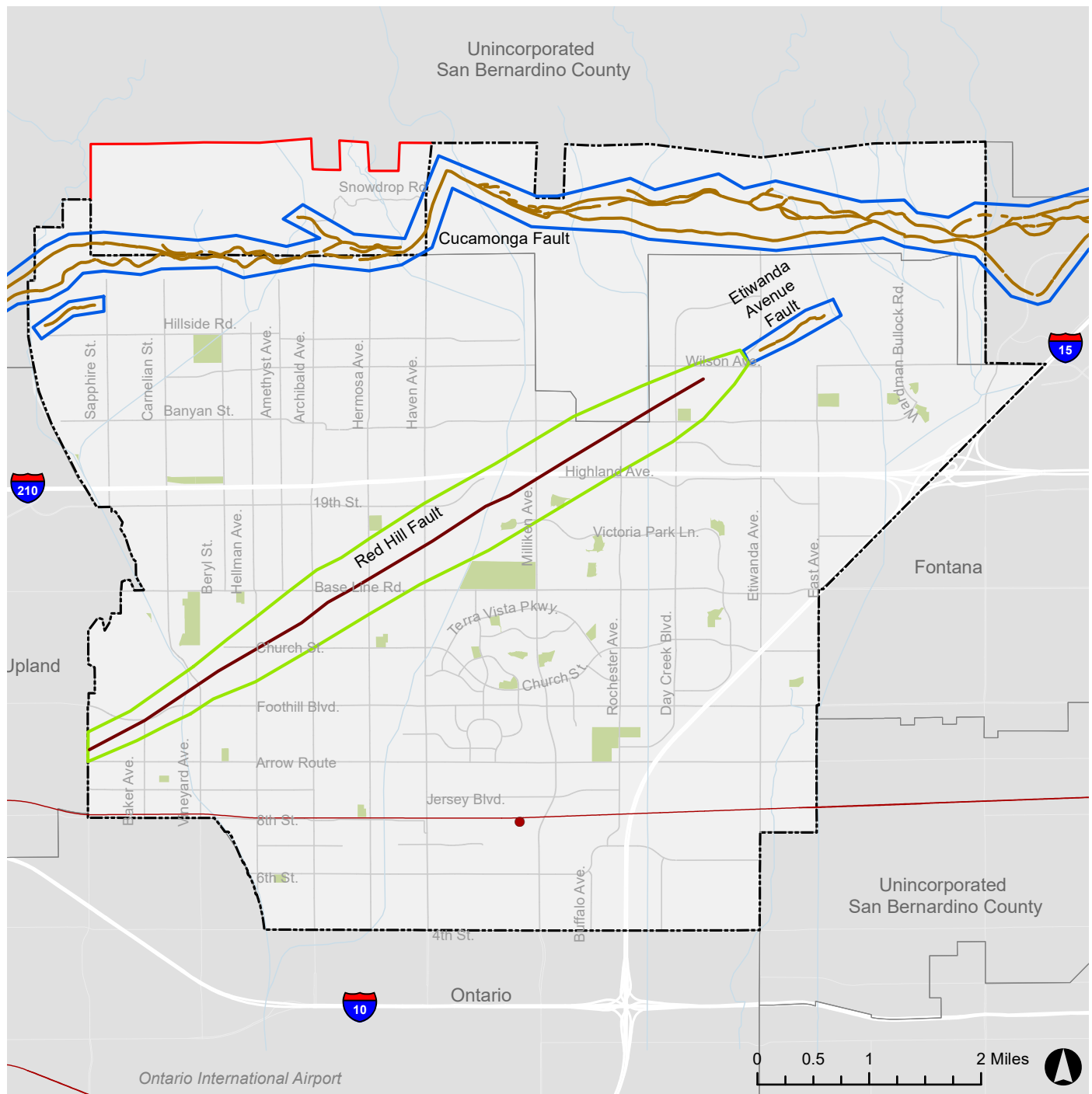


Landslide

WILDFIRE

The most common type of natural hazards in California are wildfires, which can burn large areas of undeveloped or natural land quickly. They often begin as smaller fires caused by lightning strikes, downed power lines, or unattended campfires. Small fires quickly become large fires when low humidity, high temperatures, and strong winds combine to create critical weather conditions. Santa Ana winds can carry burning embers over a mile, starting new fires well ahead of the main body of a wildfire. Periods of prolonged drought increase wildfire events at times when water for firefighting is scarcer. Typically, wildfires pose minimal threat to people and buildings in urban areas but increasing human encroachment into natural areas increases the likelihood of injury to people and animals, along with damage to structures and the environment. This encroachment occurs in areas identified as the wildland-urban interface which are locations where development meets undeveloped land with vegetation susceptible to wildland fires. These are the areas classified by Cal FIRE as high and very high fire hazard severity zones. While Rancho Cucamonga is primarily an urban environment, its geographical location and proximity to the chaparral ecosystem that dominates the foothills of the Angeles and San Bernardino National Forests increases the likelihood of wildfires in and near Rancho Cucamonga. All these factors increase the opportunity for wildfires to ignite, grow, and spread into the city.

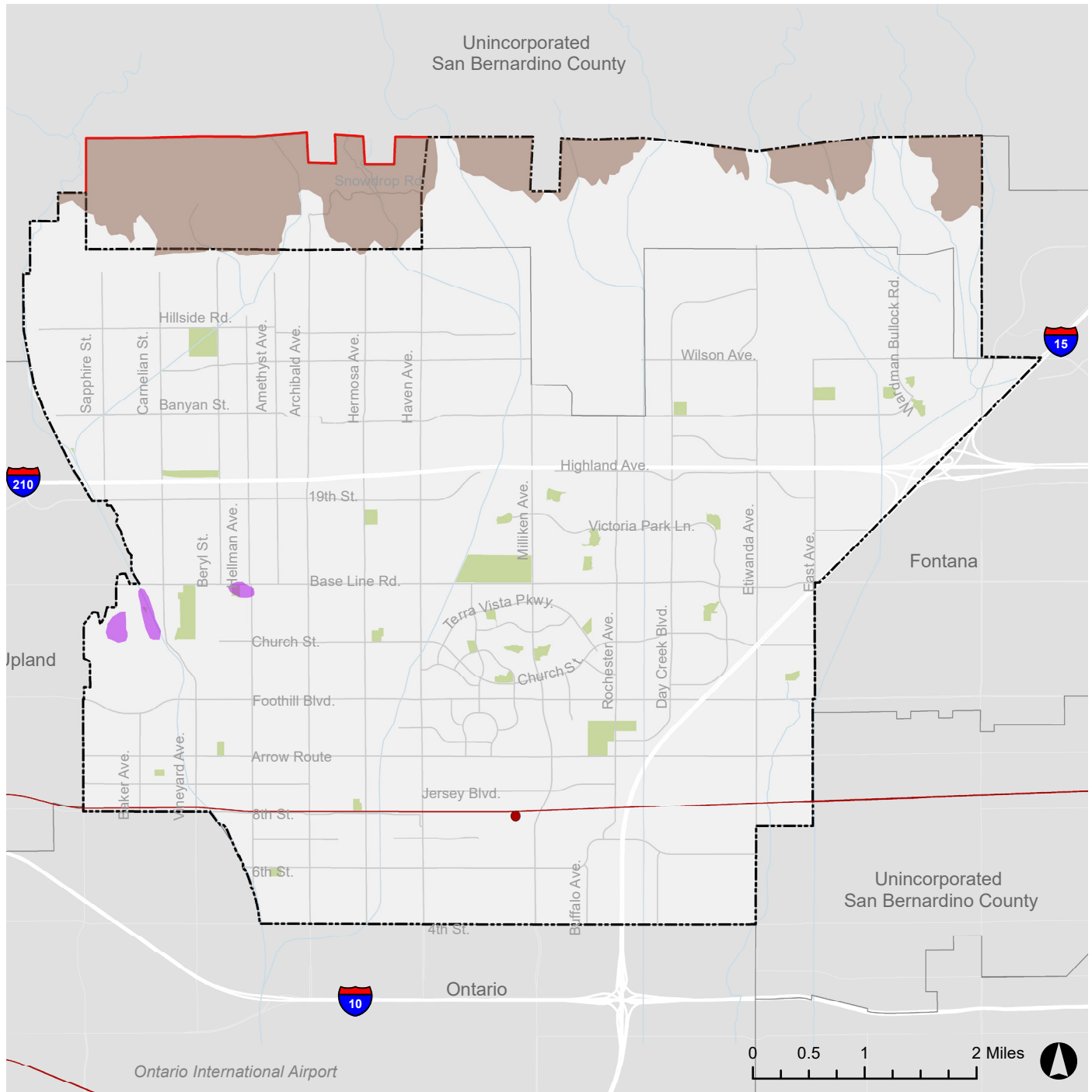
FIGURE S-1 RANCHO CUCAMONGA SPECIAL STUDY FAULT ZONES



Fault Hazard Zones

- Alquist-Priolo Faults
- Alquist-Priolo Special Study Zone
- Red Hill Fault
- Red Hill Fault Special Study Zone
- City Boundary
- Sphere of Influence
- Adjacent City Limits
- Rancho Cucamonga Station
- Metrolink
- Parks
- Waterways

Atlas Planning Solutions, 2020 /
Sources: City of Rancho Cucamonga,
2020; SCAG, 2020; County of San
Bernardino, 2020; California Geological
Survey, 2021

FIGURE S-2 POTENTIAL LIQUEFACTION AND EARTHQUAKE-INDUCED LANDSLIDES**Secondary Seismic Hazards**

- Liquefaction Hazard Zone
- Earthquake-Induced Landslide Hazard Zone

- City Boundary
- Sphere of Influence
- Adjacent City Limits
- Rancho Cucamonga Station
- Metrolink
- Parks
- Waterways

Atlas Planning Solutions, 2020 |
 Sources: City of Rancho Cucamonga,
 2020; SCAG, 2020; County of San
 Bernardino, 2020; California Geological
 Survey, 2021



Wildfire spreading along roadside

A key component of effective fire response and suppression is the ability to meet peak-load water supply requirements. The City and Fire Protection District require all developments to install adequate water conveyance facilities to meet these requirements. To ensure adequate water supplies are available, all development applications are required to verify with the appropriate water supplier (Cucamonga Valley Water District or Fontana Water Company) that adequate water supplies are available to serve the proposed development. If this requirement is not met, the proposed development cannot begin construction.

Figure S-3, Historic Wildfire Perimeters, displays the perimeters for key historic wildfires that have occurred within the city from 1970 through 2014. In 2003 the Grand Prix Fire and the Old Fire burned large portions of the Angeles and San Bernardino National Forests. The Old Fire burned over 91,000 acres destroying over 1,200 structures. The Grand Prix Fire burned over 69,000 acres and destroyed nearly 200 residences. This fire impacted the City, burning a large portion of the Wildland Urban Interface Areas (WUIFAs) areas adjoining the national forest and destroying 15 homes in the process.

Figure S-4, Wildland Urban Interface Fire Area (WUIFA), depicts the Rancho Cucamonga WUIFA along with the essential facilities located throughout the city. The WUIFA includes Cal FIRE Very High Fire Hazard Severity Zones within the City's Sphere of Influence (State Responsibility Area), the City's Local Responsibility Area, and other areas potentially threatened by wildfires based on historical fire activity and prevalent vegetation types. Properties located within these areas must adhere to State and Rancho Cucamonga Fire Protection District wildfire requirements.



Efforts to manage flooding

FLOOD HAZARDS

Floods occur when there is too much water on the ground to be held within local water bodies, causing water to accumulate in naturally dry areas. They are often caused by heavy rainfall, though floods can also occur after a long period of moderate rainfall or if unusually warm weather causes mountain snow to melt faster than expected. Worsening drought conditions caused by climate change may exacerbate the effects of flooding, as surfaces that normally absorb water can quickly dry out and become less permeable.

Rancho Cucamonga has a long history of flooding and is especially vulnerable during the winter storm season. Figure S-5, FEMA Flood Hazard Zones, identifies the significant flood areas of concern, which include both 100-year and 500-year FEMA floodplains. These floodplain designations depict areas of potential flooding based on the probability of occurring in a given year. The 100-year floodplain identifies areas that have a 1% probability (1 in 100) of flooding. The 500-year floodplain identifies areas that have a 0.2% probability (1 in 500) of flooding. Most of the 100-

year floodplains within the city are located within undeveloped areas or flood control basins and channels that convey waters through the city. While these flood control facilities are intended to retain and manage floodwaters, there is the potential for inundation of portions of the city if failure occurs. Figure S-6, Dam Inundation Zones, identifies the areas where inundation could occur if a flood control facility were to fail, causing downstream impacts.

Both the FEMA flood zones and dam inundation zones depicted in this Chapter are the known locations of potential flooding currently available to the City. If new data and information becomes available, the City will take it into consideration, where necessary.

CLIMATE ADAPTATION

Climate change is anticipated to result in increased average temperatures and precipitation pattern variability globally. These changes translate into specific impacts to the city that may include increased frequency and intensity of wildfires, severe weather events, flooding, landslides, and reduced water availability associated with droughts. Other impacts anticipated from climate change include food insecurity, increases in vector-borne diseases, degradation of air quality, reduced ability to enjoy outdoors, and potential economic impacts due to uncertainty and changing conditions. For additional discussion on climate change impacts refer to the Rancho Cucamonga Local Hazard Mitigation Plan Update (hyperlink added upon adoption).

While many residents within the city could adapt to these types of changes, vulnerable populations—including low-income communities, communities of color, senior citizens, linguistically isolated populations, individuals with disabilities or preexisting medical conditions, and individuals experiencing homelessness—are anticipated to be disproportionately affected by these effects.

SEVERE WEATHER HAZARDS

Severe weather hazards in Rancho Cucamonga include drought, extreme heat, and severe wind. These hazards have affected plants and animals and damaged properties and vehicles. Future effects are anticipated due to climate change, which can contribute to the frequency and intensity of severe weather events. Please refer to the [Greenhouse Gas Emissions and Climate Change Vulnerability Assessment Existing Conditions Report](#) for additional detail.

Drought

A drought is a long period with substantially less precipitation than usual. The primary direct impact of a drought is the reduction of available water

“Specific care must be taken in order to adapt Rancho to the specific climate issues it will face in the future including drought, air pollution, excessive heat, and traffic.”

***– Community Member
(Public input received from
the PlanRC Survey #2,
Summer 2020)***

FIGURE S-3 HISTORIC WILDFIRE PERIMETERS

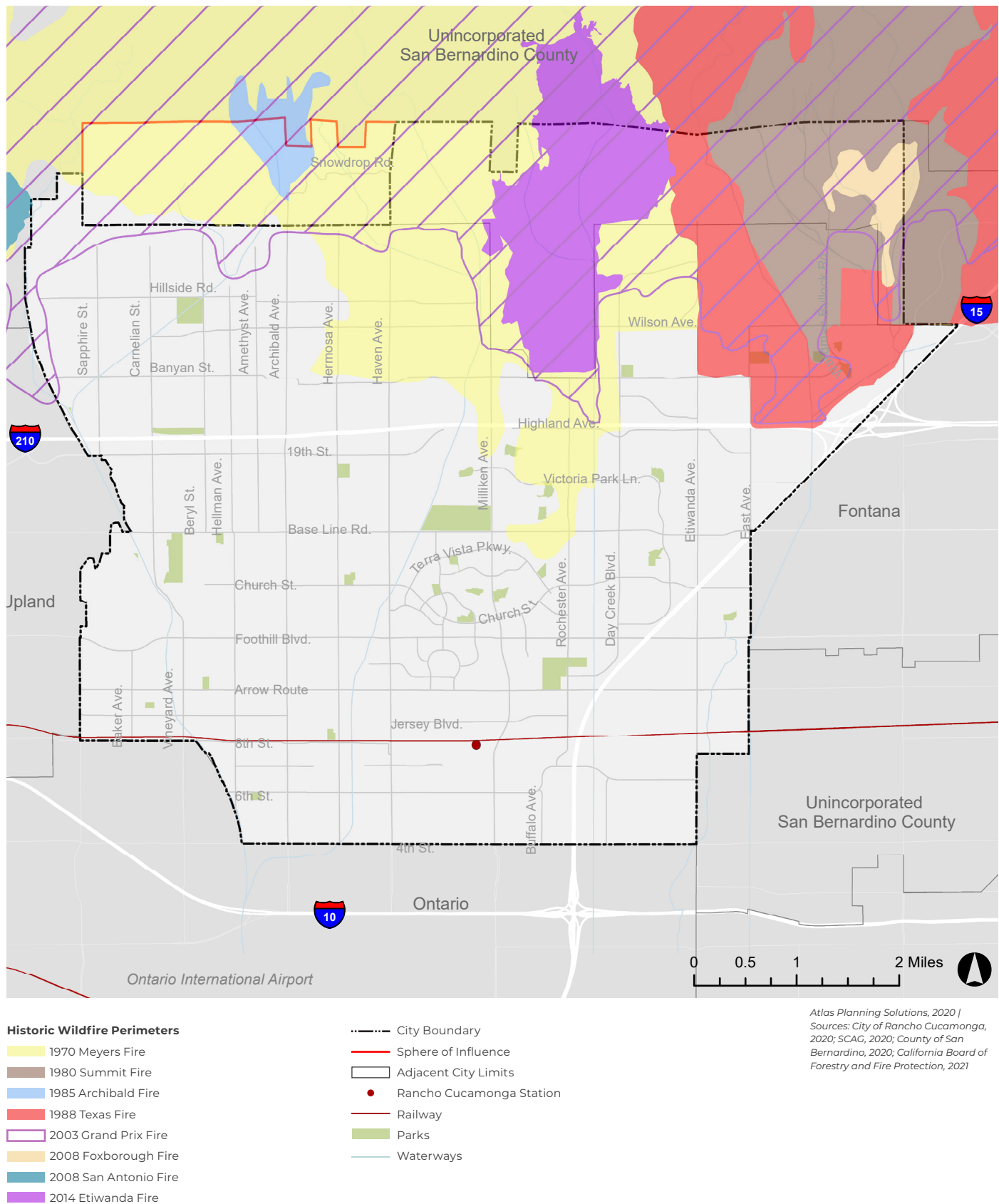


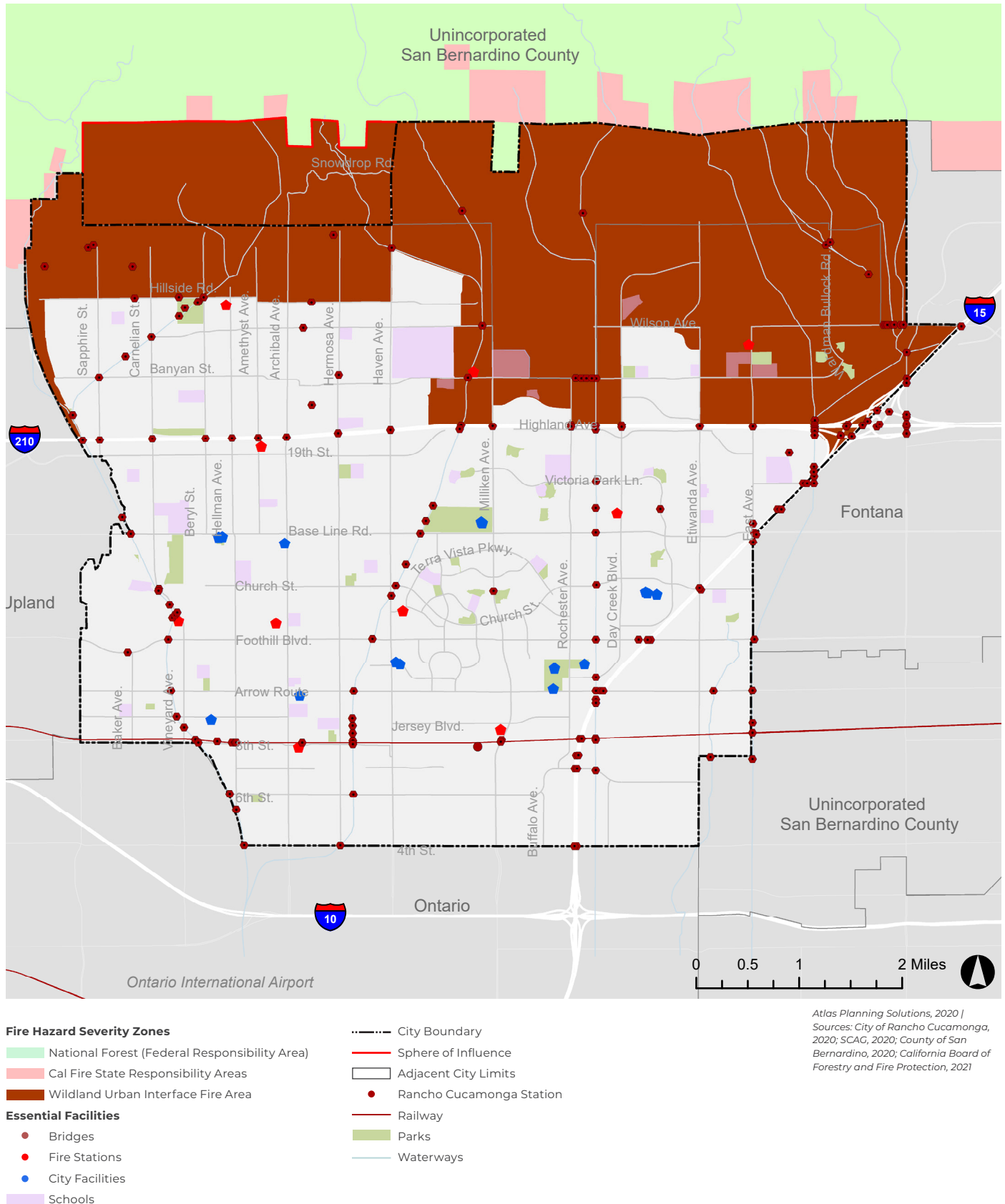
FIGURE S-4 WILDLAND URBAN INTERFACE FIRE AREA (WUIFA)

FIGURE S-5 FEMA FLOOD HAZARD ZONES

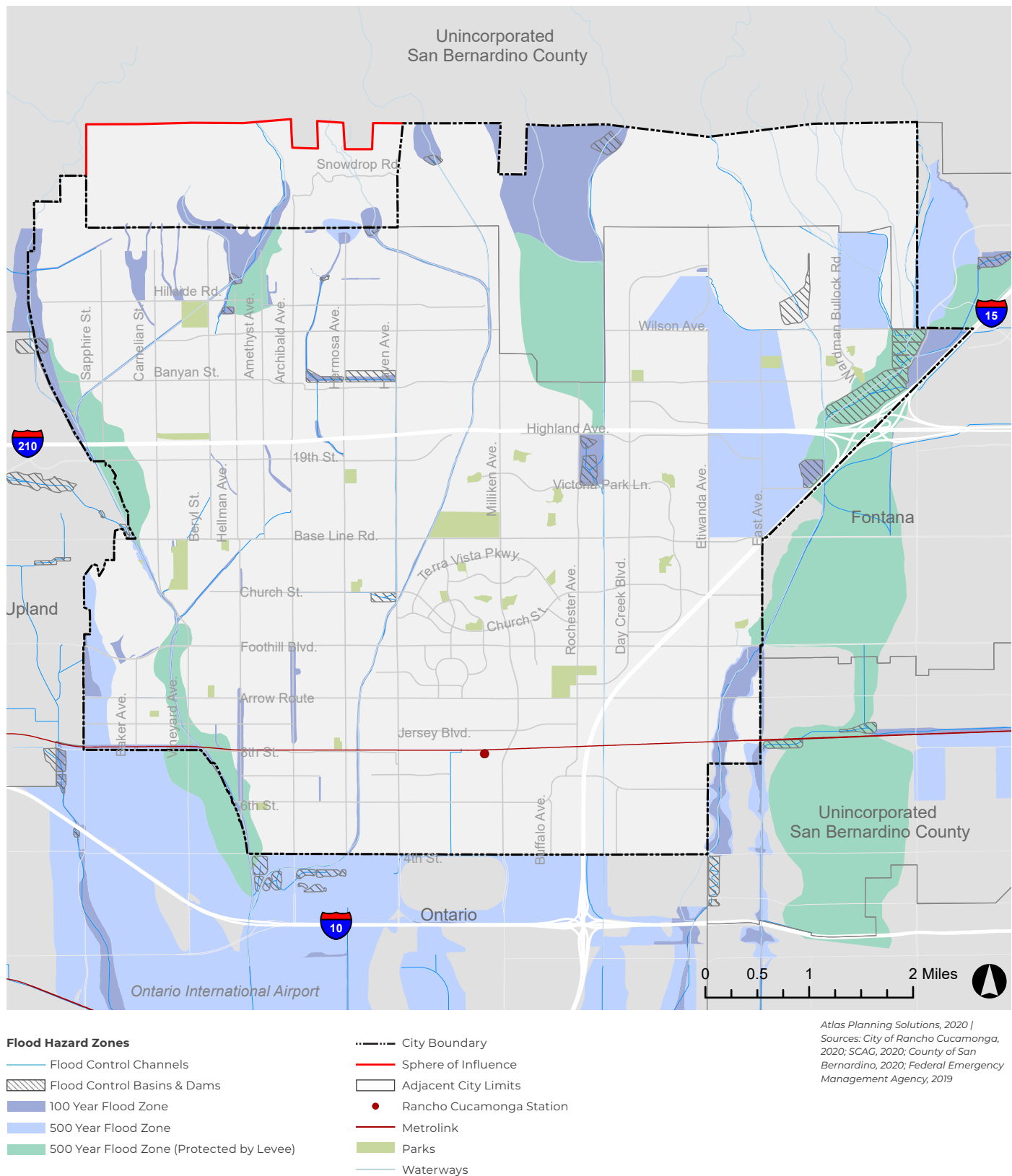
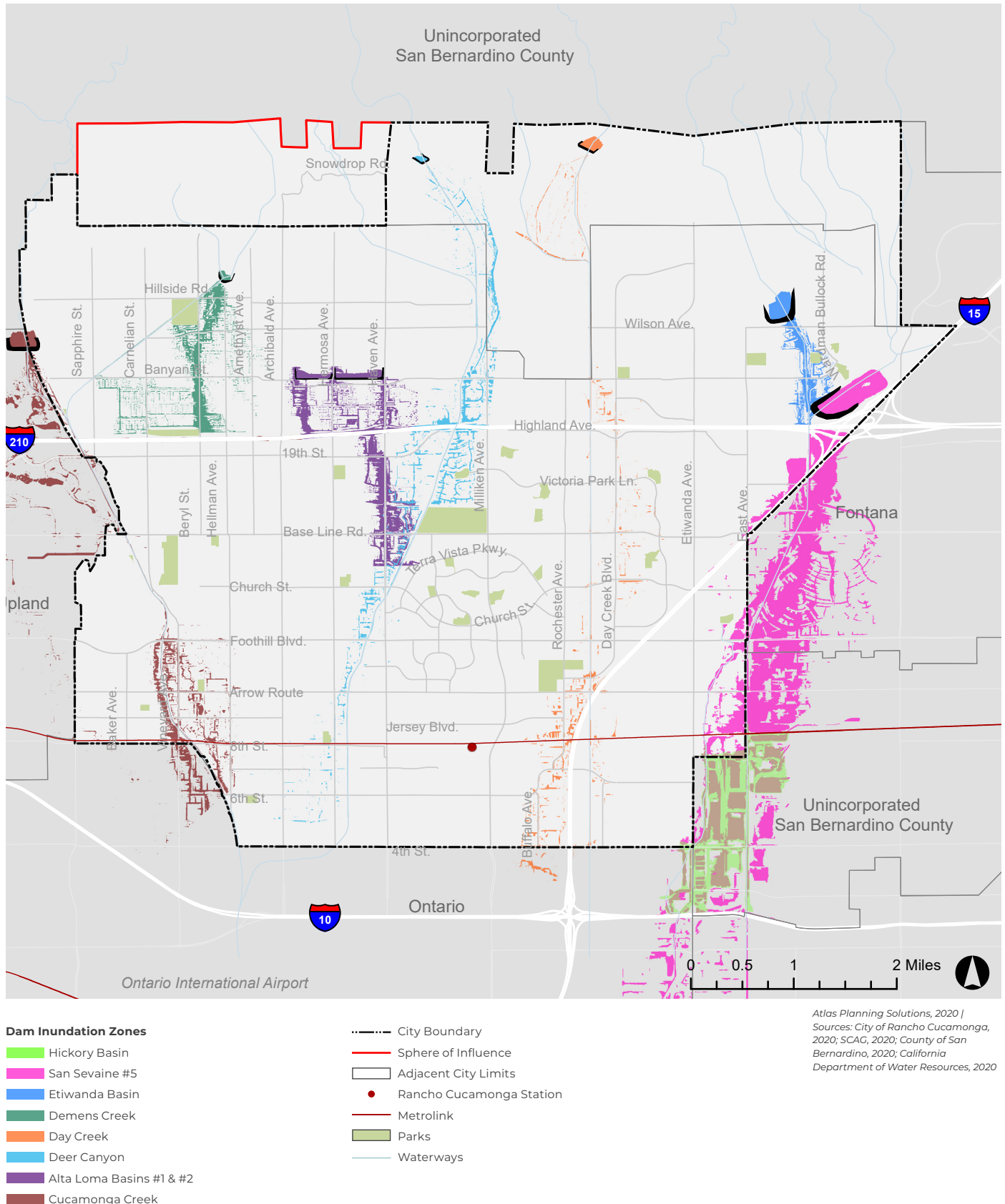


FIGURE S-6 DAM INUNDATION ZONES





Fallen tree from severe winds

supplies. Water reduction is particularly concerning in agricultural areas and natural environments, but it can also affect landscaping in urban areas or affect human health in extreme cases. Droughts are generally regional events; however, some communities experience “long-distance drought” if the water source areas—potentially hundreds of miles away—are experiencing drought. Rancho Cucamonga currently receives nearly half of its water supply from imported sources that have historically been impacted by drought conditions.

Extreme Heat

Extreme heat is a period when temperatures are abnormally high relative to the normal temperature range. Extreme heat events include:

- + **Extreme Heat Days:** a day during which the maximum temperature surpasses 98 percent of all historic high temperatures for the area,
- + **Warm Nights:** a day between April and October when the minimum temperature exceeds 98 percent of all historic minimum daytime temperatures,
- + **Extreme Heat Waves:** a successive series of extreme heat days and warm nights where extreme temperatures do not abate; typically, four successive extreme heat days and warm nights

According to Cal-Adapt, an extreme heat day for Rancho Cucamonga is when the temperature exceeds 103.9° F, and a warm night exceeds 68.7°F. Between 2006 and 2019, the city experienced an average of eight extreme heat days annually, which are projected to increase between 21 and 35 days by the end of the century.

Severe Wind

Wind is simply the movement of air caused by differences in atmospheric pressure and temperature. High-pressure air will naturally move to areas of low pressure. During certain times of the year, these conditions can cause high-speed winds (Santa Ana Winds), which are fast and forceful enough to be dangerous to people, damaging to structures (public facilities, infrastructure, homes, and utilities), and could result in uprooted or damaged trees. Severe wind events can also cause the initiation of Public Safety Power Shutoff (PSPS) events by utility providers (Southern California Edison) that distribute electricity to the city. These events de-energize power grids in high fire risk areas during wind events to reduce the potential of wildfire ignition and spread. A significant Santa Ana wind event that impacted Rancho Cucamonga in 2020 had wind gusts of more than 70 miles per hour. When strong winds combine with warm temperatures and very low humidity, the potential for extreme fire conditions increases. Usually during these conditions, the National Weather Service issues, a red flag warning. The 2014 Etiwanda Fire occurred under these types of conditions, with wind gusts that reached 80 miles per hour.

HUMAN CAUSED HAZARDS

Rancho Cucamonga is located along major ground and air transportation corridors. As a result, a variety of human-caused hazards associated with air and ground transportation could impact the community. Proximity to airports requires consideration for land uses and development patterns to ensure airport operations will not conflict with surrounding uses. Since the city is located approximately 3.2 miles north of the Ontario International Airport and 4.5 miles east of Cable Municipal Airport in the City of Upland, portions of Rancho Cucamonga may be affected by these facilities. The southwestern portion of the city is located within the Ontario International Airport Influence Area, which will require compliance with applicable regulations of the Federal Aviation Administration (FAA) and consideration of the Airport Land Use Compatibility Plan.

The release of hazardous materials is another type of human-caused hazard that could impact residents and businesses. Numerous types of hazardous materials and chemicals are transported and used throughout homes and businesses within the city. A majority of the transportation routes used to transport these materials include major roadways, freeways, and rail lines. Interstate 15 (I-15) and State Route 210 (SR-210) are located within Rancho Cucamonga and Interstate 10 (I-10) is less than a mile south of the city limit.



Hazardous materials clean up

GOALS AND POLICIES

GOAL S-1 Leadership. A city that is recognized for its leadership role in resilience and preparedness.

- S-1.1 City Staff Readiness.** Ensure City staff and departments demonstrate a readiness to respond to emergency incidents and events.
- S-1.2 Culture of Preparedness.** Promote a culture of preparedness for businesses and residents that empowers them to increase their resilience to hazard related events and a changing climate.
- S-1.3 Evacuation Capacity.** Require new developments, redevelopments, and major remodels to enhance the City's evacuation network and facilities and comply with the City's Evacuation Assessment.
- S-1.4 WUIFA Access Points.** Require all new developments and redevelopments within the WUIFA to provide a minimum of two points of access by means of public roads that can be used for emergency vehicle response and evacuation purposes.
- S-1.5 Enhanced Circulation.** In areas of the city with limited access routes and circulation challenges, require additional roads



Emergency response to wildfire activity

and improvements to ensure adequate emergency vehicle response and evacuation.

- S-1.6 Evacuation Road Widths.** Require any roads used for evacuation purposes to provide at least 26 feet of unobstructed pavement width.
- S-1.7 Maintenance of Plans.** Maintain and regularly update the City's Local Hazard Mitigation Plan (LHMP) as an integrated component of the General Plan, in coordination with the Community Wildfire Protection Plan (CWPP), the Emergency Operations Plan (EOP), the Evacuation Plan, and Standardized Emergency Management System (SEMS) compliant disaster plans to maintain eligibility for grant funding.
- S-1.8 Regional Coordination.** Ensure regional coordination continues with neighboring jurisdictions, County, State, and Federal agencies on emergency management and risk reduction planning and activities.
- S-1.9 Mutual Aid.** Ensure mutual aid agreements with Federal, State, local agencies, and the private sector establish responsibility boundaries, joint response services, and multi-alarm and station coverage capabilities.

GOAL S-2 Seismic and Geologic Hazards. A built environment that minimizes risks from seismic and geologic hazards.

- S-2.1 Fault Setbacks.** Require minimum setbacks for structures proposed for human occupancy within State and City Special Study Zones. Setbacks will be based on minimum standards established under State law and recommendations of a Certified Engineering Geologist and/or Geo-technical Engineer.
- S-2.2 Building Functionality.** Require enhanced siting, design, and construction standards that focus on building functionality for new critical public facilities and key essential (private) facilities after a seismic event.
- S-2.3 Seismically Vulnerable Buildings.** Prioritize the retrofit by private property owners of seismically vulnerable buildings (including but not limited to unreinforced masonry, soft-story construction, and non-ductile concrete) as better information and understanding becomes available.
- S-2.4 Transfer of Development Rights.** Allow the transfer of development rights from areas of significant seismic and geologic hazards to select development areas throughout the City and Sphere of Influence.
- S-2.5 Hillside Hazards.** Prioritize regulations and strategies that reduce geologic hazard risk to properties and loss of life.

GOAL S-3 Wildfire Hazards. A community where wildfire impacts are minimized or reduced through investments in planning and resilience.

- S-3.1 Fire Risk Reduction.** Apply all state and local codes and regulations (fire safe design, adherence to Standard 49-1) to new development, redevelopment, and major remodels in the WUIFA.
- S-3.2 Fire Protection Plans.** All new development, redevelopment, and major remodels in the WUIFA will require the preparation of Fire Protection Plans (FPPs) to reduce fire threat, in accordance with Fire District policies and procedures.
- S-3.3 Vegetation Management.** Owners of properties and public/private roads within and adjacent to the WUIFA are required to conduct brush clearance and fuel modification to reduce fire ignition potential and spread.
- S-3.4 Buffer Zones.** Require development projects to incorporate buffer zones as deemed necessary by the City's Fire Marshal for fire safety and fuel modification.
- S-3.5 Water Supply.** All developments will meet fire flow requirements identified in the Fire Code.
- S-3.6 Coordination with Agencies.** Coordinate with State, regional, and local agencies and service providers on fire risk reduction planning and activities.
- S-3.7 Wildfire Awareness.** Assist residents and property owners with being better informed on fire hazards and risk reduction activities in the WUIFA.
- S-3.8 New Essential Facilities (WUIFA).** Prohibit the siting of new essential public facilities (including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities) within the WUIFA, unless appropriate construction methods or strategies are incorporated to minimize impacts.

A fire protection plan (FPP) approved by the fire code official, is required for all new development within the WUIFA. FPPs are required to include mitigation strategies that take into consideration location, topography, geology, flammable vegetation, sensitive habitats/species, and climate of the proposed site. FPPs must address water supply, access, building ignition and fire resistance, fire protection systems and equipment, defensible space, vegetation management, clearance around buildings and structures, and long-term maintenance. All required FPPs must be consistent with the requirements of the California Building and Residential Codes, The California Fire Code as adopted by the Fire District, and the City of Rancho Cucamonga Municipal Code.

GOAL S-4 Flood Hazards. A community where developed areas are not impacted by flooding and inundation hazards.

- S-4.1 New Essential Facilities (Flood).** Prohibit the siting and construction of new essential public facilities within flood hazard zones, when feasible. If an essential facility must be located within a flood hazard zone, incorporate flood mitigation to the greatest extent practicable.
- S-4.2 Flood Risk in New Development.** Require all new development to minimize flood risk with siting and design measures, such as grading that prevents adverse drainage



Bioswales help reduce stormwater runoff

impacts to adjacent properties, on-site retention of runoff, and minimization of structures located in floodplains.

- S-4.3 500-Year Floodplain.** Promote the compliance of 100-year floodplain requirements on properties located within the 500-year floodplain designation.
- S-4.4 Flood Infrastructure.** Require new development to implement and enhance the Storm Drain Master Plan by constructing stormwater management infrastructure downstream of the proposed site.
- S-4.5 Property Enhancements.** Require development within properties located adjacent, or near flood zones and areas of frequent flooding to reduce or minimize run-off and increase retention on-site.
- S-4.6 Regional Coordination.** Promote regional flood management and mitigation projects with other agencies (San Bernardino County Flood Control, Army Corps of Engineers, and adjacent jurisdictions) to address flood hazards holistically.
- S-4.7 Dam Operators.** Coordinate with agencies operating or managing dam facilities that can inundate the city, on operations, maintenance, and training activities and provide the latest Emergency Action Plans annually.

GOAL S-5 Emerging Hazards. A built environment that incorporates new data and understanding about changing hazard conditions and climate stressors.

- S-5.1 Future Conditions.** Ensure future climatic conditions and public health emergencies are considered as part of community resilience and investment efforts.
- S-5.2 Urban Forestry Plan.** Minimize damage associated with wind-related hazards and address climate change and urban heat island effects through the development of an urban forestry plan and proper landscaping planting and management techniques.
- S-5.3 Soil Transport.** Require that properties with high wind-blown soil erosion potential such as agricultural operations and construction sites prevent soil transport and dust generation wherever possible.
- S-5.4 Extreme Heat Vulnerabilities.** Require that new developments, major remodels, and redevelopments address urban heat island issues and reduce urban heat island effects for the proposed project site and adjacent properties.
- S-5.5 Resilience Resources.** Require new developments and redevelopments to incorporate resilience amenities such as,

but not limited to community cooling centers, emergency supplies, and backup power that can be used by residents and businesses within a 1/4-mile radius of the location.

- S-5.6 **Underground Utilities.**** Promote the under-grounding of utilities for new development, major remodels, and redevelopment.
- S-5.7 **Future Adaptation.**** Future climate adaptation-oriented projects will incorporate natural infrastructure to the greatest extent practicable.
- S-5.8 **Climate Resiliency.**** Address climate resiliency and inequities through the planning and development process.
- S-5.9 **Address High Winds.**** Require buildings and developments exposed to high wind conditions to incorporate design elements and features that minimize or reduce damage to people, structures, and the community.



Work to underground utility poles and wires

GOAL S-6 Human Caused Hazards. A community with minimal risk from airport hazards and hazardous materials.

- S-6.1 **Planned Development.**** Promote development patterns that integrate Crime Prevention Through Environmental Design (CPTED) principles that reduce the potential for human-caused hazards.
- S-6.2 **Neighboring Properties.**** Encourage properties that store, generate, or dispose of hazardous materials to locate such operations as far away as possible from areas of neighboring properties where people congregate.
- S-6.3 **Site Remediation.**** Encourage and facilitate the adequate and timely cleanup of existing and future contaminated sites and the compatibility of future land uses.
- S-6.4 **Airport Planning.**** Protect Rancho Cucamonga interests regarding land use and safety by participating in the airport land use planning process for Ontario International Airport.
- S-6.5 **Height Restrictions.**** Require proposed developments within the Ontario Airport Influence Area meet the height requirements associated with FAR Part 77 standards.
- S-6.6 **Development Near Airport.**** New development within the Ontario Airport Influence Area shall be consistent with the approved Airspace Protection Zones identified in the latest version of the Airport Land Use Compatibility Plan.
- S-6.7 **Railroad Safety.**** Minimize potential safety issues and land use conflicts when considering development adjacent to the railroad right-of-way.



NOISE IS...

energy overflow from the activities of people in a vibrant city. Certainly, noise can be unwelcome at times, but a world-class city never sleeps, and people make noise going about their daily routine. At the technical level, noise is simply unwanted sound. The sound of a concert for example, may be welcomed by the attendees, but perhaps not so much for those who cannot attend. Similarly, essential activities like street sweeping, must occur when few people are about, meaning that the noise may offend those who are trying to sleep. Urban places are noisy because they are full of life. The purpose of this Chapter is to ensure that noise is managed effectively and that there are still quiet places to sleep, relax, and recharge.

STATE LEGAL REQUIREMENTS

California law requires that a General Plan include an element that addresses noise. This Chapter was prepared to meet the requirements of Government Code Section 65302(f)) and addresses both noise and vibration. As required, this Chapter identifies noise in the community from a variety of sources and supports a pattern of land uses designed to minimize exposure of residents to excessive noise. This Chapter includes possible solutions to address existing and foreseeable noise problems and establishes areas where more noise may be acceptable.

HEART OF THE MATTER

People are noisy. We move about, use equipment, build things, talk, sing, shout, and laugh. People play music, cheer for sports, have dogs, and generally make themselves known. These are sounds of life and are welcome in most instances. Anyone with children, or experience near a school during recess, understands. To most, these are good sounds and would not be considered noise in the right context.

Where noise becomes an issue is when it regularly disturbs sleep, discourages the enjoyment of the outdoors, and affects the daily routine of people. When this occurs, it is essential to lower the level of noise. Ideally, this is done with project design that keeps people away from noisy areas. However, sometimes it is both prudent, and desirable, to live near noise. For example, living near transit gives people the opportunity to ride rather than drive to their destination, yet trains are noisy. Another example would be living in an area with lively restaurants and outdoor music. Wonderful, yet at times also noisy. In these instances, the level of noise can be lowered by building and site design so that people can both sleep and play.

The most difficult noise to reduce is from transportation. Cars, trucks, and trains all generate noise that affect those who live close by and can often be heard by people who live far from the source. Walls and other physical distancing are effective; however, they are often impractical as they must be solid to be effective. Accompanying transportation noise is vibration that shows up as annoying window rattling, and unwelcome motion by people. Vibration can be unsettling to people, and in extreme instances cause physical damage to buildings.

As the city develops, the combination of demolition and new construction will add to the background noise and vibration of the city. While normal, this can be unsettling to those who already live here. While some of the noise can be managed by limiting when and where construction can occur, building things makes noise, and not all of it can be contained. In these instances, talking with the neighborhood, and limiting the timing of some construction activities may be the only way of getting things built.

Finally, it is important to differentiate between the 'good noises' associated with a vibrant city full of life, and 'bad noises' that occur infrequently as a part of that life. Noise levels in the City of Rancho Cucamonga will increase as more people move in and live their lives. There will be more children laughing, more music playing, and more people singing along. There will also be more garbage trucks, street sweeping, trains, leaf blowers, and car alarms. Regulations can only go so far in reducing noise levels, the rest is understanding that life in a city is noisy, and provided we still have quiet spaces to sleep and relax, we should embrace the good noise.





Outdoor Festival at Victoria Gardens Cultural Center

OVERVIEW OF THIS CHAPTER

While more noise may be inevitable in a growing city, there are things that can be done with design to provide quiet places for people to relax. Design is also important in providing places for people to make noise, and as noise-friendly places are often near people, their need for peace and quiet need to be addressed.

The following noise goal serves to guide and direct long-term planning in the City of Rancho Cucamonga:

- + **Goal N-1 Noise.** A city with appropriate noise and vibration levels that support a range of places from quiet neighborhoods to active, exciting districts.

As the city grows and more people live closer together, the excitement and energy that this brings needs to be balanced with the very real need for quiet space. The approach to noise in this Chapter is to differentiate between the good noise and the annoying noise. Letting people know that an area will have good noise gives them a choice to live nearby and limiting the annoying noise will help with their quality of life.

NOISE SOLUTIONS

The problem with noise is that most of the solutions to reducing it exclude people. Noise is a line-of-sight energy meaning that if you can see the noise source, you can likely hear it. Noise dissipates over distance, but in a city, increasing distances between noise sources and people is not practical. The 'standard' solution has been to add noise walls between the noise source and the people. Regardless of how attractive or not they may be, the issue with noise walls is that they also prevent access and obstruct views into and out of neighborhoods. From a design perspective this is less than ideal, and from a circulation perspective walls inhibit connecting trails sidewalks and people to the parts of the city they need to reach.

This General Plan acknowledges that some areas of the city are going to be noisier than others because of the types of activities that happen there. It is unreasonable to expect that a walk along a busy roadway would be quiet, but entirely reasonable to expect quiet walk through a neighborhood. These are different locations, with different levels of activity and therefore require different noise regulations. Accepting a higher exterior noise level in the corridors and centers of the city would eliminate the need for noise walls along busy roads. Ensuring that noise generating land uses are not allowed in neighborhoods, would ensure that noise walls were unnecessary.

Not all outdoor space is used in the same fashion, therefore it is acceptable to allow secondary outdoor space like parking lots, front lawns, and other features that face a busy road to have higher acceptable noise levels than

primary open space like back yards, or recreation areas. People tend to spend very little time in the secondary open space areas so a higher noise level there should be acceptable.

Technically

Sound intensity is measured and expressed by decibels (dB), with an adjustment referred to as the A-weighted measure (dBA) to correct for the relative frequency response of the human ear. Decibels are measured on a logarithmic scale, representing points on a sharply rising curve. For example, a noise level of 10 decibels is 10 times more intense than one decibel, 20 decibels represent a noise 100 times more intense, and 30 decibels reflects a noise condition 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than a zero-decibel level. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10-decibel increase in sound level is perceived by the human ear as only doubling of the loudness of the sound. Usually, changes in noise that are less than 3 dBA are not noticed by people. Ambient sounds in the urban environment generally range from 30 dBA (very quiet) to 100 dBA (very loud), as indicated in Figure N-1, Typical Sound Levels. Context is everything with noise, and people are more sensitive to noise during the evening, so noise regulations adjust limits to account for this.

NOISE STANDARDS

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, California Building Code. These noise standards are applied to new construction for the purpose of providing suitable interior noise environments. Noise studies must be prepared when a project seeks to place people near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. A project must demonstrate that structures have been designed to limit interior noise in habitable rooms to meet the Noise Compatibility Standards set forth in Table N-1, Noise Compatibility Standards for People.

Table N-1 provides the City with a tool to gauge the compatibility of land uses relative to existing and future noise levels. The noise standards can be modified for areas that already have higher noise, and for activities like festivals, markets, and outdoor performances. Generally, there is more flexibility for outdoor noise than indoor, and design features such as berms, walls, windows, and setbacks will all be factored into the project.

Ambient Noise = The existing level of noise at a given location. Often averaged over a period of time.

CNEL = Community Noise Equivalent Level, a weighted average of noise level over time.

TABLE N-1 NOISE COMPATIBILITY STANDARDS FOR PEOPLE

Type of Development	Exterior Noise Standard (CNEL)	Interior Noise Standard (CNEL)
Low Density Residential (single-family, duplex, mobile-home)	60 ^b	45
Medium or High Density Residential (Multifamily, Apartments)	65 ^c	45 ^d
Lodging (Motels/Hotels)	65	45 ^d
Mixed Use/Infill Development	70	45 ^d
Schools, Libraries, Community Centers, Religious Institutions, Hospitals, Nursing Homes	70	45
Auditoriums, Concert Halls, Amphitheaters	70	N/A
Playgrounds, Neighborhood Parks	70	N/A
Outdoor Recreation (Commercial and Public)	75	N/A
Commercial (Office/Retail)	70	60
Industrial, Manufacturing, and Utilities	75	70

NOISE CONTOURS

Figure N-2, Noise Contours, shows the projected noise contours for the transportation noise sources in the city. These contours are calculated using predicted traffic data for the city roadways and do not factor in topography, other buildings, or noise attenuation. As such, the contours may not predict noise, but are used as a general guide to ensure that noise is considered with new projects.

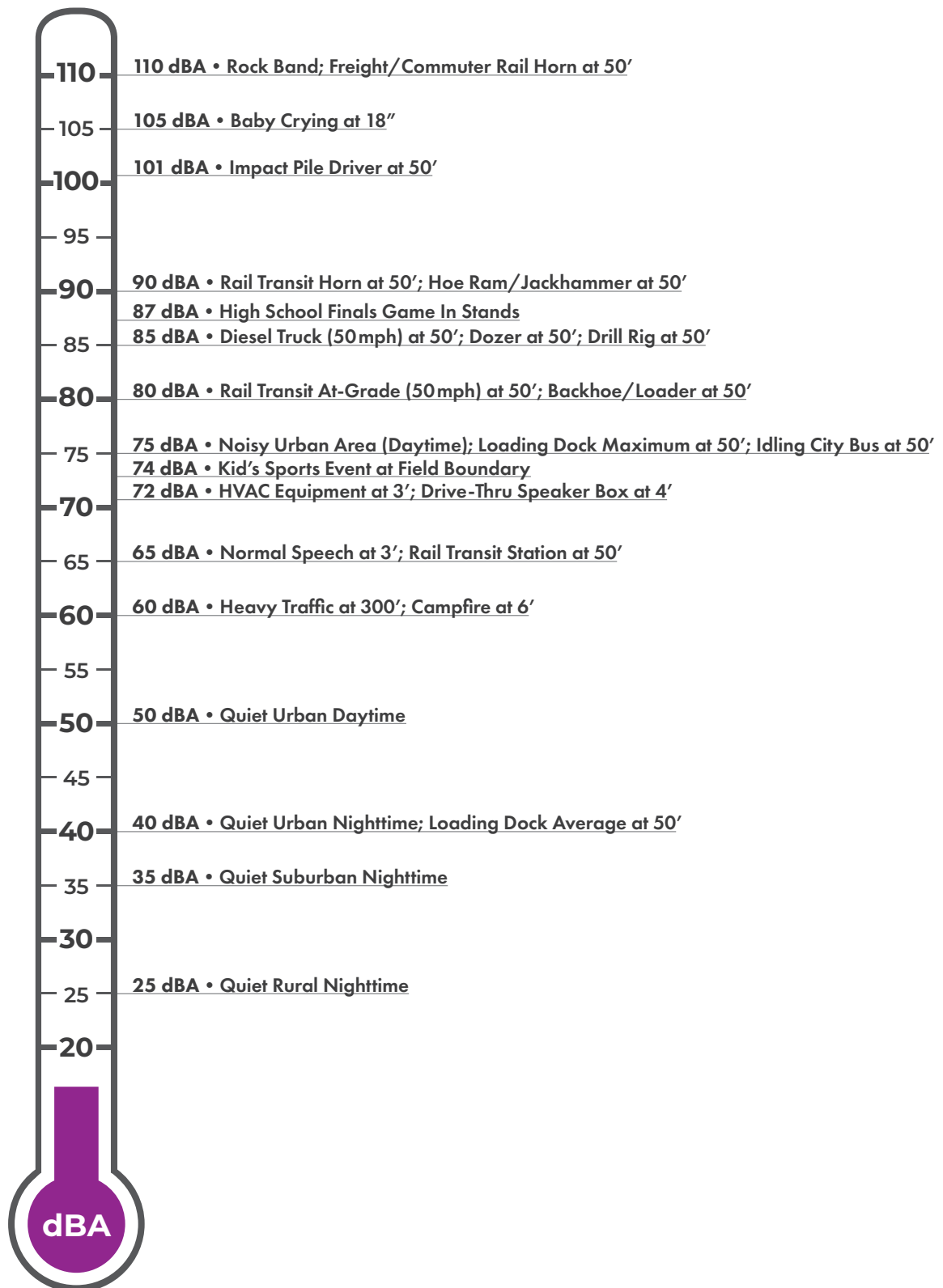
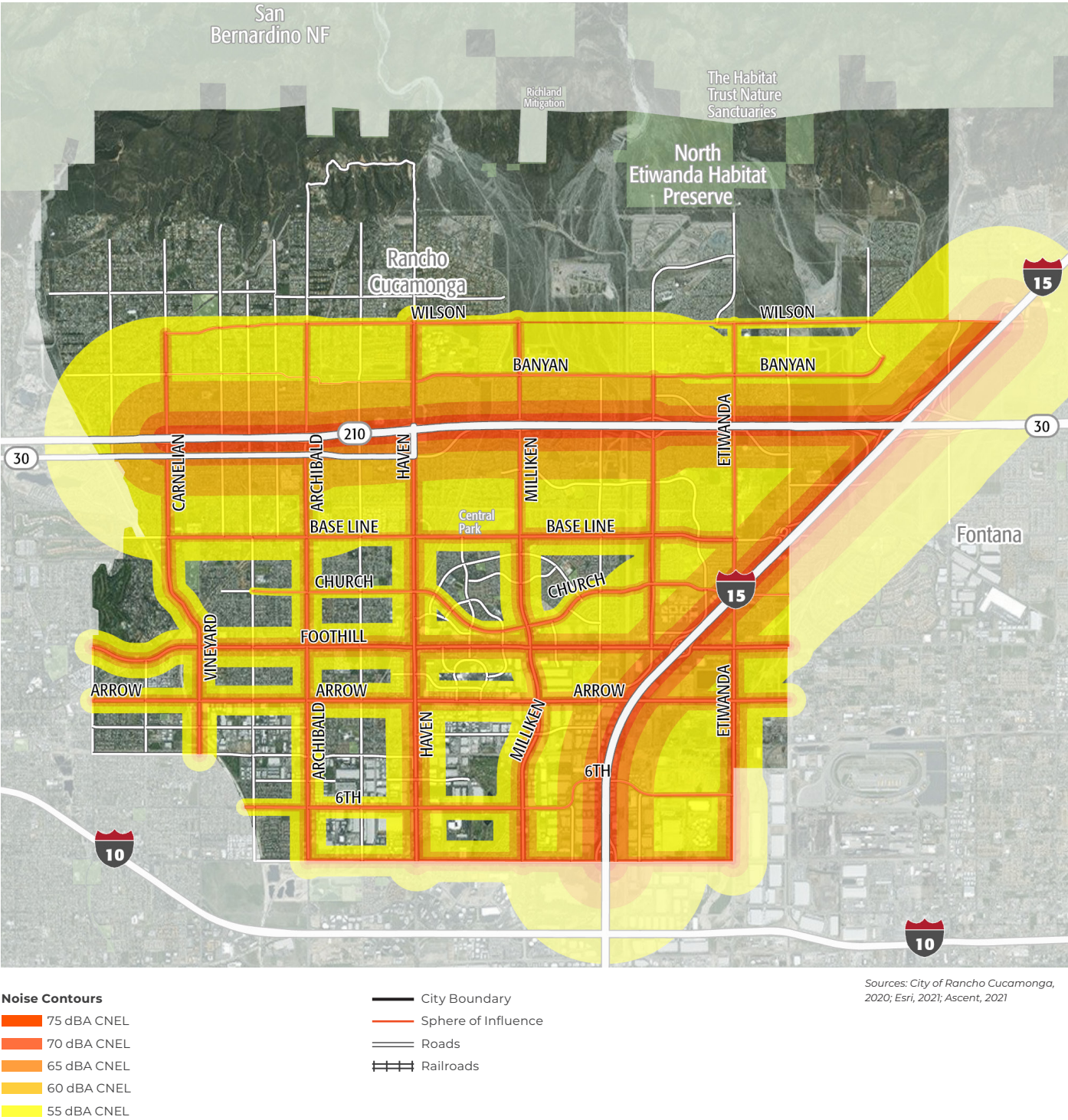
FIGURE N-1 TYPICAL ENVIRONMENTAL NOISE LEVELS (dBA)

FIGURE N-2 NOISE CONTOURS



AIRCRAFT NOISE LEVELS

The closest airport to Rancho Cucamonga is the Ontario International Airport (ONT), located approximately one mile south of the city's southern border. According to the latest noise contour (4th Quarter 2009 by Los Angeles World Airports), Rancho Cucamonga's southern planning boundary is approximately 1 mile north of the Ontario International Airport's 65 dBA CNEL noise contour. Therefore, while aircraft overflight will be heard, the noise generated does not result in the need to adjust land uses or activities in the city.

TRAFFIC NOISE LEVELS

Several major roadways run through the city that contribute a notable amount of noise to the ambient environment. These roadways include the Interstate 15 and State Route 210 freeways, as well as Foothill Boulevard and Base Line Road, which are major local roadways. Additionally, the Interstate 10 freeway lies approximately 0.7 miles south of the city and vehicles traveling along this route may also noticeably contribute to the City's ambient noise during quieter periods, such as evenings.

More traffic on a roadway does not necessarily equate to more noise. Traffic noise is usually related to tire friction on the roadway which is higher when the speeds increase. While motors and vehicle exhaust systems also contribute noise, studies show that above 25 miles per hour both electric vehicles and internal combustion vehicles generate similar road noise. As a result, traffic calming on streets that slows traffic has the side benefit of reducing noise from vehicle tires. There may still be noise from loud exhaust, stereos, and driving style, but the slower the vehicle, the quieter the tire noise.

RAILROAD NOISE AND VIBRATION LEVELS

Passenger trains and BNSF freight trains run along a corridor (eastbound and westbound) located just north of East 8th Street. During normal service conditions a total of 38 trains pass through the City of Rancho Cucamonga each weekday, with an additional late-night train on Fridays. Noise levels along these railways are dependent on several factors, including the location of railroad crossings, where noise levels are greater due to train signal horns. Where horn use is more frequent, levels are as high as 81.7 dBA at 50 feet from the center of the tracks. CNEL noise levels along other portions of the track, segments at least 1,000 feet from any crossings, are as low as 64.5 dBA at 50 feet from the tracks.



Aircraft overflight from Ontario International Airport



High-speed rail

Housing is encouraged near transit hubs to reduce vehicle miles traveled and activate the office, commercial and public space around the hubs. This will result in more people who will be affected by the noise of the train horn as it signals the trains approach to the crossing. The Federal Railroad Administration allows the City to request establishment of a full or partial quiet zone. A partial quiet zone would likely apply to the City's nighttime hours of 10:00 PM to 7:00 AM. While a quiet zone will not eliminate the train noise, and not all crossings may qualify, a full or partial quiet zone would benefit the surrounding development.

As the proposed high-speed rail from Rancho Cucamonga to Las Vegas will run within the existing right of way in the city, it is not expected to generate noise beyond that of the existing rail operations. Within town, the number of crossings will keep speeds, and therefore noise levels, about the same as existing trains. The higher speeds possible for the rail line, and the higher noise levels, will occur outside of the city. It is possible that the addition of the high-speed rail that more trains will run which could increase noise levels in the city.

STATIONARY SOURCES OF NOISE

Industrial operations comprise the primary stationary noise sources that contribute to local community noise levels. These stationary sources (e.g., loading areas, large mechanical equipment, fabrication) are often located in commercially and industrially zoned areas and may be isolated from people, but not always. Other noise sources that affect people, include commercial land uses or those often associated with and/or secondary to residential development including, but not limited to, nightclubs, outdoor dining areas, gas stations, car washes, drive-thrus, fire stations, air conditioning units, swimming pool pumps, school playgrounds, athletic and music events, and public parks.

Certain land uses generate noise as a normal part of business. Whether by the business or industrial process, shipping by truck or train, or simply having several people working in the same area. Over time it will be important for the City to protect the existing noise generating uses from projects that will add people nearby. As the stationary noise source will have been built first, it will be the responsibility of a new project where people will live and work, to demonstrate that the existing noise will not affect them. This is important because encroachment of people into existing noise environments often shortens the longevity of the noise generating land use. This is often seen when houses encroach into airport noise contours and the resulting noise complaints curtailing airport operations.

For future noise generating uses, a project that cannot contain its noise within the property boundaries will need to include physical and operational features designed to address their noise. Ideally, measures designed to address the noise would be integrated into the overall project design and not added as an afterthought.

CONSTRUCTION NOISE

As the city develops, infill and rebuilding of sites will occur more frequently. The construction process can be noisy and affect people who live and work nearby. Construction is part of any city and while it can be considered temporary, construction can also last for several years if the project is large. Regardless of duration, construction noise impacts are real and will need to be considered along with the project. Simple things like setting reasonable construction times, ensuring that mufflers and noise suppression features of equipment are working, can help limit the noise intrusion into the neighborhood. The most important aspect will be to work with the affected neighborhood to explain the project and listen to their ideas about how best to address noise.

VIBRATION

Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., construction). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate enough ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants.

Indoor sources of vibration can come from heating, ventilation, and air conditioning (HVAC) equipment, and manufacturing processes. Even the fan on a personal computer can cause a small vibration. Most of the interior sources can be screened, or isolated to avoid affecting people who live and work near the source.

Vibration is the periodic oscillation of a medium or object with respect to a given reference point.

Usually vibration is an annoyance, but with fragile buildings, addressing vibration impacts is important. Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings.

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB). The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels.

One of the impacts of construction is vibration that can be felt by people. Vibration can be a short-term sensation like when a heavy truck passes, however if several trucks were to pass by, or machinery nearby creates a constant vibration, the vibration can have negative effects on people. What starts as a minor irritation in people from vibration, over time turn into feelings of unease, disruption of sleep, and result in a constant annoyance that reduces the enjoyment of their home. Vibration can also disrupt delicate procedures such as surgery and manufacturing.

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table N-2 describes the general human response to different ground vibration-velocity levels.

TABLE N-2 HUMAN RESPONSE TO DIFFERENT LEVELS OF GROUND NOISE AND VIBRATION

Vibration-Velocity Level	Human Reactions
65 VdB	Approximate threshold of perception
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 micro inch per second and based on the root-mean-square (RMS) velocity amplitude.

Source: FTA 2018

GOALS AND POLICIES

GOAL N-1 NOISE. A city with appropriate noise and vibration levels that support a range of places from quiet neighborhoods to active, exciting districts.

- N-1.1 Noise Levels.** Require new development to meet the noise compatibility standards identified in Table N-1.
- N-1.2 Noise Barriers, Buffers and Sound Walls.** Require the use of integrated design-related noise reduction measures for both interior and exterior areas prior to the use of noise barriers, buffers, or walls to reduce noise levels generated by or affected by new development.
- N-1.3 Non-Architectural Noise Attenuation.** Non-architectural noise attenuation measures such as sound walls, setbacks, barriers, and berms shall be discouraged in pedestrian priority areas (or other urban areas or areas where pedestrian access is important).
- N-1.4 New Development Near Major Noise Sources.** Require development proposing to add people in areas where they may be exposed to major noise sources (e.g., roadways, rail lines, aircraft, industrial or other non-transportation noise sources) to conduct a project level noise analysis and implement recommended noise reduction measures.
- N-1.5 Urban and Suburban Development Near Transit.** Allow development located in infill areas, near transit hubs, or along major roadways an exemption from exterior noise standards for secondary open space areas (such as front yards, parking lots, stoops, porches, or balconies), if noise standards can be met for primary open space.
- N-1.6 Rail Crossing Quiet Zones.** Allow the establishment of a full or partial at-grade rail crossing or quiet zone near transit hubs or residential development.
- N-1.7 Entertainment.** Establish different standards for exterior noise consistent with the place type.
- N-1.8 Vibration Impact Assessment.** Require new development to reduce vibration to 85 VdB or below within 200 feet of an existing structure.

Rancho Cucamonga Municipal Code

[Up](#)[Previous](#)[Next](#)[Main](#)[Search](#)[Print](#)[No Frames](#)[Title 17 DEVELOPMENT CODE](#)[ARTICLE IV. SITE DEVELOPMENT PROVISIONS](#)[Chapter 17.66 PERFORMANCE STANDARDS](#)**17.66.050 Noise standards.**

A. *Purpose.* In order to control unnecessary, excessive, and annoying noise and vibration in the city, it is hereby declared to be the policy of the city to prohibit such noise generated from or by all sources as specified in this section. The provisions apply within all jurisdictions within all zoning districts. Provisions apply based on the designated noise zones:

Noise Zone I: All single- and multiple-family residential properties.

Noise Zone II: All commercial properties.

B. *Decibel measurement criteria.* Any decibel measurement made pursuant to the provisions of this section shall be based on a reference sound pressure of 20 micropascals as measured with a sound level meter using the A-weighted network (scale) at slow response.

C. *Exterior noise standards.*

1. It shall be unlawful for any person at any location within the city to create any noise or allow the creation of any noise on the property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted below:

- a. Basic noise level for a cumulative period of not more than 15 minutes in any one hour; or
- b. Basic noise level plus five dBA for a cumulative period of not more than ten minutes in any one hour; or
- c. Basic noise level plus 14 dBA for a cumulative period of not more than five minutes in any one hour; or
- d. Basic noise level plus 15 dBA at any time.

2. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply.

3. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the noise is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement's location, designated land use, and for the time of day the noise level is measured. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the planning director for the purpose of establishing the existing ambient noise level at the measurement location.

D. *Special exclusions.* The following activities shall be exempted from the provisions of this section:

1. City- or school-approved activities conducted on public parks, public playgrounds, and public or private school grounds including, but not limited to, athletic and school entertainment events between the hours of 7:00 a.m. and 10:00 p.m.
2. Occasional outdoor gatherings, dances, shows, and sporting and entertainment events, provided said events are conducted pursuant to the approval of a temporary use permit issued by the city.
3. Any mechanical device, apparatus, or equipment used, related to, or connected with emergency machinery, vehicle, work, or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within 30 minutes in any hour of its being activated.
4. Noise sources associated with, or vibration created by, construction, repair, remodeling, or grading of any real property or during authorized seismic surveys, provided said activities:

- a. When adjacent to a residential land use, school, church or similar type of use, the noise generating activity does not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday, and provided noise levels created do not exceed the noise standard of 65 dBA when measured at the adjacent property line.
- b. When adjacent to a commercial or industrial use, the noise generating activity does not take place between the hours of 10:00 p.m. and 6:00 a.m. on weekdays, including Saturday and Sunday, and provided noise levels created do not exceed the noise standards of 70 dBA at the when measured at the adjacent property line.
- 5. All devices, apparatus, or equipment associated with agricultural operations, provided:
 - a. Operations do not take place between 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday.
 - b. Such operations and equipment are utilized for protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.
 - c. Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by, or regulations enforced by, the state department of agriculture.
- 6. Noise sources associated with the maintenance of real property, provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day.
- 7. Any activity to the extent regulation thereof has been preempted by state or federal law.

E. *Schools, churches, libraries, health care institutions.* It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or similar health care institution, church, or library while the same is in use, to exceed the noise standards specified in this section and prescribed for the assigned noise zone in which the school, hospital, church, or library is located.

F. *Residential noise standards.*

- 1. Table 17.66.050-1 (Residential Noise Limits) includes the maximum noise limits in residential zones. These are the noise limits when measured at the adjacent residential property line (exterior) or within a neighboring home (interior).

TABLE 17.66.050-1 RESIDENTIAL NOISE LIMITS

Location of Measurement	Maximum Allowable	
	10:00 p.m. to 7:00 a.m.	7:00 a.m. to 10:00 p.m.
Exterior	60 dBA	65dBA
Interior	45 dBA	50dBA

Additional:

- (A) It shall be unlawful for any person at any location within the city to create any noise or to allow the creation of any noise which causes the noise level when measured within any other fully enclosed (windows and doors shut) residential dwelling unit to exceed the interior noise standard in the manner described herein.
- (B) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, each of the noise limits above shall be reduced five dBA for noise consisting of impulse or simple tone noise.

2. *Other residential noise limitations.*

- a. *Peddlers; use of loud noise, etc., to advertise goods, etc.* No peddler or mobile vendor or any person in their behalf shall shout, cry out, or use any device or instrument to make sounds for the purpose of advertising in such a manner as to create a noise disturbance.
- b. *Animal noises.* No person owning or having the charge, care, custody, or control of any dog or other animal or fowl shall allow or permit the same to habitually howl, bark, yelp, or make other noises, in such a manner as to create a noise disturbance.
- c. *Radios, television sets, musical instruments, and similar devices.* No person shall operate or permit the operation or playing of any device which reproduces, produces, or amplifies sound, such as a radio, musical instrument, phonograph, or sound amplifier, in such a manner as to create a noise disturbance.
 - i. Across any real property boundary or within Noise Zone I, between the hours of 10:00 p.m. and 7:00 a.m. on the following day (except for activities for which a temporary use permit has been

issued).

ii. At 50 feet from any such device, if operated on or over any public right-of-way.

G. *Commercial and office noise provisions.* All operations and businesses shall be conducted to comply with the following standards:

1. All commercial and office activities shall not create any noise that would exceed an exterior noise level of 65 dBA during the hours of 10:00 p.m. to 7:00 a.m. and 70 dBA during the hours of 7:00 a.m. to 10:00 p.m. when measured at the adjacent property line.
2. *Loading and unloading.* No person shall cause the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m., in a manner which would cause a noise disturbance to a residential area.
3. *Vehicle repairs and testing.* No person shall cause or permit the repairing, rebuilding, modifying, or testing of any motor vehicle, motorcycle, or motorboat in such a manner as to increase a noise disturbance between the hours of 10:00 p.m. and 8:00 a.m. adjacent to a residential area.

H. Industrial noise provision included in Table 17.66.110-1 (Industrial Performance Standards). (Code 1980, § [17.66.050](#); Ord. No. 855, § 4, 2012)

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Rancho Cucamonga Municipal Code

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Uses that generate vibrations that may be considered a public nuisance or hazard on any adjacent property shall be cushioned or isolated to prevent generation of vibrations. Uses shall be operated in compliance with the following provisions:

- A. No vibration shall be produced that is transmitted through the ground and is discernible without the aid of instruments at the points of measurement specified in section [17.66.030](#) (Points of Measurement) of this chapter, nor shall any vibration produced exceed 0.002g peak at up to 50 CPS frequency, measured at the point of measurement specified in section [17.66.030](#) (Points of Measurement) of this chapter using either seismic or electronic vibration measuring equipment. Vibrations occurring at higher than 50 CPS frequency of a periodic vibration shall not induce accelerations exceeding 0.001g. Single-impulse periodic vibrations occurring at an average interval greater than five minutes shall not induce accelerations exceeding 0.01g.
- B. Uses, activities, and processes shall not generate vibrations that cause discomfort or annoyance to reasonable persons of normal sensitivity or which endangers the comfort, repose, health, or peace of residents whose property abuts the property line of the parcel.
- C. Uses shall not generate ground vibration that interferes with the operations of equipment and facilities of adjoining parcels.
- D. Vibrations from temporary construction/demolition and vehicles that leave the subject parcel (e.g., trucks, trains, and aircraft) are exempt from the provisions of this section. (Code 1980, § [17.66.070](#); Ord. No. 855, § 4, 2012)

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CONSTRUCTION NOISE MODELING

CCCD-01.1 Construction Noise Modeling Attenuation Calculations

Off-Campus

Exterior Levels in dBA Leq

Phases	RCNM Reference Noise Level	Nearest Residences to the North	Nearest Residences to the East	Nearest Residences to the South	Nearest Residences to the West Across Haven
<i>Distance in feet</i>	50	525	350	585	550
Phase 1-5	85	65	68	64	64

Phase	RCNM Reference Noise Level	Church of Jesus Christ	Banyan School	Shepherd of The Hills
<i>Distance in feet</i>	50	600	665	580
Phase 1-5	85	63	63	64

On-Campus

Interior Levels in dBA Leq

Phase	RCNM Reference Noise Level	Screening Distance to Achieve interior
<i>Distance in feet</i>	50	150
Phase 1-5	60	50

Attenuation calculated through Inverse Square Law: $L_p(R2) = L_p(R1) - 20\log(R2/R1)$

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/10/2022
Case Description: CCCD-01.1

**** Receptor #1 ****

Description	Baselines (dBA)			
	Land Use	Daytime	Evening	Night
Construction Phase 1	Residential	60.0	55.0	50.0

Description	Equipment					
	Impact	Spec Usage	Actual Lmax	Receptor Lmax	Estimated Distance	Shielding
	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20	89.6	50.0	0.0	
Excavator	No	40	80.7	50.0	0.0	
Dozer	No	40	81.7	50.0	0.0	
Tractor	No	40	84.0	50.0	0.0	
Front End Loader	No	40	79.1	50.0	0.0	
Grader	No	40	85.0	50.0	0.0	
Scraper	No	40	83.6	50.0	0.0	
Backhoe	No	40	77.6	50.0	0.0	
Crane	No	16	80.6	50.0	0.0	
Man Lift	No	20	74.7	50.0	0.0	
Generator	No	50	80.6	50.0	0.0	
Welder / Torch	No	40	74.0	50.0	0.0	
Pavement Scarifier	No	20	89.5	50.0	0.0	
Paver	No	50	77.2	50.0	0.0	
Roller	No	20	80.0	50.0	0.0	
Compressor (air)	No	40	77.7	50.0	0.0	

Equipment	Results						Noise Limits (dBA)						Noise Limit Exceedance (dBA)			
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night			
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A														
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Welder / Torch	74.0	70.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Pavement Scarafier	89.5	82.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Paver	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														
Total	89.6	90.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/10/2022
Case Description: CCCD-01.1

**** Receptor #1 ****

Description	Baselines (dBA)			
	Land Use	Daytime	Evening	Night
Construction Phases 2-5	Residential	60.0	55.0	50.0

Description	Equipment					
	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Compressor (air)	No	40	77.7	50.0	0.0	
Backhoe	No	40	77.6	50.0	0.0	
Drum Mixer	No	50	80.0	50.0	0.0	
Concrete Saw	No	20	89.6	50.0	0.0	
Crane	No	16	80.6	50.0	0.0	
Excavator	No	40	80.7	50.0	0.0	
Man Lift	No	20	74.7	50.0	0.0	
Front End Loader	No	40	79.1	50.0	0.0	
Generator	No	50	80.6	50.0	0.0	
Grader	No	40	85.0	50.0	0.0	
Paver	No	50	77.2	50.0	0.0	
Pavement Scarafier	No	20	89.5	50.0	0.0	
Roller	No	20	80.0	50.0	0.0	
Dozer	No	40	81.7	50.0	0.0	
Scraper	No	40	83.6	50.0	0.0	
Tractor	No	40	84.0	50.0	0.0	
Welder / Torch	No	40	74.0	50.0	0.0	

Equipment Lmax Leq		Results													
		Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Drum Mixer	80.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Crane N/A	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator N/A	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift N/A	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader N/A	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator N/A	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader N/A	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver N/A	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier N/A	89.5	82.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller N/A	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer N/A	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper N/A	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor N/A	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch N/A	74.0	70.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.6	90.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A														

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/20/2022

Case Description: CCCD-01.1

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Rough Grading P1	Residential	60.0	55.0	50.0

Equipment						
Description	Impact Device	Spec Usage (%)	Actual		Receptor	
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Scraper	No	40		83.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results													

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 01/20/2022

Case Description: CCCD-01.1

**** Receptor #1 ****

Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night
Demolition P2	Residential	60.0	55.0	50.0

Equipment						
Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20	89.6	89.6	50.0	0.0
Dozer	No	40	81.7	81.7	50.0	0.0
Tractor	No	40	84.0	84.0	50.0	0.0

Results													
Noise Limits (dBA)							Noise Limit Exceedance (dBA)						
Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A													
Dozer		81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A													
Tractor		84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A													
Total		89.6	85.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A													

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 01/20/2022

Case Description: CCCD-01.1

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Grading P3	Residential	60.0	55.0	50.0

Equipment

		Spec	Actual	Receptor	Estimated
	Impact	Usage	Lmax	Lmax	Distance
Description	Device	(%)	(dBA)	(dBA)	(feet)
-----	-----	-----	-----	-----	-----
Grader	No	40	85.0	50.0	0.0
Dozer	No	40	81.7	50.0	0.0
Tractor	No	40	84.0	50.0	0.0

Results

[illegible]

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 01/20/2022

Case Description: CCCD-01.1

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
-----	-----	-----	-----	-----
Demolition P4	Residential	60.0	55.0	50.0

Equipment

	Spec	Actual	Receptor	Estimated	
	Impact	Usage	Lmax	Lmax	Distance
Description	Device	(%)	(dBA)	(dBA)	(feet)
-----	-----	-----	-----	-----	-----
Concrete Saw	No	20	89.6	50.0	0.0
Dozer	No	40	81.7	50.0	0.0
Tractor	No	40	84.0	50.0	0.0

Results

		Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		-----		-----		-----		-----		-----		-----		-----	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Lmax	Leq	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Concrete Saw		89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															
Dozer		81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															
Tractor		84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															
	Total	89.6	85.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/20/2022

Case Description: CCCD-01.1

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Grading P5	Residential	60.0	55.0	50.0

Equipment						
Description	Impact Device	Spec Usage (%)	Actual	Receptor	Estimated	Shielding
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	(dBA)
Grader	No	40	85.0		50.0	0.0
Scraper	No	40		83.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

		Results													
		Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment															
Lmax	Leq														
Grader		85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															
Scraper		83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															
Tractor		84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															
	Total	85.0	85.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A															

CCCD-01.1 Vibration Annoyance Attenuation Calculations

Levels in in/sec PPV

<i>Distance in feet</i>	Vibration Reference	Residential to east
	Level at 25 feet	120
Vibratory Roller	0.21	0.020
Large Bulldozer	0.089	0.008
Caisson Drilling	0.089	0.008
Loaded Trucks	0.076	0.007
Jackhammer	0.035	0.003
Small Bulldozer	0.003	0.000

TRAFFIC NOISE INCREASE CALCULATIONS

CCCD-01.1

Traffic Noise Calculations

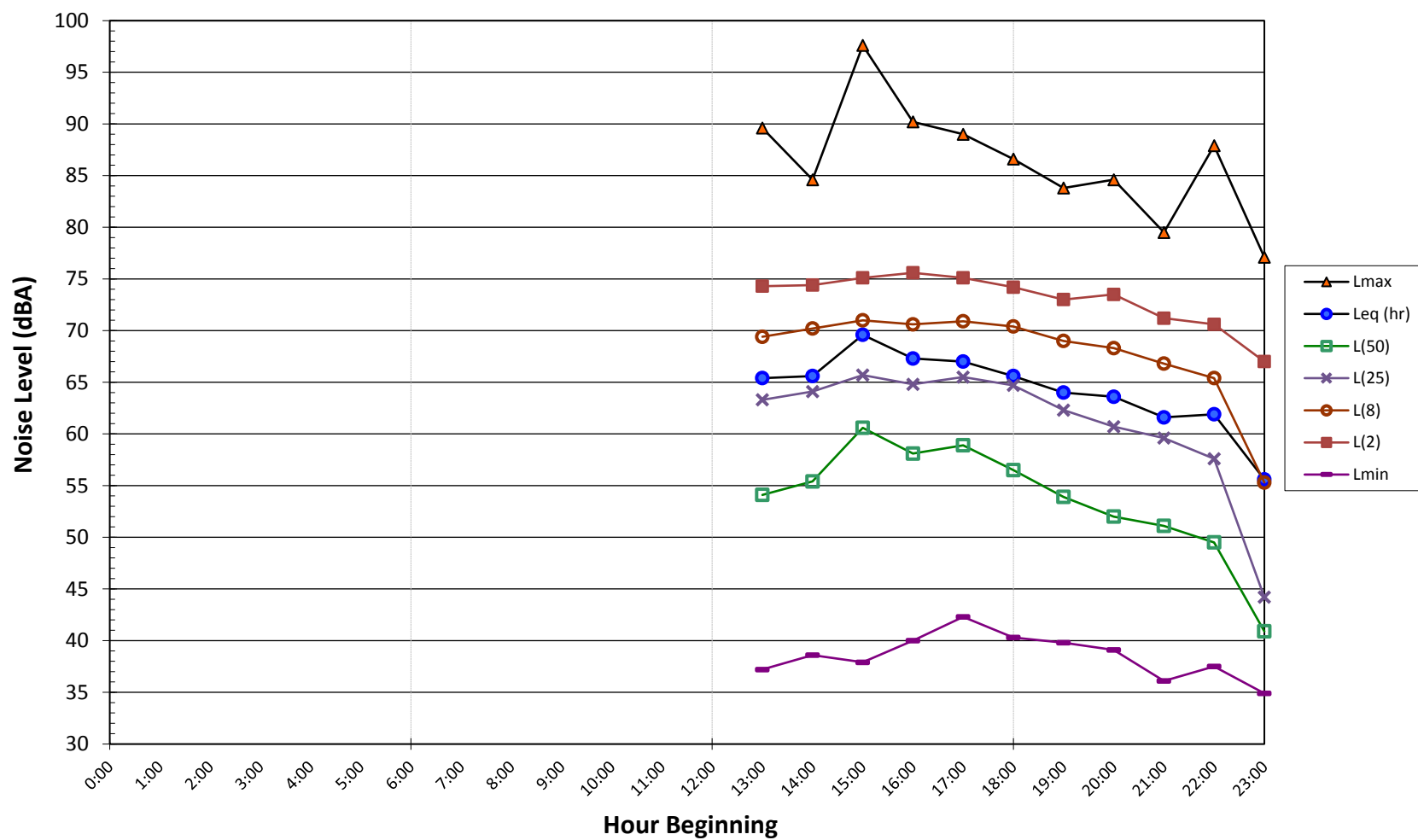
Roadway Segment	ADT Volumes				dBA CNEL Increase		
	Existing No Project	Existing Plus Project	Future No Project	Future Plus Project	Project Noise Increase	Cumulative Increase	Project Cumulative Contribution
Haven Avenue - north of Wilson Avenue	5,915	5,947	6,442	6,474	0.0	0.4	0.0
Haven Avenue - south of Wilson Avenue	9,713	9,755	11,365	11,407	0.0	0.7	0.0
Wilson Avenue - east of Haven Avenue	8,386	8,428	12,755	12,797	0.0	1.8	0.01
Wilson Avenue - west of Haven Avenue	5,617	5,669	7,027	7,079	0.0	1.0	0.0
Haven Avenue - north of Driveway 1	9,711	9,753	11,388	11,430	0.0	0.7	0.0
Haven Avenue - south of Driveway 1	10,090	10,154	11,832	11,896	0.0	0.7	0.0
Haven Avenue - north of Olive Way north	10,091	10,154	11,833	11,896	0.0	0.7	0.0
Haven Avenue - south of Olive Way north	10,468	10,553	12,275	12,360	0.0	0.7	0.0
Olive Way north- east of Haven Avenue	571	603	670	702	0.2	0.9	0.2
Haven Avenue - north of Olive Way south	11,616	11,701	13,622	13,707	0.0	0.7	0.0
Haven Avenue - south of Olive Way south	13,318	13,505	15,617	15,804	0.1	0.7	0.1
Olive Way south - east of Haven Avenue	2,247	2,359	2,635	2,747	0.2	0.9	0.2
Haven Avenue - north of Amber Lane	13,316	13,503	16,271	16,458	0.1	0.9	0.0
Haven Avenue - south of Amber Lane	28,222	29,154	33,470	34,402	0.1	0.9	0.1
Amber Lane - east of Haven Avenue	15,300	16,097	11,011	11,808	0.2	-1.1	0.3
Amber Lane - west of Haven Avenue	636	636	791	791	0.0	0.9	0.0
Haven Avenue - north of Lemon Avenue	35,599	36,465	22,424	23,290	0.1	-1.8	0.2
Haven Avenue - south of Lemon Avenue	40,500	41,302	28,568	29,370	0.1	-1.4	0.1
Lemon Avenue - east of Haven Avenue	7,200	7,210	7,106	7,116	0.0	-0.1	0.0
Lemon Avenue - west of Haven Avenue	8,004	8,058	8,587	8,641	0.0	0.3	0.0
Haven Avenue - north of I-210 WB Ramps	51,474	52,277	54,476	55,279	0.1	0.3	0.1
Haven Avenue - south of I-210 WB Ramps	48,414	48,842	50,470	50,898	0.0	0.2	0.0
I-210 WB Ramps - east of Haven Avenue	15,447	15,608	15,001	15,162	0.0	-0.1	0.0
I-210 WB Ramps - west of Haven Avenue	16,522	16,736	16,572	16,786	0.1	0.1	0.1
Haven Avenue - north of I-210 EB Ramps	48,417	48,846	50,473	50,902	0.0	0.2	0.0
Haven Avenue - south of I-210 EB Ramps	48,638	48,692	51,956	52,010	0.0	0.3	0.0
I-210 EB Ramps - east of Haven Avenue	20,667	20,828	22,126	22,287	0.0	0.3	0.0
I-210 EB Ramps- west of Haven Avenue	10,117	10,331	8,940	9,154	0.1	-0.4	0.1

Wilson Avenue - east of Driveway 2	8,391	8,433	9,839	9,881	0.0	0.7	0.0
Wilson Avenue - west of Driveway 2	8,391	8,433	9,839	9,881	0.0	0.7	0.0
Wilson Avenue - east of Driveway 3	8,387	8,429	9,835	9,877	0.0	0.7	0.0
Wilson Avenue - west of Driveway 3	8,387	8,429	9,835	9,877	0.0	0.7	0.0
Wilson Avenue - east of Driveway 4	8,387	8,429	9,834	9,876	0.0	0.7	0.0
Wilson Avenue - west of Driveway 4	8,387	8,429	9,834	9,876	0.0	0.7	0.0
College Drive - south of Wilson Avenue	539	571	336	368	0.3	-1.7	0.4
Wilson Avenue - east of College Drive	8,542	8,596	19,586	19,640	0.0	3.6	0.01
Wilson Avenue - west of College Drive	8,383	8,425	12,750	12,792	0.0	1.8	0.01

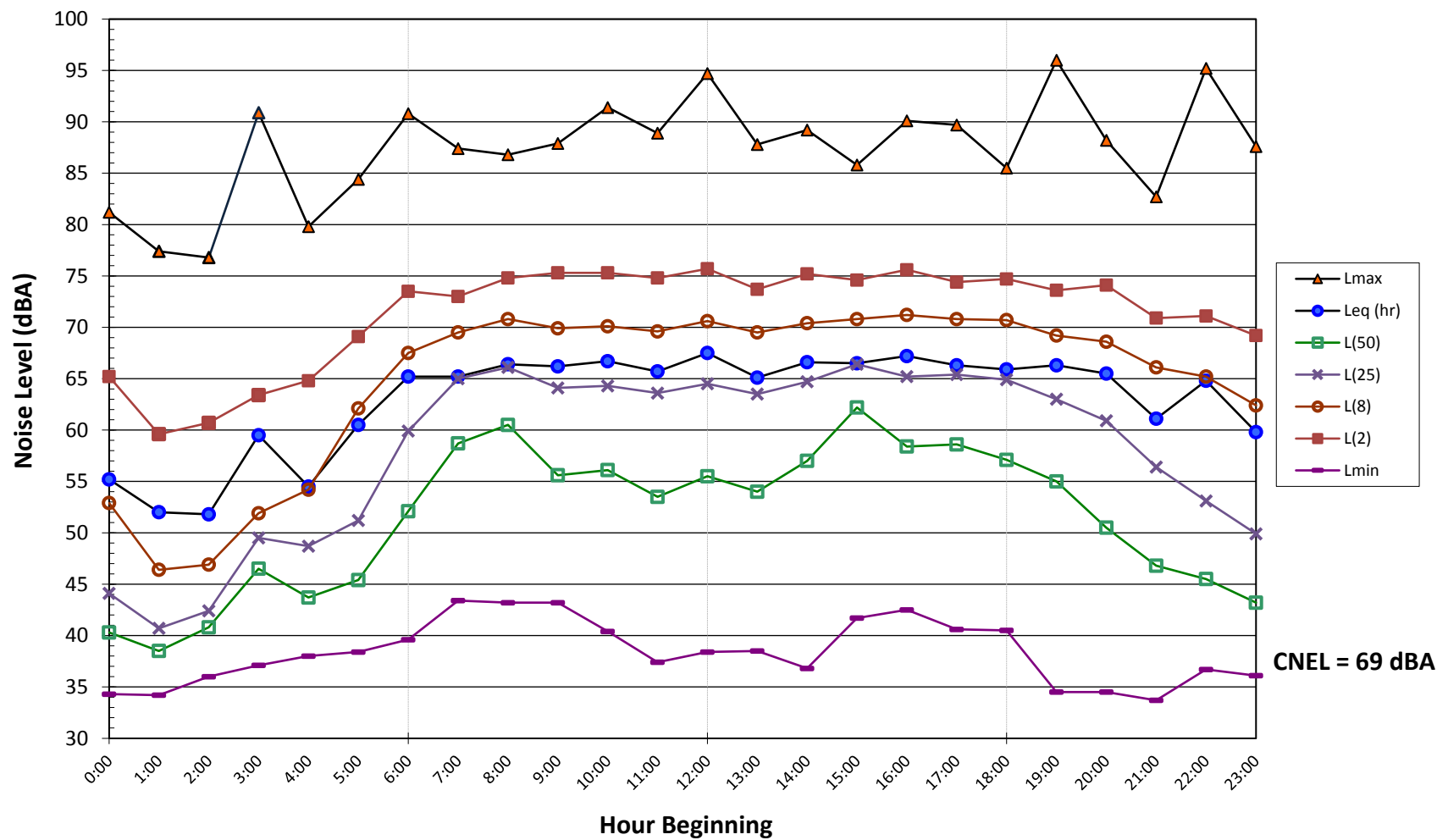
Traffic Noise Calculator: FHWA 77-108							Project Title: Existing Oak Springs WILD-01.0													
	Output						Inputs													
	dBA at 50 feet			Distance to CNEL Contour																
ID	L _{eq} -24hr	L _{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	63.7	66.5	67.2	26	83	263	Wilson Avenue - east of Haven Avenue		8,542	45	0.0%	98.1%	1.5%	0.5%	75.0%	15.0%	10.0%	4	Hard	50
2	63.6	66.3	67.0	25	80	252	Wilson Avenue - east of College Drive		8,383	45	0.0%	98.0%	1.5%	0.5%	75.0%	15.0%	10.0%	1	Hard	50
3	63.6	66.4	67.1	26	81	256	Wilson Avenue - west of College Drive		8,383	45	0.0%	98.0%	1.6%	0.5%	75.0%	15.0%	10.0%	3	Hard	50

NOISE MONITORING LONG-TERM GRAPHS

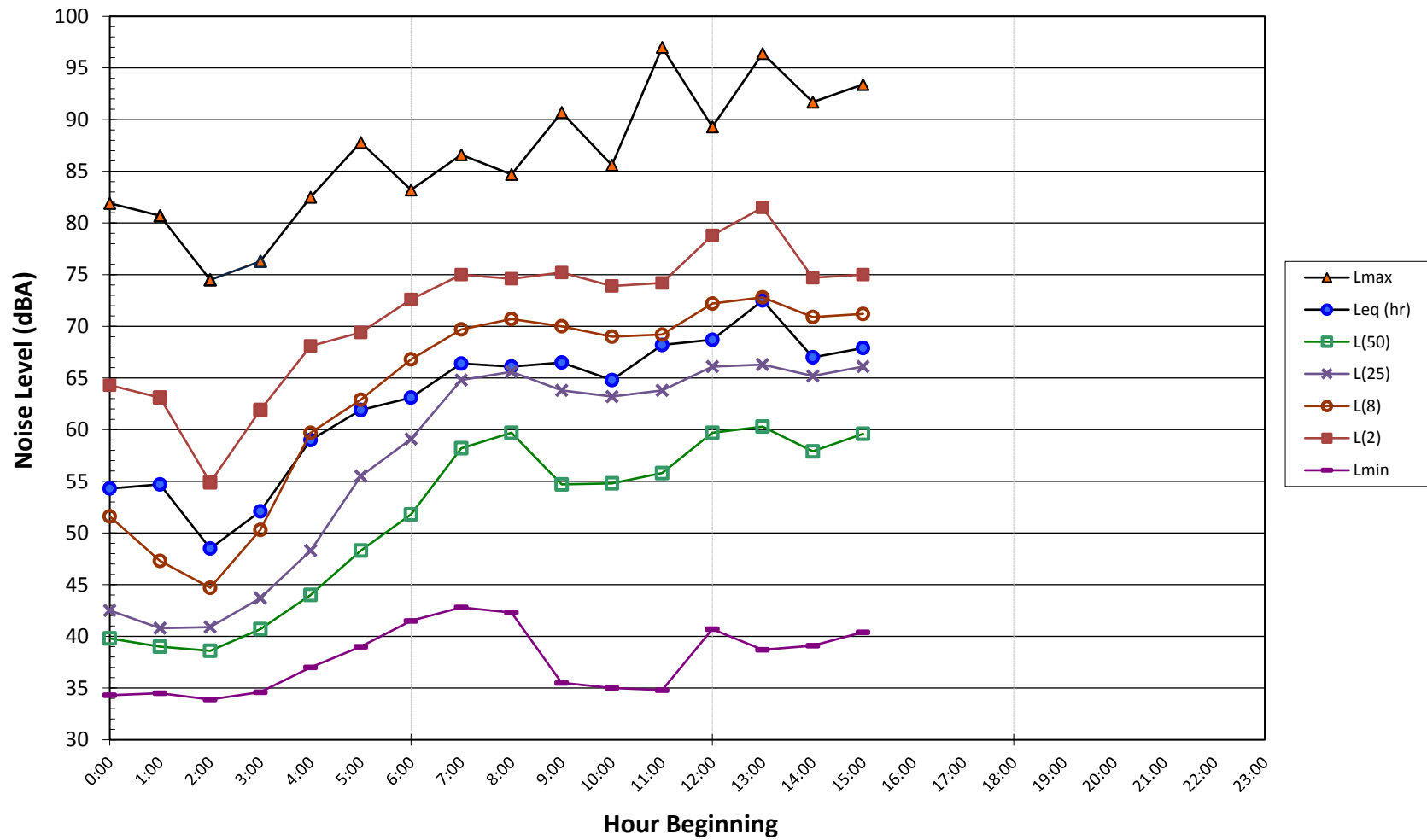
Noise Levels at LT-1
Heaven Avenue North of Wilson Avenue - Rancho Cucamonga, CA
Monday, November 29, 2021



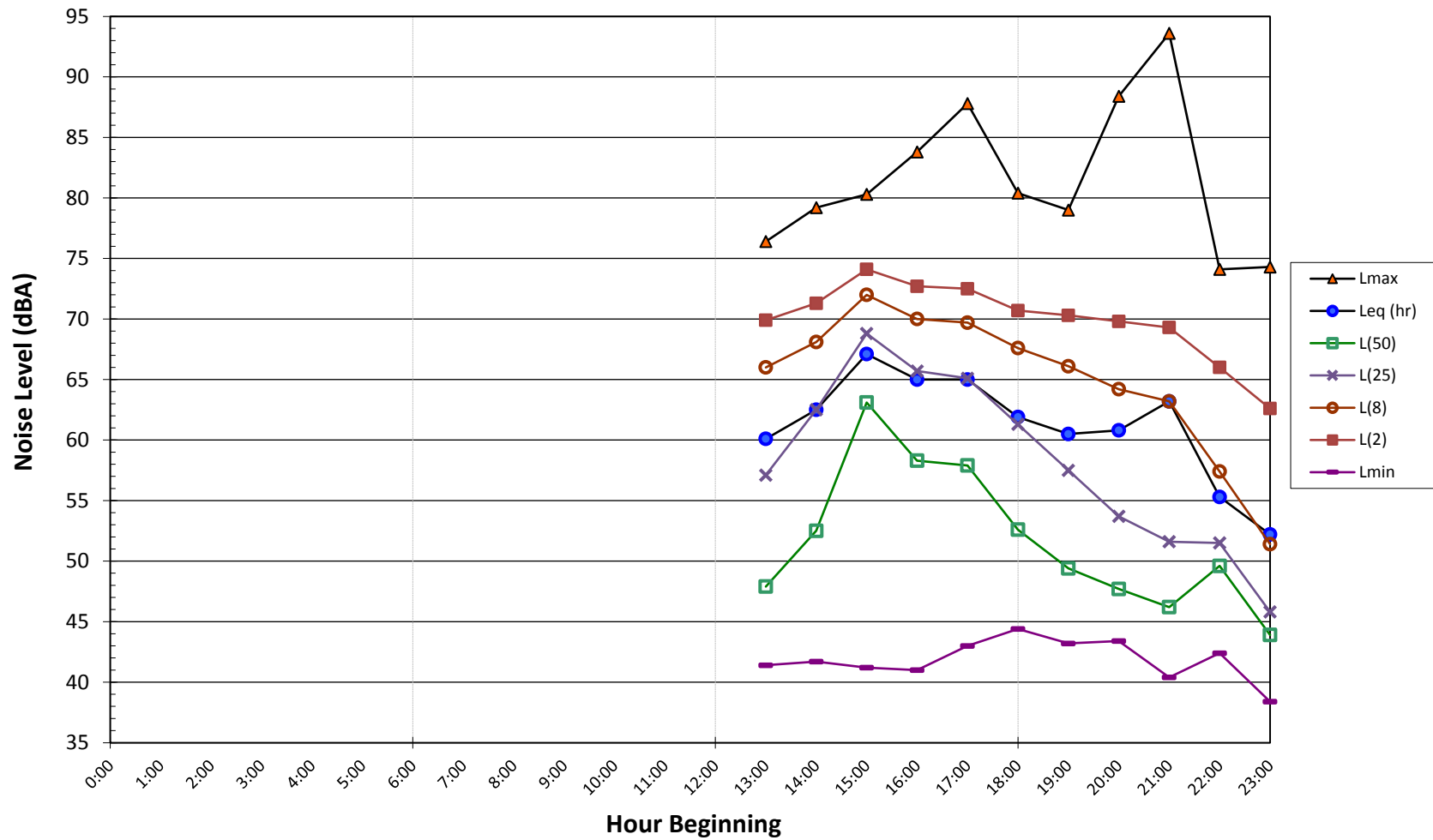
Noise Levels at LT-1
Heaven Avenue North of Wilson Avenue - Rancho Cucamonga, CA
Tuesday, November 30, 2021



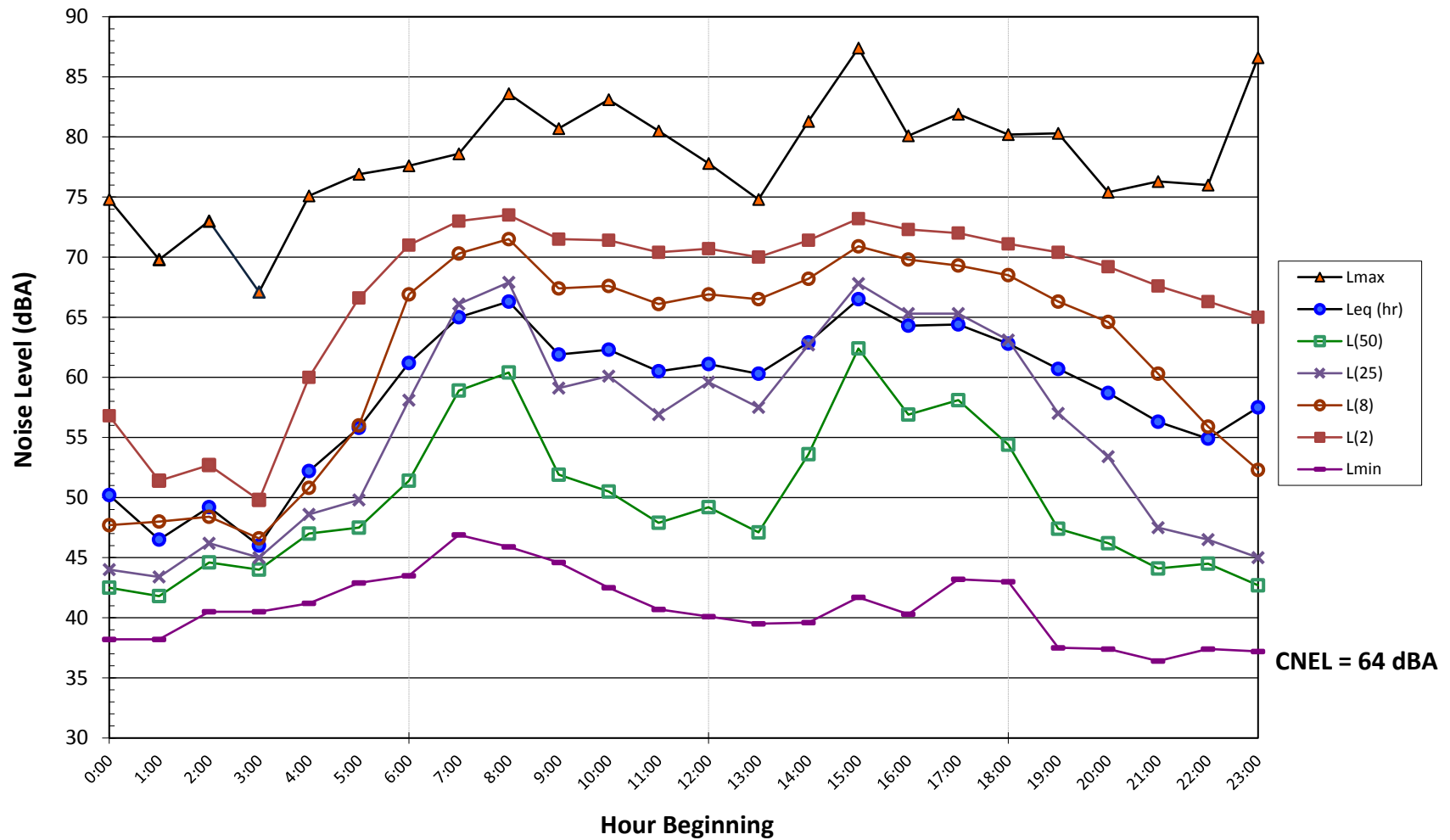
Noise Levels at Noise Measurement Site LT-1
Heaven Avenue North of Wilson Avenue - Rancho Cucamonga, CA
Wednesday, December 1, 2021



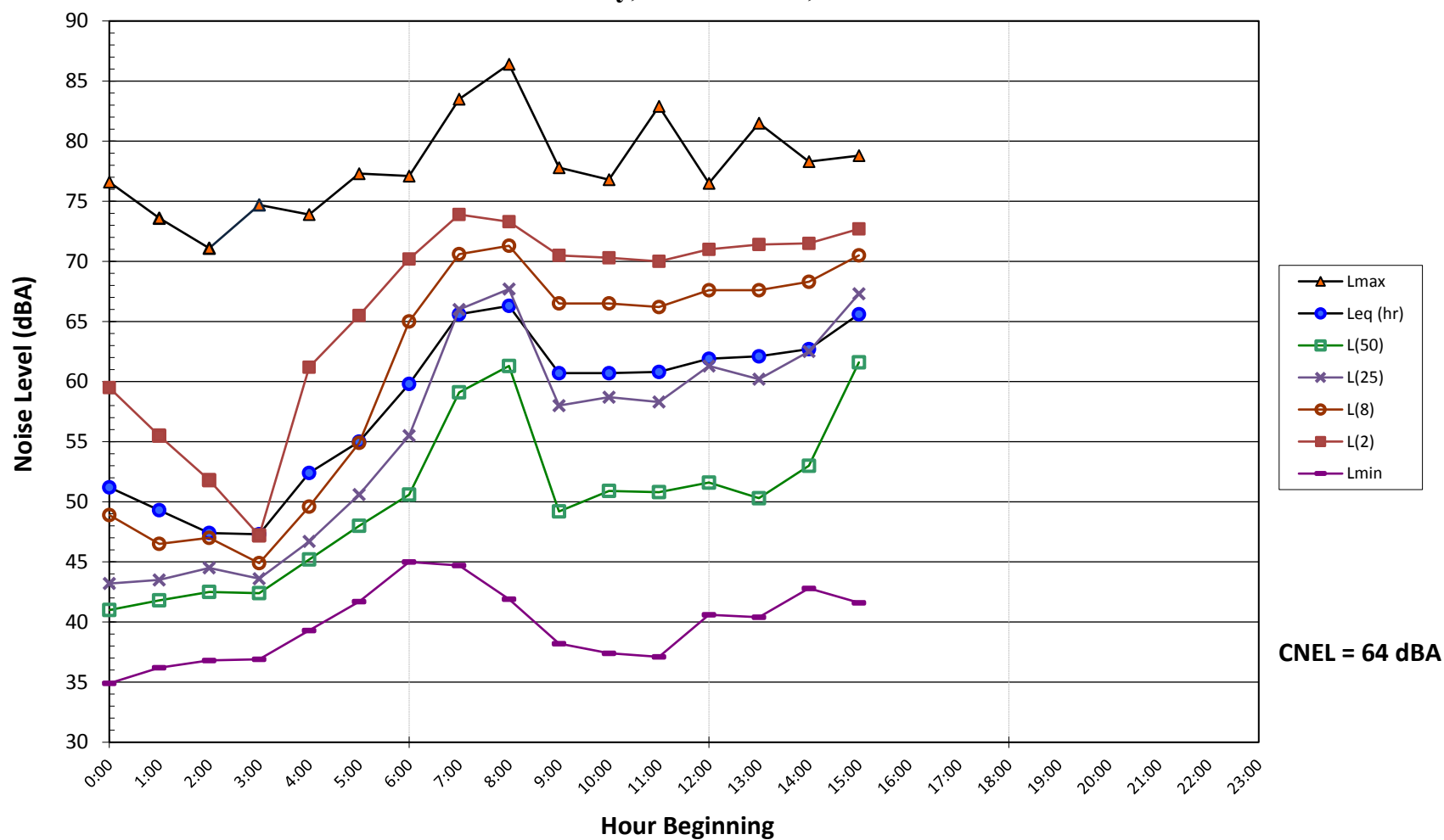
Noise Levels at LT-2
Wilson Avenue East of Haven Avenue - Rancho Cucamonga, CA
Monday, November 29, 2021



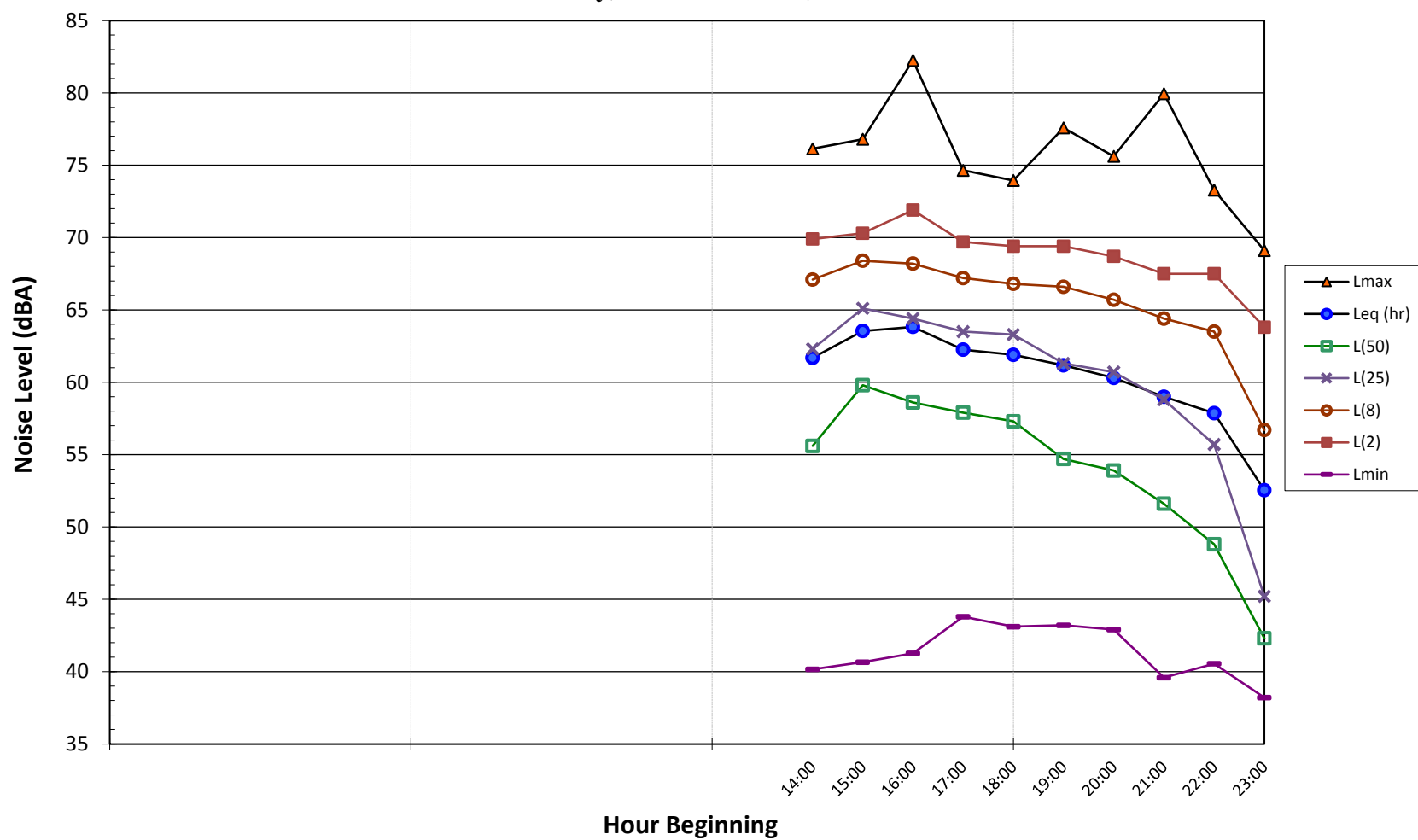
Noise Levels at LT-2
Wilson Avenue East of Haven Avenue- Rancho Cucamonga, CA
Tuesday, November 30, 2021



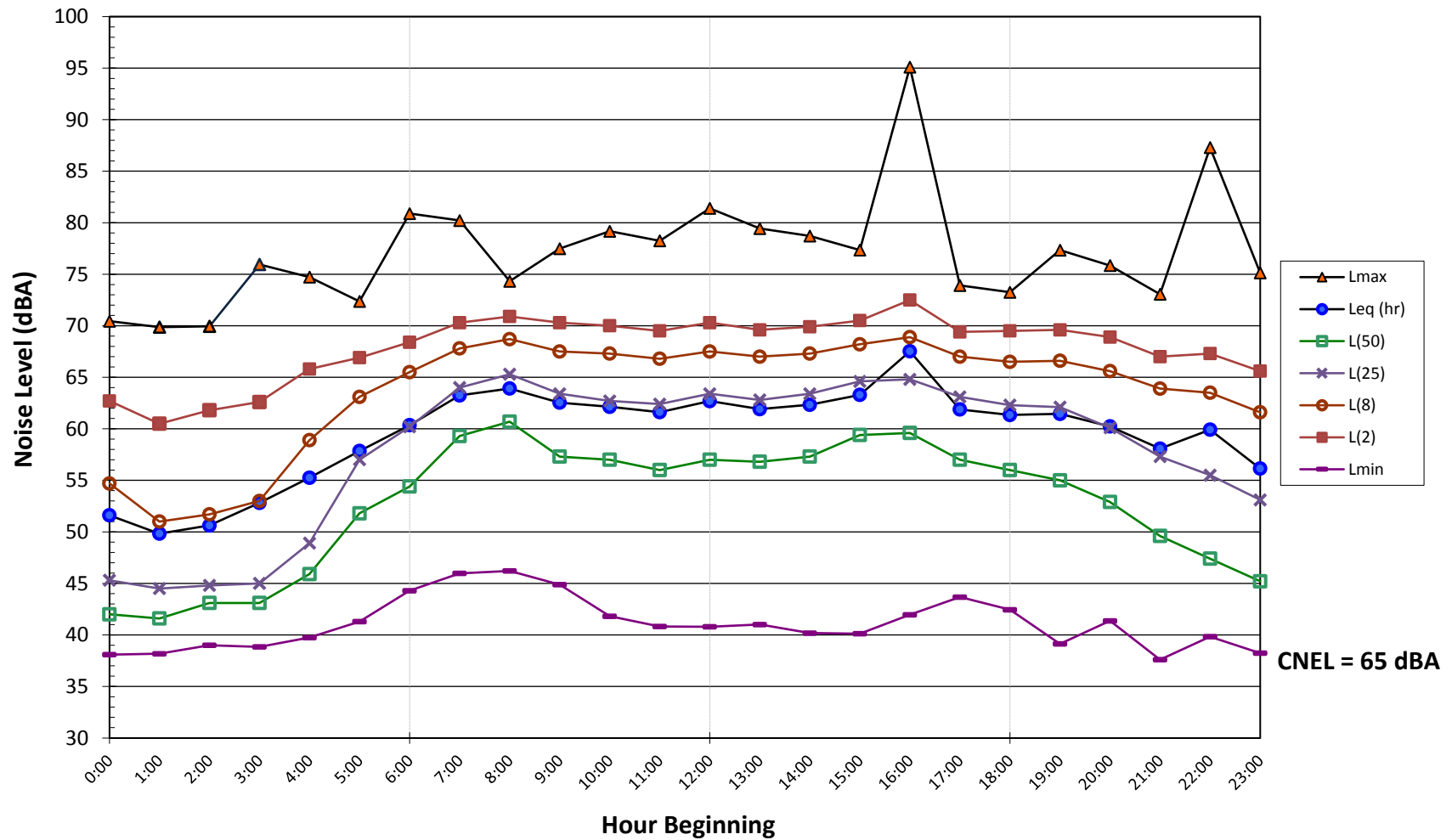
Noise Levels at Noise Measurement Site LT-2
Wilson Avenue East of Haven Avenue- Rancho Cucamonga, CA
Wednesday, December 1, 2021



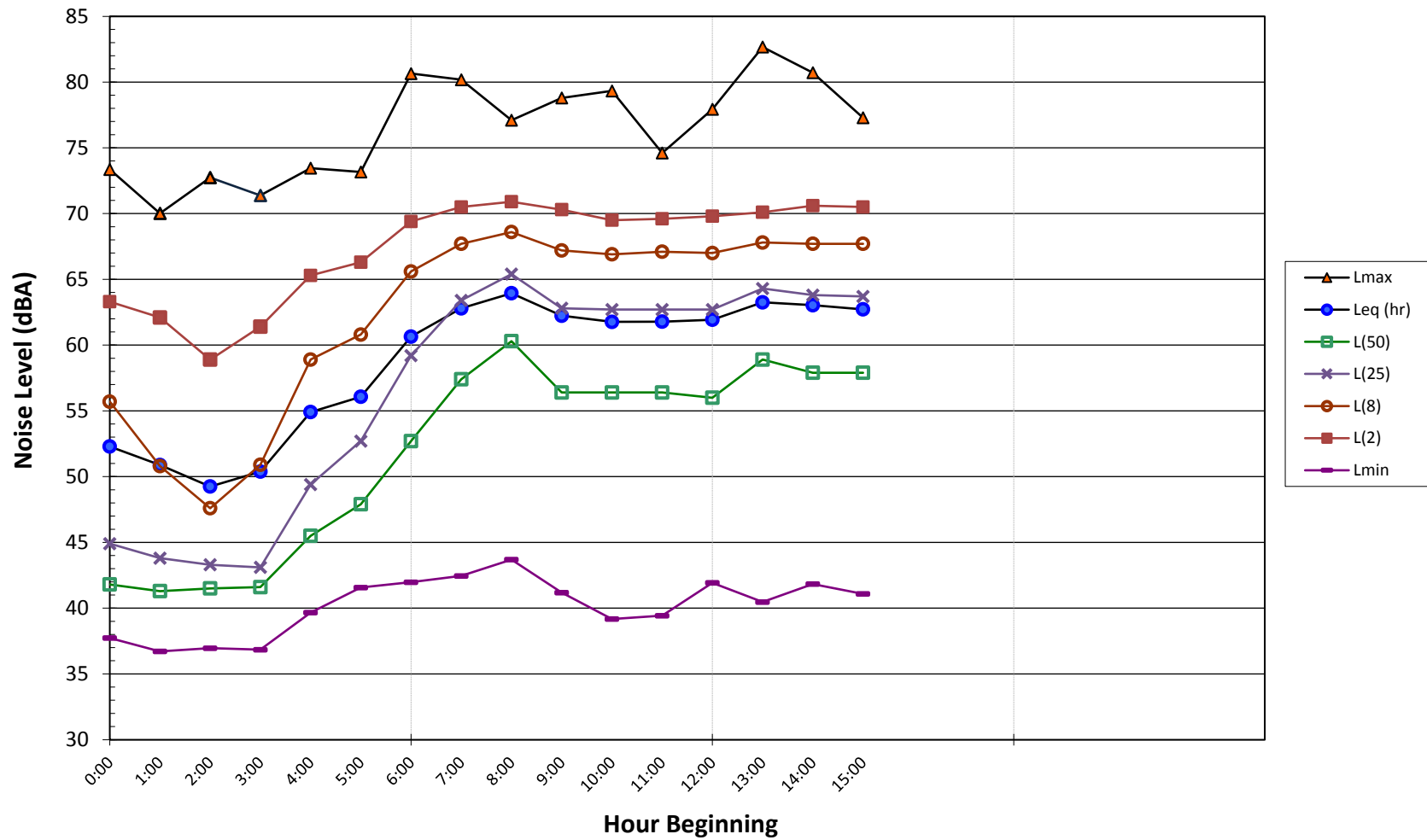
Noise Levels at LT-3
Haven Avenue South of Wilson Avenue- Rancho Cucamonga, CA
Monday, November 29, 2021



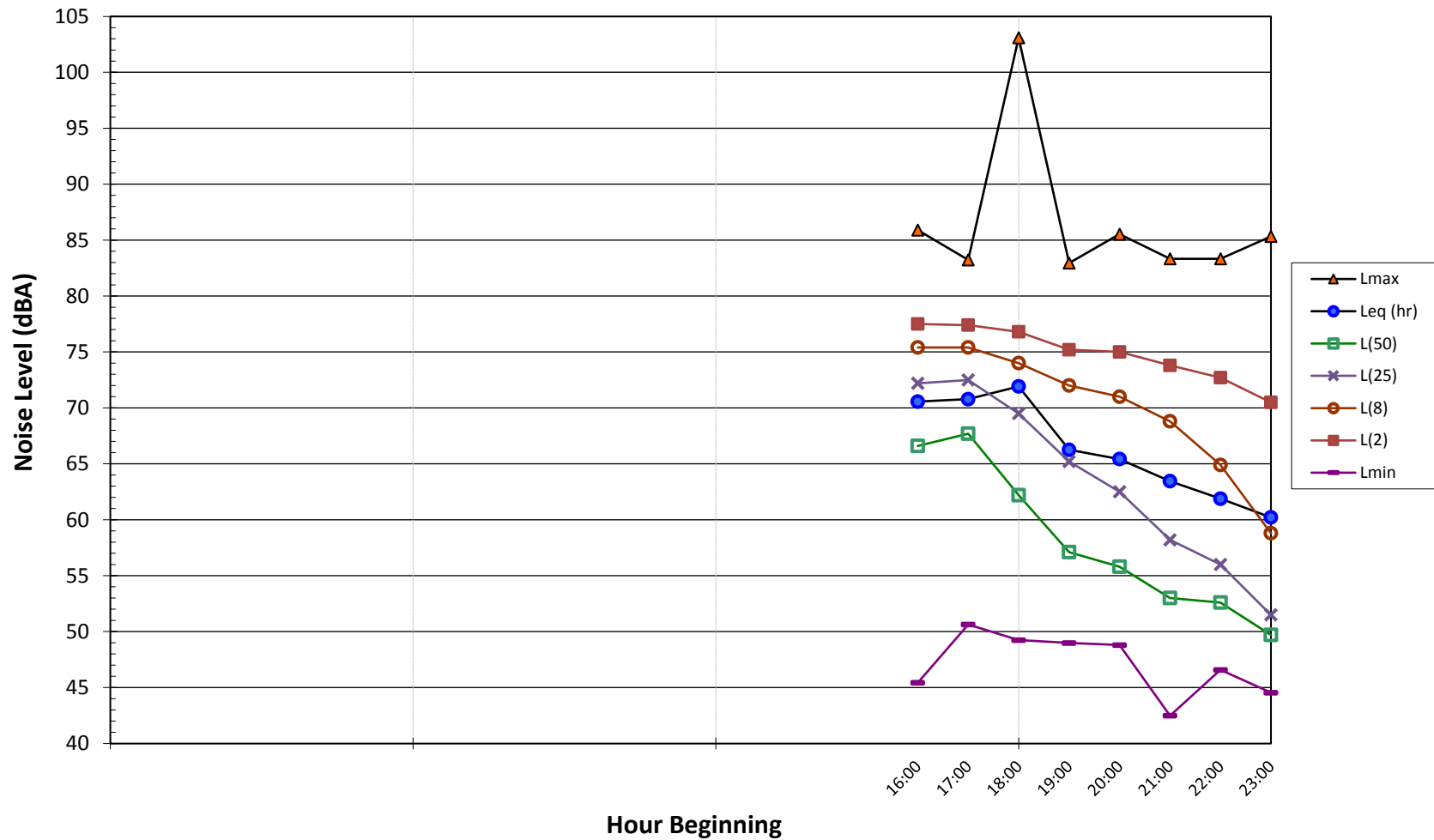
Noise Levels at LT-3
Haven Avenue South of Wilson Avenue - Rancho Cucamonga, CA
Tuesday, November 30, 2021



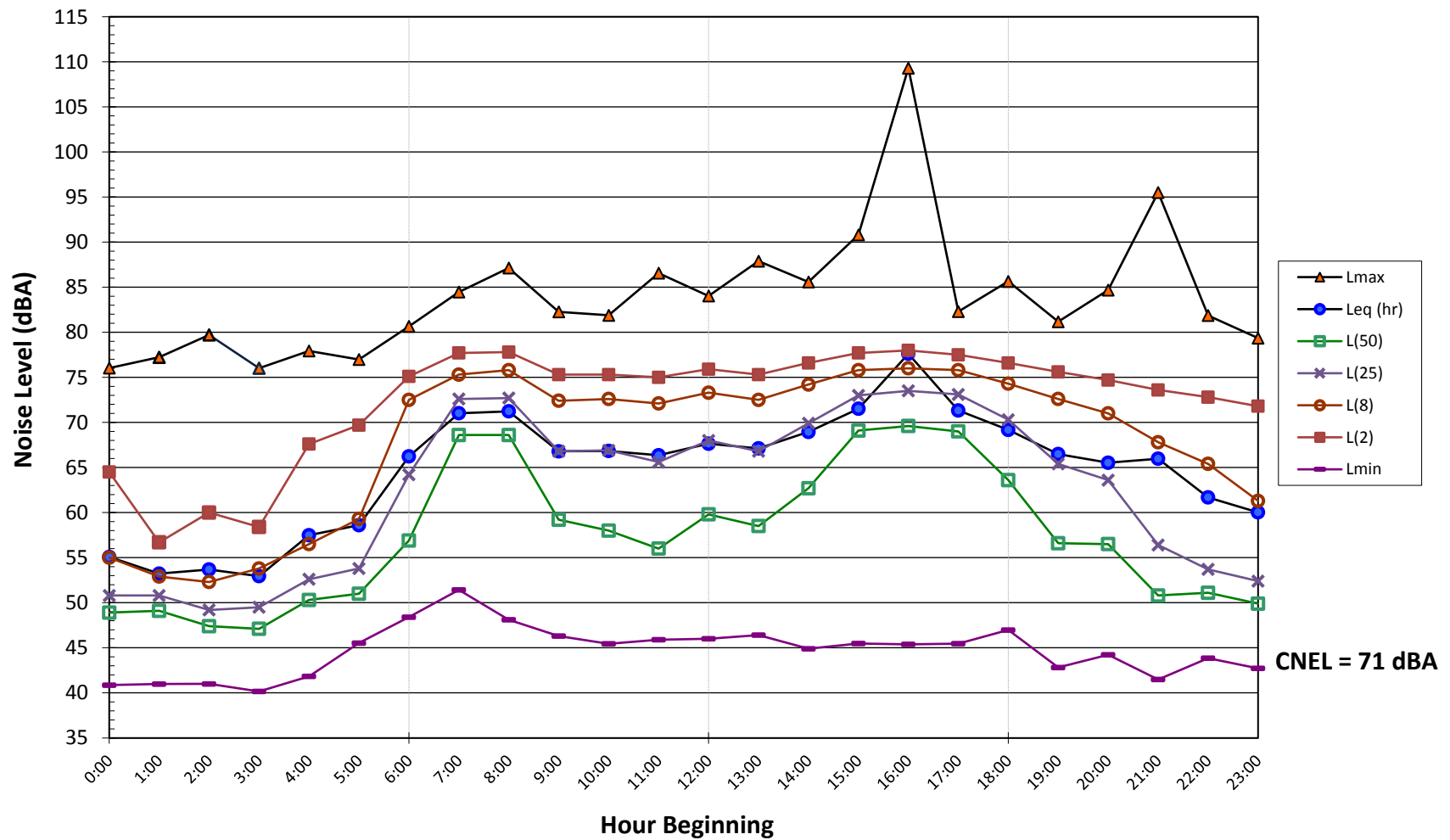
Noise Levels at Noise Measurement Site LT-3
Heaven Avenue South of Wilson Avenue - Rancho Cucamonga, CA
Wednesday, December 1, 2021



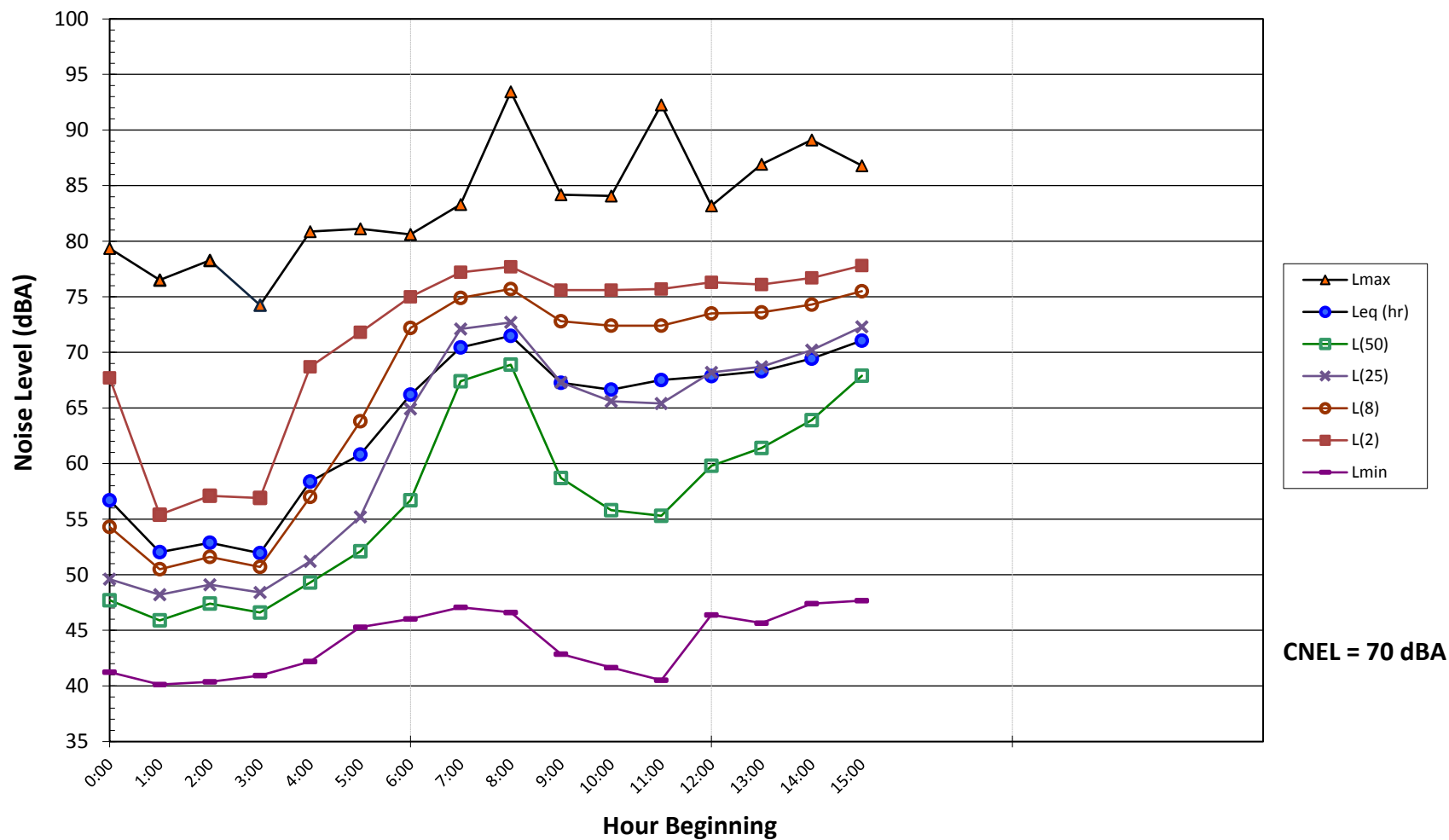
Noise Levels at LT-4
Banyan Street East of Haven Avenue - Rancho Cucamonga, CA
Monday, November 29, 2021



Noise Levels at LT-4
Banyan Street East of Haven Avenue - Rancho Cucamonga, CA
Tuesday, November 30, 2021



Noise Levels at Noise Measurement Site LT-4
Banyan Street East of Haven Avenue- Rancho Cucamonga, CA
Wednesday, December 1, 2021



Appendices

Appendix G Traffic Analysis

Appendices

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Chaffey Community College District's Rancho Cucamonga Campus Master Plan

TRAFFIC ANALYSIS

CITY OF RANCHO CUCAMONGA

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SEPTEMBER 10, 2021



13149-23 TA Report REV

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
PCE	Passenger Car Equivalent
PHF	Peak Hour Factor
Project	Chaffey Community College District's Rancho Cucamonga
Campus Master Plan	
RTP	Regional Transportation Plan
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SHS	State Highway System
TA	Traffic Analysis
vphgpl	Vehicles Per Hour Green Per Lane

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1 INTRODUCTION

This report presents the results of the traffic analysis (TA) for the proposed Chaffey Community College District's Rancho Cucamonga Campus Master Plan development (referred to as "Project") located on the southeast corner of Haven Avenue and Wilson Avenue in the City of Rancho Cucamonga, as shown on Exhibit 1-1.

The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the San Bernardino County Congestion Management Program (CMP) Guidelines for CMP Traffic Impact Analysis Reports (Appendix B, 2016 Update), and the City of Rancho Cucamonga Traffic Impact Analysis Guidelines (June 2020). (1) (2) (3) The City of Rancho Cucamonga was consulted during the TA scoping process, which is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as Project design features in conjunction with development of the site:

- Project access points are adequate to accommodate the anticipated increase of 930 students with no changes to the existing access points.

Additional details and intersection lane geometrics are provided in Section 1.6 *On-Site and Site Access Improvements* of this report. The Project Applicant's responsibility for the Project's contribution towards off-site intersection deficiencies under Horizon Year conditions is fulfilled through payment of fair share that would be assigned to construction of the identified improvements. The Project Applicant would be required to pay requisite fair share contributions consistent with the City's requirements (see Section 7 *Local and Regional Funding Mechanisms*).

1.2 PROJECT OVERVIEW

As shown on Exhibit 1-2, the proposed Project will include the demolition of approximately 127,000 square feet within 16 buildings (to be demolished and replaced with new modern buildings). As shown on Exhibit 1-3, 9 new buildings totaling 673,000 square feet of new construction is proposed in conjunction with renovation of 187,000 square feet. Vehicular access will be maintained via existing driveways on Haven Avenue and Wilson Avenue. The proposed Project will be developed in 5 phases over 30 years. The pre-pandemic student headcount at the Chaffey College Rancho Cucamonga Campus was 16,474 students actively enrolled in Fall 2019. By 2051, the student count is anticipated to increase by approximately 5.65% resulting in a headcount of 17,404 students (an increase of 930 students). Regional access to the Project site is available from the I-210 Freeway at the Haven Avenue interchange.

EXHIBIT 1-1: LOCATION MAP

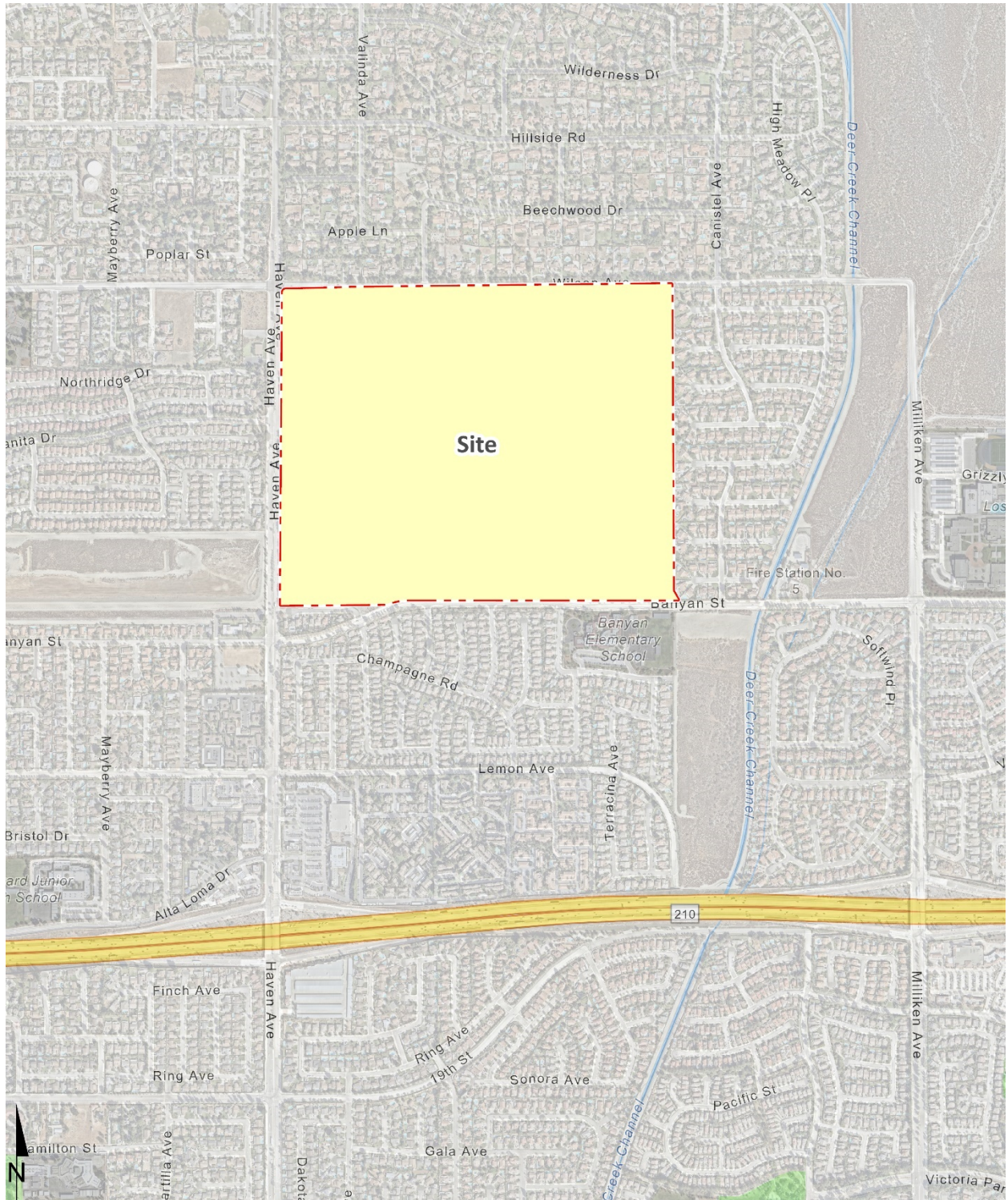
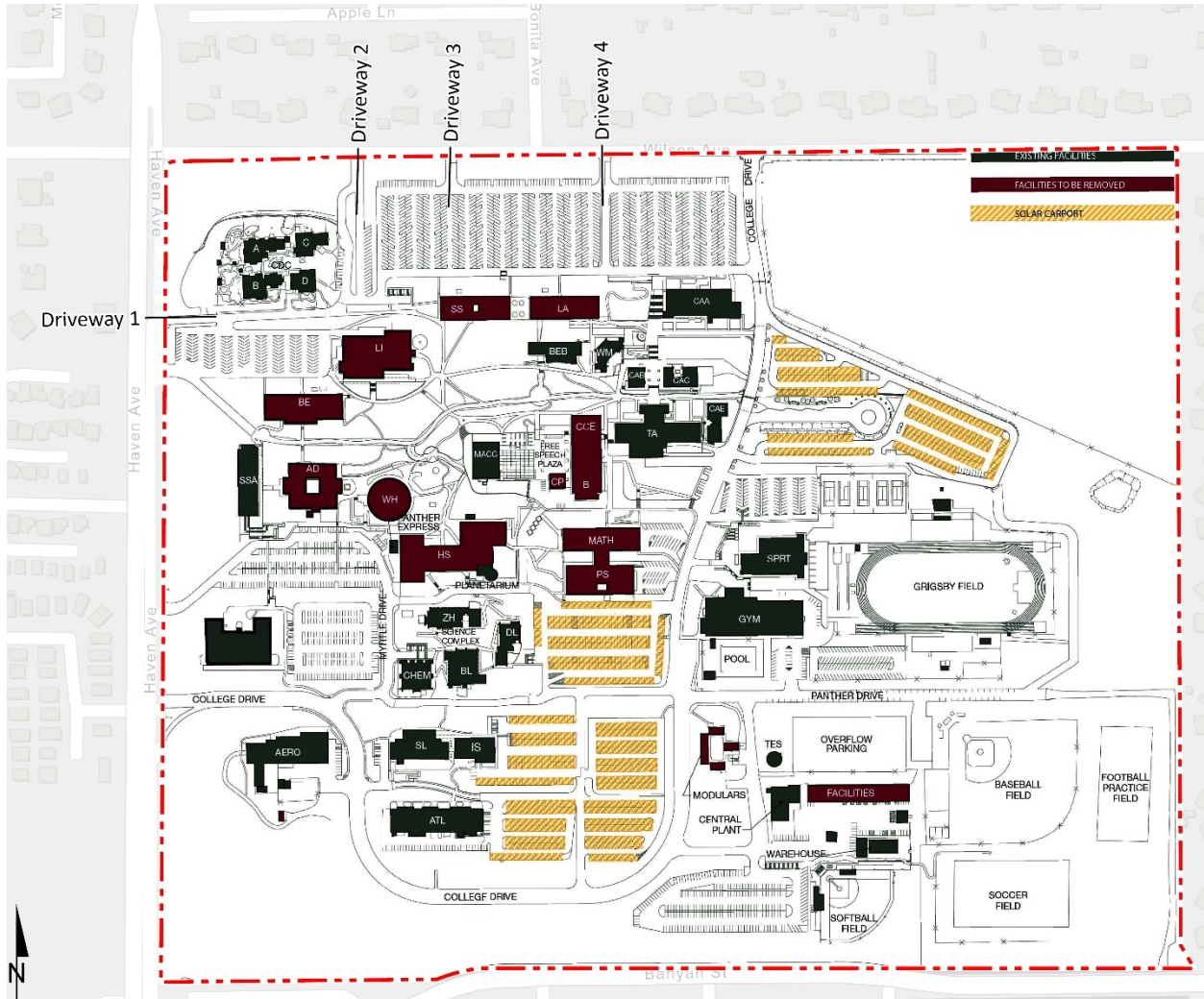


EXHIBIT 1-2: AREAS TO BE DEMOLISHED



4



As part of the Project Olive Way will be relocated slightly to the north and reconfigured, however, this should not affect the analysis as it has been evaluated as a right-in/right-out driveway. There is also a new driveway proposed to serve the Operational Support Building south of College Drive. This driveway will be the main truck access for the receiving yard, and the Operational Support will be replacing the warehouse and maintenance building. The trips associated with this driveway are anticipated to be nominal and is not anticipated to have any operational issues as it would be restricted to right-in/right-out access only (nominal conflict). As such, the traffic associated with this driveway has been allocated to College Drive for the purposes of this traffic study in an effort to conduct a conservative analysis.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates published by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. (4) The Project is estimated to generate 1,070 two-way vehicle trips per day on a typical weekday, with 102 AM peak hour trips and 102 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2021)
- Existing plus Project
- Horizon Year (2051) Without Project
- Horizon Year (2051) With Project

1.3.1 EXISTING (2021) CONDITIONS

Existing (2021) conditions represent the baseline traffic conditions as they existed at the time this report was prepared. It should be noted that historic traffic count data in conjunction with current count data has been utilized to establish the baseline condition due to the currently ongoing COVID-19 pandemic. Additional details on adjustments to the Existing conditions baseline are discussed in Section 3.5 *Existing Traffic Counts* of this report.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) conditions analysis determines the potential project-related circulation system deficiencies based on a comparison of Existing and E+P traffic conditions. Project-related circulation deficiencies are identified if the addition of Project traffic results in a new deficiency as compared to Existing conditions. E+P traffic conditions does not include any other background traffic growth or cumulative development projects.

1.3.3 HORIZON YEAR (2051) CONDITIONS

Traffic projections for Horizon Year (2051) with Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) plus additional growth to Year 2051. The Horizon Year (2051) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program or other approved funding mechanisms, can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Rancho Cucamonga (lead agency). If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative improvements. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Rancho Cucamonga's requirements, Urban Crossroads, Inc. prepared a project TA scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology.

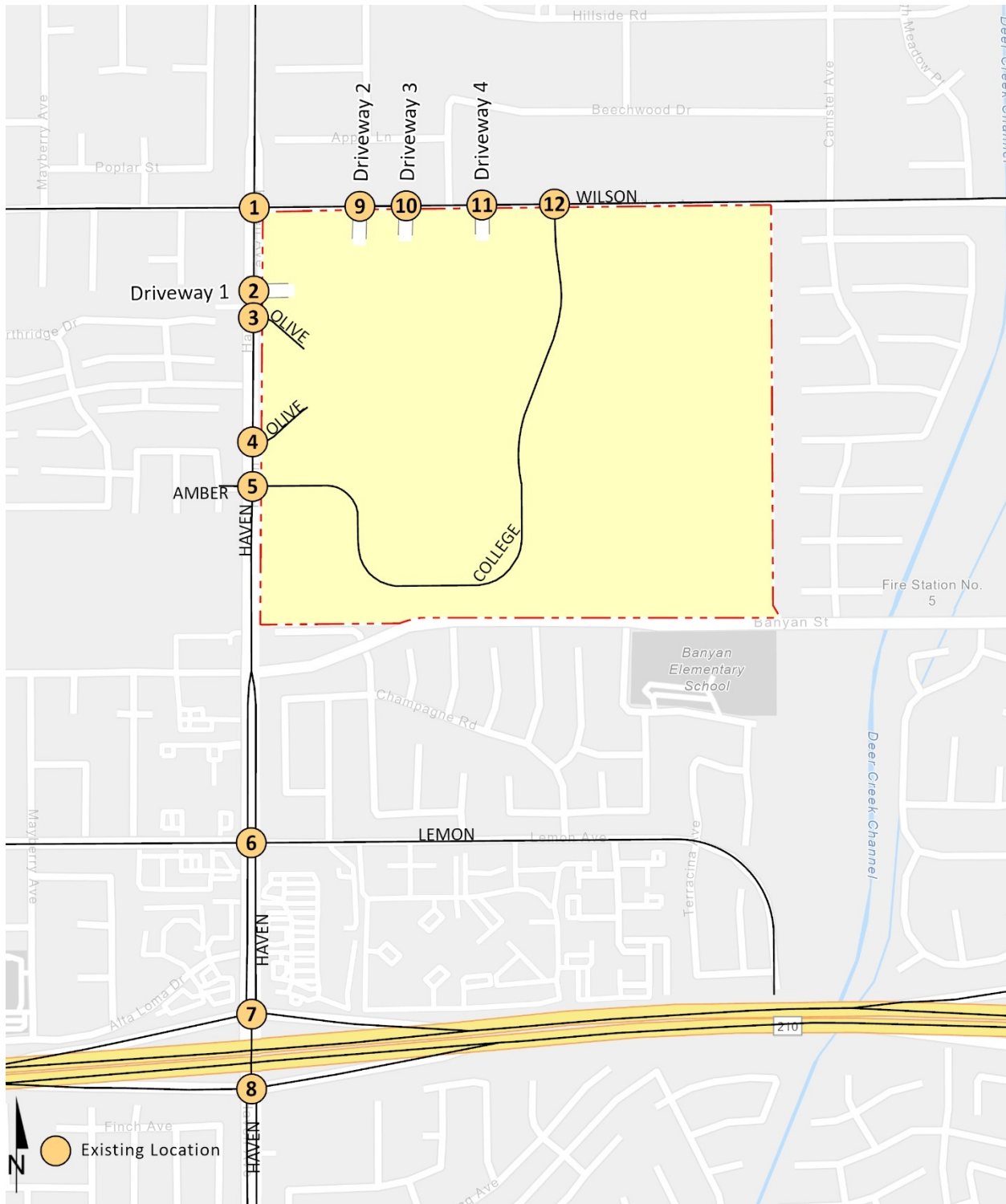
The following 12 study area intersections shown on Exhibit 1-4 and listed in Table 1-1 were selected for this TA based on consultation with City of Rancho Cucamonga staff.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Haven Av. & Wilson Av.	Rancho Cucamonga	No
2	Haven Av. & Driveway 1	Rancho Cucamonga	No
3	Haven Av. & Olive Wy.-North	Rancho Cucamonga	No
4	Haven Av. & Olive Wy.-South	Rancho Cucamonga	No
5	Haven Av. & Amber Ln./College Dr.	Rancho Cucamonga	No
6	Haven Av. & Lemon Av.	Rancho Cucamonga	No
7	Haven Av. & I-210 WB Ramps	Rancho Cucamonga	No
8	Haven Av. & I-210 EB Ramps	Rancho Cucamonga	No
9	Driveway 2 & Wilson Av.	Rancho Cucamonga	No
10	Driveway 3 & Wilson Av.	Rancho Cucamonga	No
11	Driveway 4 & Wilson Av.	Rancho Cucamonga	No
12	College Dr. & Wilson Av.	Rancho Cucamonga	No

The intent of a CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. There are no study area intersections identified as a San Bernardino County Transportation Authority (SBCTA) CMP intersection.

EXHIBIT 1-4: LOCATION MAP



1.5 DEFICIENCIES

This section provides a summary of Project deficiencies. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *Existing plus Project Traffic Conditions* and Section 6 *Horizon Year (2051) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented in Table 1-2.

TABLE 1-2: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2021)		E+P		2051 NP		2051 WP	
		AM	PM	AM	PM	AM	PM	AM	PM
1	Haven Av. & Wilson Av.	●	●	●	●	●	●	●	●
2	Haven Av. & Driveway 1	●	●	●	●	●	●	●	●
3	Haven Av. & Olive Wy.-North	●	●	●	●	●	●	●	●
4	Haven Av. & Olive Wy.-South	●	●	●	●	●	●	●	●
5	Haven Av. & Amber Ln./College Dr.	●	●	●	●	●	●	●	●
6	Haven Av. & Lemon Av.	●	●	●	●	●	●	●	●
7	Haven Av. & I-210 WB Ramps	●	●	●	●	●	●	●	●
8	Haven Av. & I-210 EB Ramps	●	●	●	●	●	●	●	●
9	Driveway 2 & Wilson Av.	●	●	●	●	●	●	●	●
10	Driveway 3 & Wilson Av.	●	●	●	●	●	●	●	●
11	Driveway 4 & Wilson Av.	●	●	●	●	●	●	●	●
12	College Dr. & Wilson Av.	●	●	●	●	●	●	●	●

● = A - D ● = E ● = F

1.5.1 EXISTING PLUS PROJECT CONDITIONS

The following intersection is anticipated to continue to operate at an unacceptable LOS during the peak hours with the addition of Project traffic:

- Haven Avenue & I-210 Eastbound Ramps (#8) – LOS E AM and PM peak hours

It should be noted that this is an existing deficiency to which the Project is anticipated to contribute traffic to.

1.5.2 HORIZON YEAR (2051) CONDITIONS

The following study area intersection is anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2051) Without Project conditions:

- Haven Avenue & I-210 Eastbound Ramps (#8) – LOS E AM and PM peak hours

With the addition of Project traffic, there are no additional study area intersections that are anticipated to operate at an unacceptable LOS during the peak hours.

1.6 ON-SITE AND SITE ACCESS IMPROVEMENTS

The following Project design features are based on the improvements needed to accommodate site access. Exhibit 1-5 shows the site adjacent recommendations. As shown on Exhibit 1-5, there are no changes recommended to the site access intersections including no additional turn pocket storage needed to accommodate the proposed project.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard City of Rancho Cucamonga sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

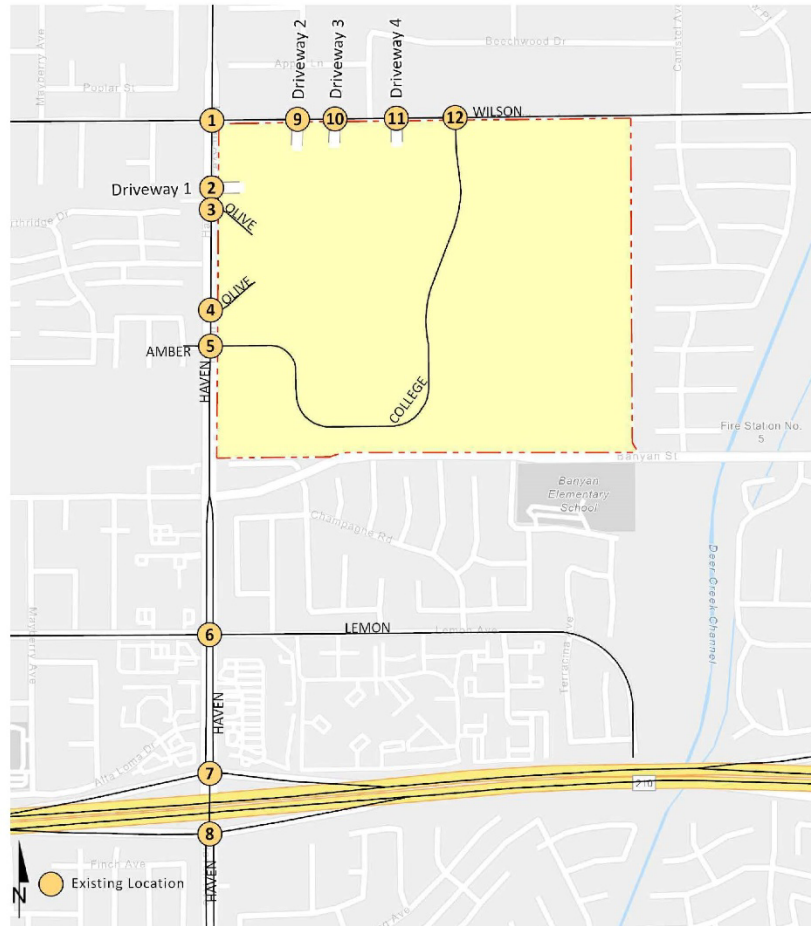
1.7 QUEUING ANALYSIS

A queuing analysis was conducted along the site adjacent roadways and driveways for Horizon Year (2051) With Project traffic conditions to determine the turn pocket lengths necessary to accommodate long-range 95th percentile queues and to determine if additional storage is needed for the existing left turn pockets. The analysis was conducted for the weekday AM and weekday PM peak hours and results have been provided in Appendix 1.2.

SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. The 50th percentile, or average, queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). Many agencies utilize the 95th percentile queues for design purposes.

The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each applicable turn lane. A SimTraffic simulation has been recorded five times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. Based on the anticipated 95th percentile queue, there are no anticipated queue issues along the Project frontages that would block the adjacent driveways or cause queues within turn lanes to spill back into the adjacent through lanes. Turn pocket storage lengths needed to accommodate site access are also based on the peak 95th percentile queues and are shown on Exhibit 1-5.

EXHIBIT 1-5: SITE ADJACENT ROADWAY AND SITE-ACCESS RECOMMENDATIONS



1	Haven Av. & Wilson Av.	2	Haven Av. & Dwy. 1	3	Haven Av. & Olive Wy. N.	4	Haven Av. & Olive Wy. S.	5	Haven Av. & Amber Ln. / College Dr.
9	Dwy. 2 & Wilson Av.	10	Dwy. 3 & Wilson Av.	11	Dwy. 4 & Wilson Av.	12	College Dr. & Wilson Av.	 = Stop Sign  = Existing Lane TRAP = Trap Lane 100' = Minimum Turn	

- = Stop Sign
- = Existing Lane
- TRAP** = Trap Lane
- 100'** = Minimum Turn Pocket Length

1.8 OFF-SITE IMPROVEMENTS

The recommended improvements needed to address the cumulative deficiencies identified under E+P and Horizon Year (2051) traffic conditions are shown in Table 1-3. Based on the operations analysis, the Project is to implement/construct the improvement identified in Table 1-3. In addition, the Project Applicant would be required to pay development fees consistent with the City's requirements (see Section 7 *Local and Regional Funding Mechanisms*).

TABLE 1-3: SUMMARY OF IMPROVEMENTS BY ANALYSIS SCENARIO

#	Intersection Location	Jurisdiction	E+P	Horizon Year (2051)	Improvements in DIF? ¹	Project Responsibility ²
8	Haven Av. & I-210 EB Ramps	Caltrans, Rancho Cucamonga	Restripe the NB approach with 2 through lanes and one right turn lane	Same	No	Construct

¹ Improvements included in City's DIF or regional fee programs.

² Identifies the Project's responsibility: construct an improvement or contribute fair share towards the implementation of the improvement.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with the City of Rancho Cucamonga, SBCTA CMP, and Caltrans traffic study guidelines. (1) (2) (3)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Transportation Research Board's Highway Capacity Manual (HCM) 6th Edition methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Rancho Cucamonga and Caltrans require signalized intersection operations analysis based on the methodology described in the HCM 6th Edition. Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 11) analysis software package.

Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: HCM, 6th Edition

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., $PHF = [Hourly Volume] / [4 \times Peak\ 15\text{-minute Flow Rate}]$). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Rancho Cucamonga requires the operations of unsignalized intersections be evaluated using the methodology described the HCM 6th Edition. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM, 6th Edition

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD) for all unsignalized study area intersections. (6)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

As shown in Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
9	Driveway 2 & Wilson Av.	Rancho Cucamonga	No
10	Driveway 3 & Wilson Av.	Rancho Cucamonga	No
11	Driveway 4 & Wilson Av.	Rancho Cucamonga	No
12	College Dr. & Wilson Av.	Rancho Cucamonga	No

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *Existing plus Project Traffic Analysis* and Section 6 *Horizon Year (2051) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

2.4.1 CITY OF RANCHO CUCAMONGA

Per the City's traffic study Guidelines, the City of Rancho Cucamonga allows LOS D to be used as the maximum acceptable threshold for study area intersections and roadways.

2.4.2 SAN BERNARDINO COUNTY CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, for the purposes of this analysis, LOS D has been utilized for all study area intersections. (7)

2.5 INTERSECTION DEFICIENCY CRITERIA

To determine whether the addition of project traffic at a study intersection, which would result in a direct project-related traffic deficiency, the following will be utilized:

- When the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and project-generated traffic causes deterioration below LOS E (i.e., unacceptable LOS), a deficiency is deemed to occur.
- However, when the pre-Project condition is already below LOS D (i.e., unacceptable LOS), the Project will be responsible for improving its contribution to a deficiency to a level of service equal to or better than it was without the Project.

Cumulative traffic deficiencies are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic deficiencies requiring additional improvements to maintain acceptable level of service operations with or without the Project. A Project's contribution to a cumulative deficiency can be reduced if the Project is required to implement or fund its fair share of improvements designed to alleviate its contribution to the deficiency.

Improvements for project level deficiencies should focus on providing operations that offset the project deficiency (e.g., achieve a "no project" LOS). Improvements could consist of signal timing improvements, lane restriping, or new lanes to study facilities. Cumulative deficiencies should include a fair-share contribution toward achieving acceptable levels of service as noted below. Alternatively, if a cumulative location is included in an existing traffic impact fee program, payment of those fees would constitute an appropriate contribution.

2.6 VEHICLES MILES TRAVELED (VMT)

A key element of SB 743 is the elimination of automobile delay and level of service as the sole basis of determining CEQA impacts. The most recent CEQA guidelines, released in December 2018, recommend VMT as the most appropriate measure of discerning project transportation impacts for the purposes of CEQA. However, SB 743 does not prevent a City or County from continuing to analyze delay or LOS as part of other plans (i.e., the general plan), studies, or ongoing network monitoring. VMT thresholds, methodology, analysis, and findings will be presented under separate cover from this traffic study and will follow the City's traffic study guidelines.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Rancho Cucamonga General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

The study area includes a total of 12 existing and future intersections as shown previously on Exhibit 1-4. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF RANCHO CUCAMONGA GENERAL PLAN CIRCULATION ELEMENT

As previously noted, the Project site is located within the City of Rancho Cucamonga. Exhibit 3-2 shows the City of Rancho Cucamonga General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Rancho Cucamonga General Plan roadway cross-sections. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the City of Rancho Cucamonga in the vicinity of the proposed Project as identified on the City's General Plan Circulation Element are described subsequently.

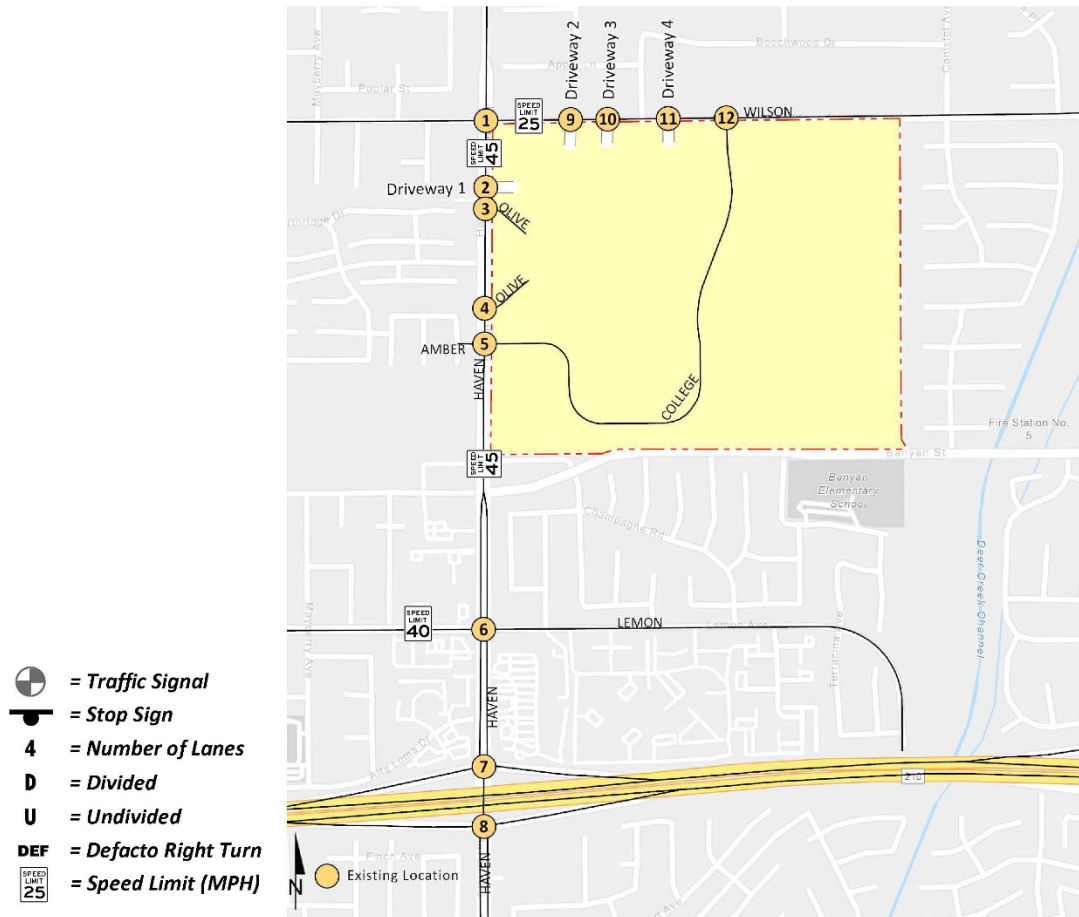
Major Divided Arterials can accommodate six travel lanes and have raised medians. These roadways experience the most traffic within the city. An example of a Major Divided Arterial within the study area includes:

- Haven Avenue, south of Wilson Avenue

Secondary Arterials can accommodate four travel lanes and provide connection between collectors and arterials. Secondary Arterials have two-way left-turn lanes. Examples of Secondary Arterials within the study area include:

- Haven Avenue, north Wilson Avenue
- Wilson Avenue

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



1	Haven Av. & Wilson Av.	2	Haven Av. & Dwy. 1	3	Haven Av. & Olive Wy. N.	4	Haven Av. & Olive Wy. S.	5	Haven Av. & Amber Ln. / College Dr.	6	Haven Av. & Lemon Av.
7	Haven Av. & I-210 WB Ramps	8	Haven Av. & I-210 EB Ramps	9	Dwy. 2 & Wilson Av.	10	Dwy. 3 & Wilson Av.	11	Dwy. 4 & Wilson Av.	12	College Dr. & Wilson Av.

EXHIBIT 3-2: CITY OF RANCHO CUCAMONGA GENERAL PLAN CIRCULATION ELEMENT

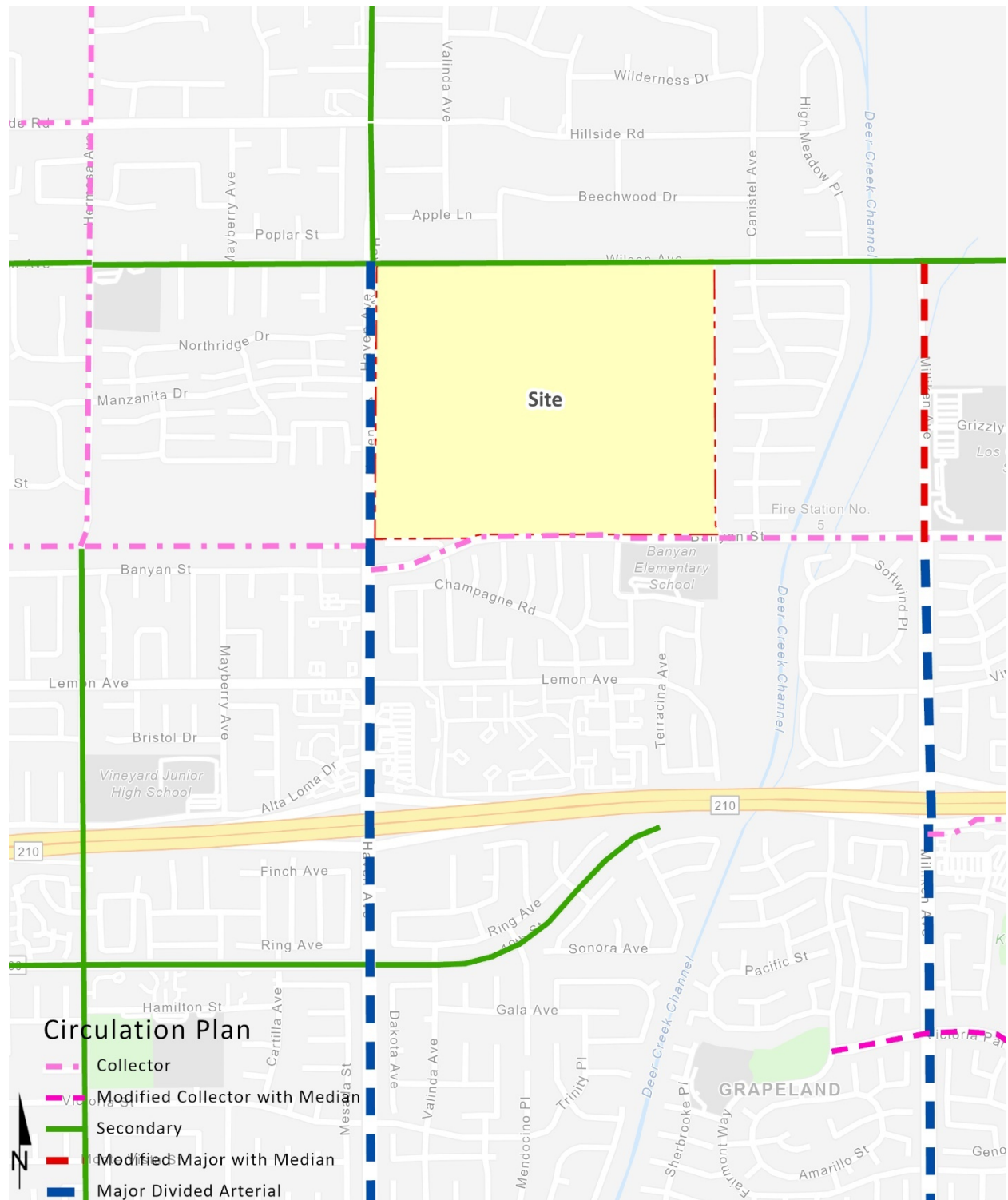
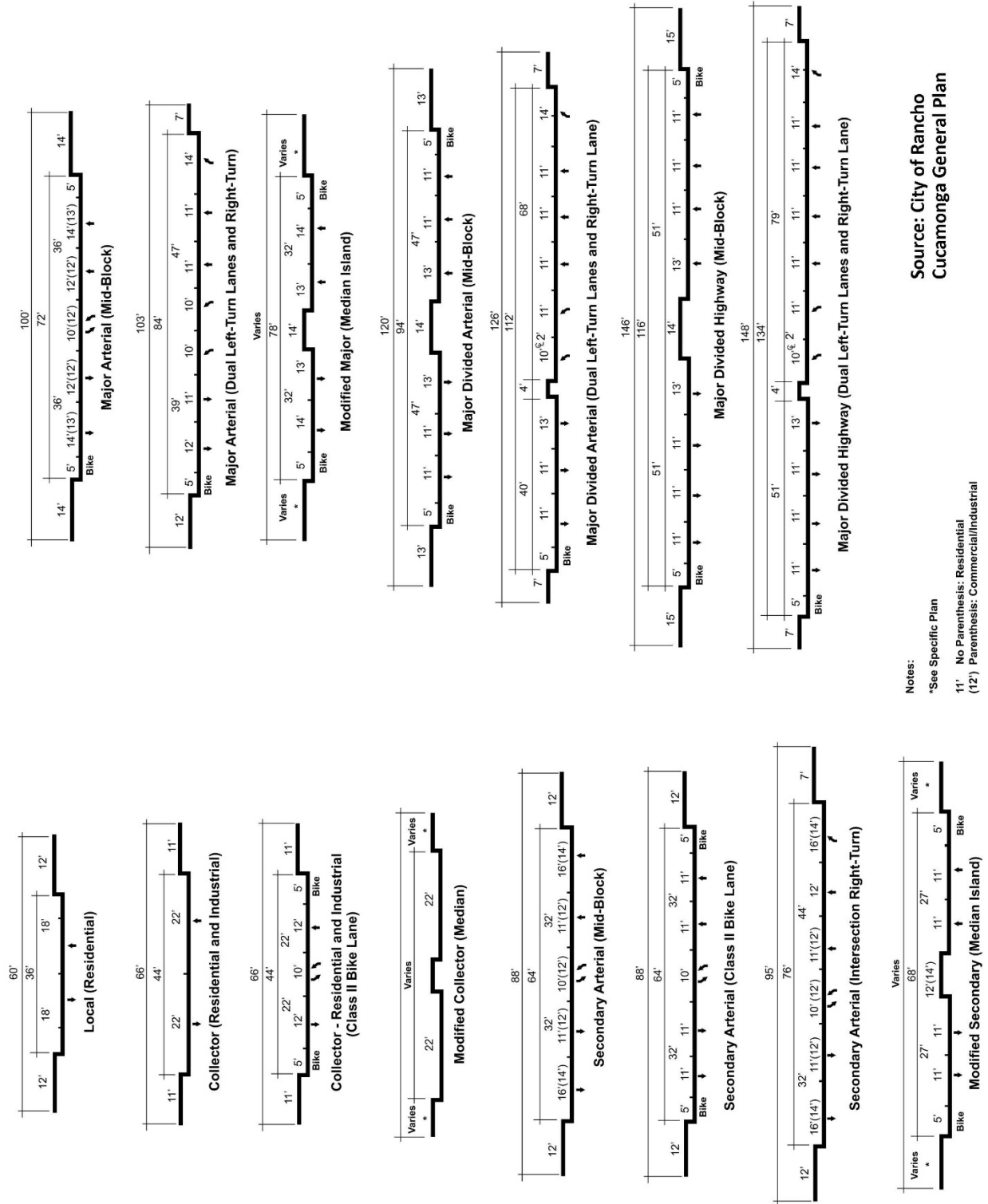


EXHIBIT 3-3: CITY OF RANCHO CUCAMONGA GENERAL PLAN ROADWAY CROSS-SECTIONS



Source: City of Rancho Cucamonga General Plan

Notes:
 *See Specific Plan
 11' No Parenthesis: Residential
 (12) Parenthesis: Commercial/Industrial

3.3 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of Rancho Cucamonga General Plan also includes a bike plan. The City of Rancho Cucamonga bike routes are shown on Exhibit 3-4. Within the study area, there are proposed Class II (striped, on-street) bike lane along Wilson Avenue and Haven Avenue. There are existing Class II bike lanes on Wilson Avenue west of Haven Avenue. Exhibit 3-5 shows the City of Rancho Cucamonga trails. As shown on Exhibit 3-5, there are community trails that currently exist along Wilson Avenue, Haven Avenue, and Banyan Street. Community trails connect local trails (private equestrian easements) to regional trails (generally adjacent to flood control channels). Community trails are off-road facilities that can be utilized by pedestrians, bicyclists and equestrians. Exhibit 3-6 illustrates the existing pedestrian facilities, including sidewalks and crosswalk locations. As shown on Exhibit 3-6, there are currently no sidewalks along the Project's frontages of Haven Avenue and Wilson Avenue. With the anticipated increase of 930 students over the next 30 years, it is anticipated these facilities (or lack thereof) will not likely be adversely affected by the Project.

3.4 TRANSIT SERVICE

The study area is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County, with bus service along Haven Avenue via Route 81 and along Banyan Street to Haven Avenue into the Project via Route 85. The existing Omnitrans Route 85 would likely continue to serve the Project. The existing transit routes within the area by Omnitrans is shown on Exhibit 3-7. Transit service is reviewed and updated by Omnitrans periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in March 2019 and June 2021. Consistent with standard engineering practice, these traffic counts were conducted either on Tuesday, Wednesday, or Thursday due to potential fluctuations in traffic that typically occur on Mondays, Fridays, Holidays, or weekends. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

Due to the currently ongoing COVID-19 pandemic, schools and businesses within the study area were closed or operating at less than full capacity at the time this study was prepared. Traffic counts older than the current year (2021) would be brought to current conditions through the application of an adjustment factor. The adjustment factor is derived based on a comparison of historic March 2019 traffic counts adjusted to 2021 conditions by applying a 2% per year growth adjustment as compared to the current June 2021 traffic counts. As such, a different adjustment factor was developed for the AM and PM peak hours.

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EXHIBIT 3-5: CITY OF RANCHO CUCAMONGA EXISTING TRAILS

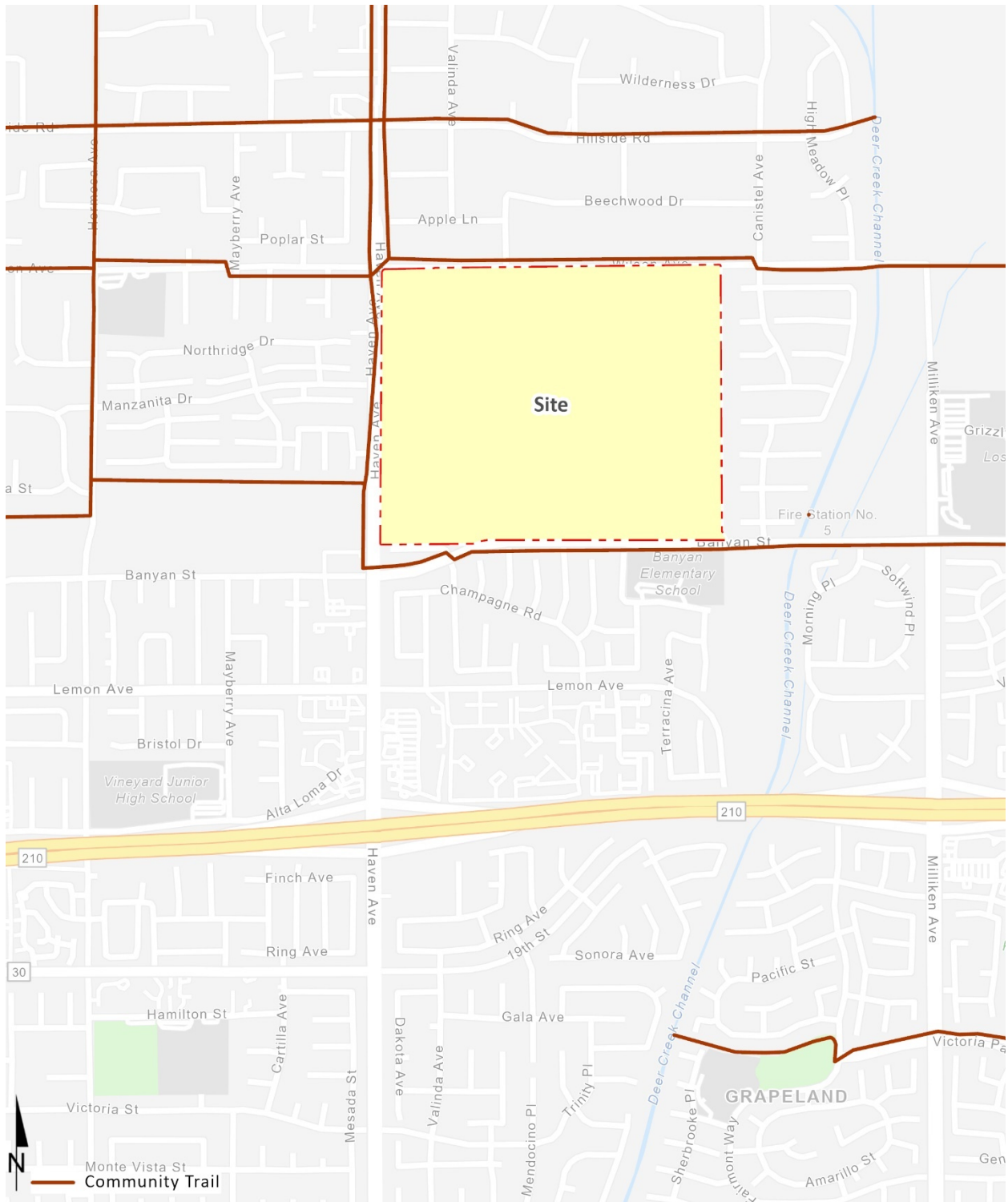


EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES

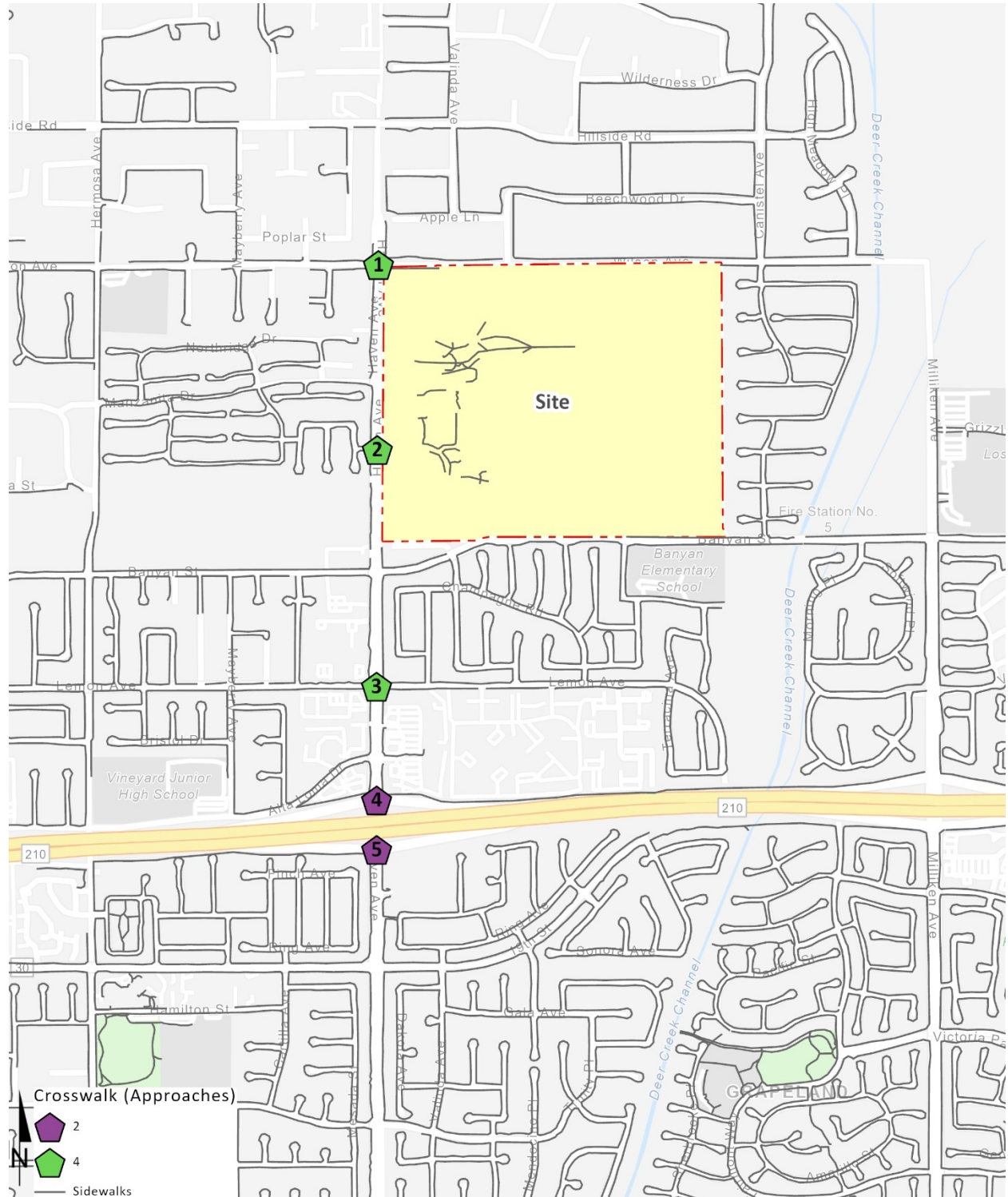
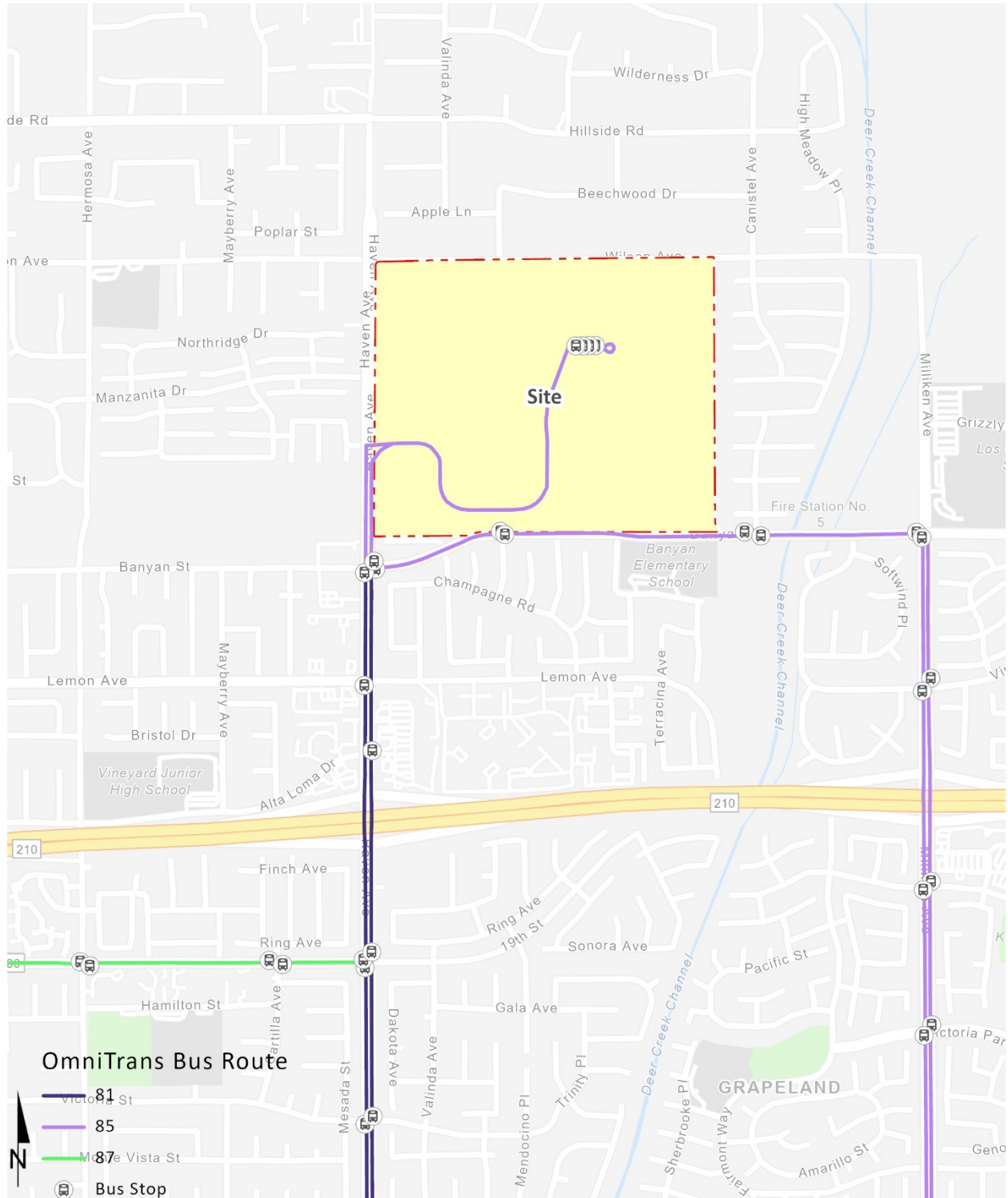


EXHIBIT 3-7: EXISTING TRANSIT ROUTES



Historic pre-COVID (March 2019) traffic counts were utilized in conjunction with a 2% per year growth rate (compounded annually) to reflect adjusted 2021 conditions for the following intersections:

- Haven Av. & Wilson Av. (#1)
- Haven Av. & Lemon Av. (#6)

The 2019 count data are representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules.

Historic traffic count data was not readily available for the remaining study area intersections (those not listed above). As such, 2021 traffic counts have been collected at these intersections in order to compare and develop an adjustment factor based on historic 2019 traffic count data to the recently collected 2021 traffic count data. This adjustment factor has been applied to the traffic count data at the intersections where historic traffic count data is not available to reflect non-COVID traffic conditions. Where applicable, traffic volumes have been flow conserved in order to not have any loss of vehicles. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic. The traffic counts collected in June 2021 include the vehicle classifications as shown below:

- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

To represent the effect of large trucks, buses, and recreational vehicles have on traffic flow, all trucks were accounted for in the operations analysis as a percentage of total traffic. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles.

As the traffic counts conducted in June 2021 reflect nominal traffic coming into and out of the Project site, the baseline was adjusted to account for full-time enrollment of 16,474 students. In addition to the existing students, we have also accounted for a 3,600 square foot warehouse and 17,100 square foot maintenance building. The existing student count was pathed consistent with the Project trip distribution discussed subsequently in Section 4. Table 3-1 identifies the existing student trip generation that has been added to the baseline. As shown in Table 3-1, the existing use currently generates 18,982 two-way trip-ends per day, 1,815 AM peak hour trips and 1,815 PM peak hour trips.

TABLE 3-1: EXISTING TRIP GENERATION

Land Use ¹	Units ²	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
Warehousing ³	TSF	150	0.131	0.039	0.170	0.051	0.139	0.190	1.740
Passenger Cars			0.114	0.034	0.148	0.044	0.118	0.162	1.270
2-Axle Trucks			0.003	0.001	0.004	0.001	0.003	0.005	0.078
3-Axle Trucks			0.004	0.001	0.005	0.002	0.004	0.006	0.097
4+-Axle Trucks			0.011	0.003	0.014	0.005	0.013	0.018	0.294
Junior/Community College	STU	540	0.09	0.02	0.11	0.06	0.05	0.11	1.15

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), *Trip Generation Manual*, Tenth Edition (2017).

² STU = Students; TSF = Thousand Square Feet

³ Vehicle Mix Source: ITE *Trip Generation Handbook Supplement* (2020), Appendix C.

Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.

Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

		AM Peak Hour			PM Peak Hour			
Project Land Use	Quantity Units ¹	In	Out	Total	In	Out	Total	Daily
Project Trip Generation Summary:								
Warehousing	20,700 TSF							
Passenger Cars:		2	1	3	1	2	3	26
2-axle Trucks:		0	0	0	0	0	0	2
3-axle Trucks:		0	0	0	0	0	0	2
4+-axle Trucks:		0	0	0	0	0	0	6
Total Truck Trips:		0	0	0	0	0	0	10
Total Warehouse Trips		2	1	3	1	2	3	36
Fall 2019 (Pre-Pandemic) Enrollment	16,474 STU	1,468	344	1,812	1,015	797	1,812	18,946
Total Project Trips		1,470	345	1,815	1,016	799	1,815	18,982

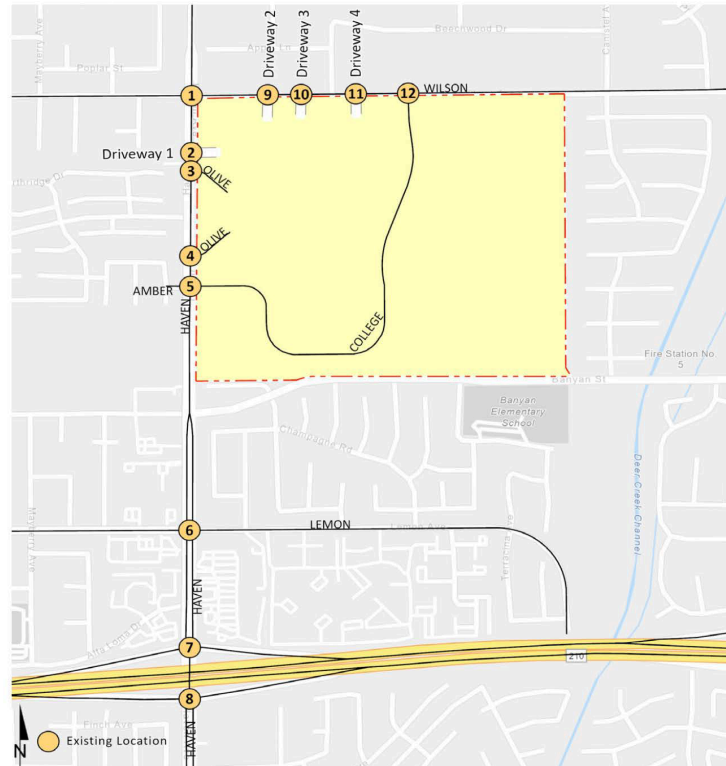
¹ STU = Students; TSF = Thousand Square Feet

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-8. Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

$$\text{Weekday PM Peak Hour (Approach Volume + Exit Volume)} \times 12.0 = \text{Leg Volume}$$

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 8.33 percent. As such, the above equation utilizing a factor of 12.0 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.33 percent (i.e., $1/0.0833 = 12.0$) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in actual vehicles) are also shown on Exhibit 3-8.

EXHIBIT 3-8: EXISTING (2021) TRAFFIC VOLUMES (IN ACTUAL VEHICLES)



1	Haven Av. & Wilson Av.	2	Haven Av. & Driveway 1	3	Haven Av. & N. Olive Wy.	4	Haven Av. & S. Olive Wy.	5	Haven Av. & College Dr.
5,900 24(17) 323(151) 16(33) 9(54) 184(155) 56(67) 5,600	8,400 31(60) 130(115) 74(202) 39(71) 94(185) 236(143) 9,700	9,700 453(420) 3(8) 366(391) 73(51) 10,100	550 453(419) 4(8) 17(40) 436(435) 10,450	10,100 453(419) 4(8) 17(40) 436(435) 10,450	11,600 482(500) 5(23) 357(466) 302(210) 13,300	2,250 5(23) 357(466) 302(210) 13,300	13,300 3(2) 396(457) 82(41) 20(33) 12(18) 650(667) 1039(652) 650	15,300 9(10) 320(728) 320(728) 12(18) 650(667) 1039(652) 28,200	
6	Haven Av. & Lemon Av.	7	Haven Av. & I-210 WB Ramps	8	Haven Av. & I-210 EB Ramps	9	Driveway 2 & Wilson Av.	10	Driveway 3 & Wilson Av.
35,600 64(82) 727(1414) 9(22) 120(171) 24(103) 65(111) 8,000	7,200 26(27) 51(40) 292(183) 83(173) 2032(1441) 94(228) 40,500	15,450 865(797) 8(5) 476(553) 537(646) 1641(1548) 48,400	48,400 1001(1199) 540(746) 1344(611) 5(8) 335(313) 10,100	20,650 1001(1199) 540(746) 1344(611) 5(8) 335(313) 10,100	8,400 231(370) 15(10) 3(8) 421(320) 15(10) 8,400	8,400 231(370) 15(10) 3(8) 421(320) 15(10) 8,400	8,400 244(372) 15(10) 3(8) 410(318) 15(10) 400	8,400 244(372) 15(10) 3(8) 410(318) 15(10) 400	
11	Driveway 4 & Wilson Av.	12	College Dr. & Wilson Av.						
8,400 254(373) 15(10) 399(316) 15(10) 8,400	8,400 254(373) 15(10) 399(316) 15(10) 8,400	8,550 266(375) 33(22) 384(314) 18(10) 550	8,550 266(375) 33(22) 384(314) 18(10) 550	##(##) AM(PM) Peak Hour Intersection Volumes ## Average Daily Trips					

3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-2, which indicates that the study area intersections are currently operating at an acceptable LOS during the peak hours (i.e., LOS D or better). The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-2: INTERSECTION ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Intersection	Traffic Control ²	Delay ¹ (secs.)		Level of Service	
			AM	PM	AM	PM
1	Haven Av. & Wilson Av.	TS	18.2	16.8	B	B
2	Haven Av. & Driveway 1	CSS	10.5	10.5	B	B
3	Haven Av. & Olive Wy.-North	CSS	13.5	13.3	B	B
4	Haven Av. & Olive Wy.-South	CSS	11.7	11.9	B	B
5	Haven Av. & Amber Ln./College Dr.	TS	14.8	17.4	B	B
6	Haven Av. & Lemon Av.	TS	23.1	23.3	C	C
7	Haven Av. & I-210 WB Ramps	TS	34.8	45.2	C	D
8	Haven Av. & I-210 EB Ramps	TS	56.8	60.9	E	E
9	Driveway 2 & Wilson Av.	CSS	12.6	12.2	B	B
10	Driveway 3 & Wilson Av.	CSS	12.2	11.4	B	B
11	Driveway 4 & Wilson Av.	CSS	12.7	11.2	B	B
12	College Dr. & Wilson Av.	CSS	13.3	11.9	B	B

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane)

² TS = Traffic Signal; CSS = Cross-Street Stop

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing (2021) traffic conditions are based on existing peak hour intersection turning volumes. There are no study area intersections that currently meet a traffic signal warrant under Existing (2021) traffic conditions. Existing (2021) traffic conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment, onto the study area roadway network. The pre-pandemic student headcount at the Chaffey College Rancho Cucamonga Campus was 16,474 students actively enrolled in Fall 2019. By 2051, the student count is anticipated to increase by approximately 5.65% resulting in a headcount of 17,404 students (an increase of 930 students). The proposed Project will be developed in 5 phases over 30 years. Regional access to the Project site is available from the I-210 Freeway at the Haven Avenue interchange.

4.1 TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, the trip generation rates used for this analysis are based upon information collected by the ITE as provided in their Trip Generation Manual, 10th Edition, 2017 for the Junior/Community College land use (ITE Land Use Code 540). (4) Trip generation rates for the proposed Project are shown in Table 4-1. The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project are also shown in Table 4-1.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY

Land Use ¹	Units ²	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
Junior/Community College	STU	540	0.09	0.02	0.11	0.06	0.05	0.11	1.15

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

² STU = Students

		AM Peak Hour			PM Peak Hour			
Project Land Use	Quantity Units ¹	In	Out	Total	In	Out	Total	Daily
Project Trip Generation Summary:								
Chaffey College - Rancho Cucamonga	930 STU	83	19	102	57	45	102	1,070

¹ STU = Students

As shown in Table 4-1, the proposed Project is anticipated to generate a total of 1,070 two-way trip-ends per day, with 102 AM peak hour trips and 102 PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site. The Project trip distribution patterns are graphically depicted on Exhibit 4-1.

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

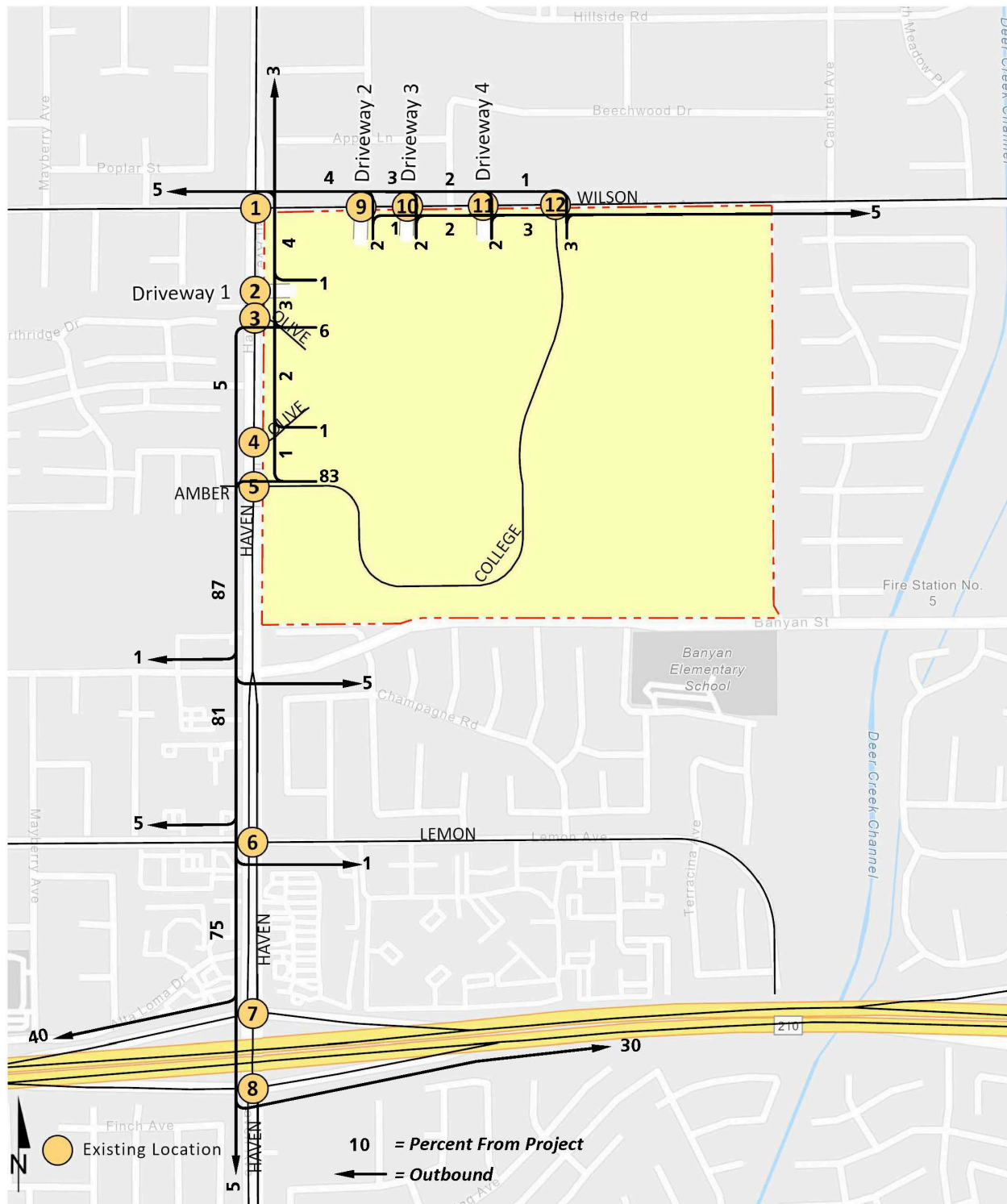
4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-2.

4.5 TRAFFIC FORECASTS

To provide a comprehensive assessment of the deficiencies, two types of analyses, "buildup" and "buildout", were performed in support of this work effort. The "buildup" method was used to approximate E+P traffic conditions and is intended to identify the near-term deficiencies on both the existing and planned near-term circulation system. The E+P traffic conditions includes traffic generated by the proposed Project only. The "buildout" method was utilized for Horizon Year traffic conditions and is based on the regional traffic model for 2051 traffic conditions.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION



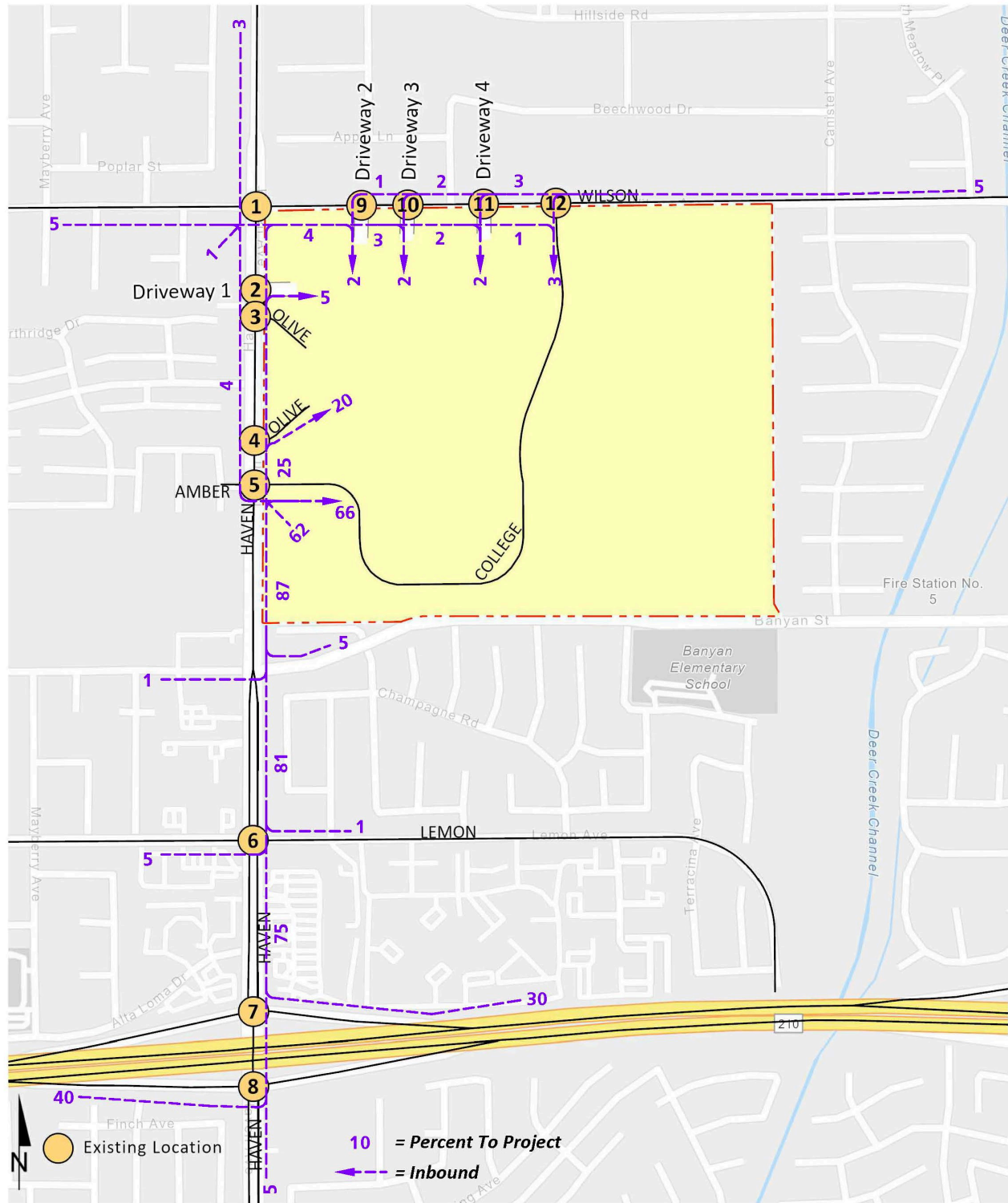
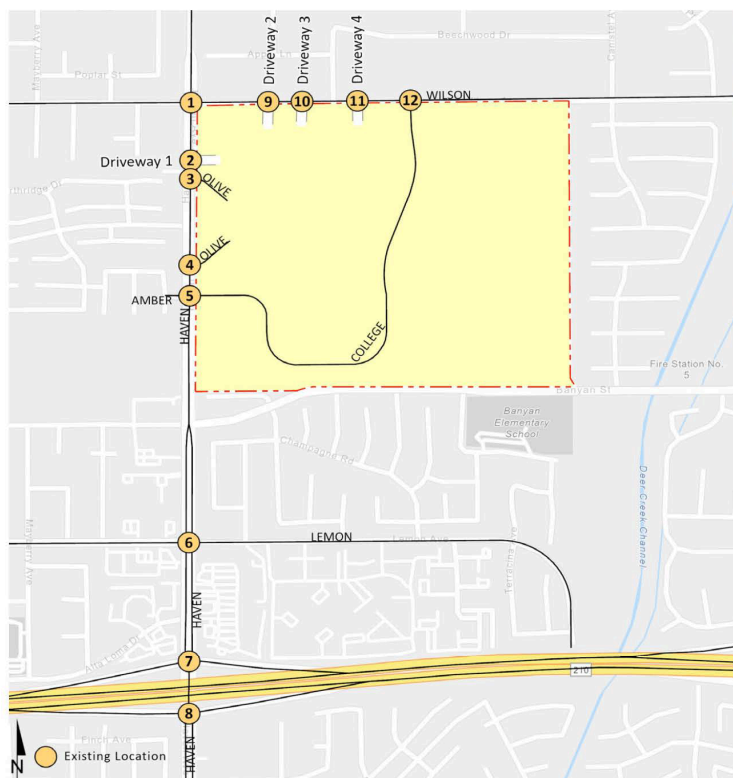


EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES (IN ACTUAL VEHICLES)

1	Haven Av. & Wilson Av.	2	Haven Av. & Driveway 1	3	Haven Av. & N. Olive Wy.	4	Haven Av. & S. Olive Wy.	5	Haven Av. & College Dr.
Nominal	2(2) ← 3(2) → 1(1) ↘	Nominal	3(2) ← 1(1) → 4(3) ↘	Nominal	3(2) ← 1(2) → 5(4) ↘	100	4(5) ← 4(3) → 17(11) ↘	200	1(2) ← 3(2) ↘ 16(37) → 21(14) ↘ 51(35) ↘
Nominal		Nominal		Nominal	100		200		950
6	Haven Av. & Lemon Av.	7	Haven Av. & I-210 WB Ramps	8	Haven Av. & I-210 EB Ramps	9	Driveway 2 & Wilson Av.	10	Driveway 3 & Wilson Av.
850	1(2) ← 14(34) ← 4(3) →	800	8(18) ← 7(16) ← 25(17) → 37(26) →	450	1(2) ← 6(14) ← 33(23) → 4(3) →	150	1(1) ← 1(1) ← 2(2) → 1(1) ↘	Nominal	1(1) ← 1(1) ← 2(2) → 1(1) ↘
Nominal		200		200	Nominal	Nominal		Nominal	
11	Driveway 4 & Wilson Av.	12	College Dr. & Wilson Av.	#(##) AM(PM) Peak Hour Intersection Volumes ## Average Daily Trips					
Nominal	2(2) ← 1(1) ↘ 1(1) → 1(1) ↘	Nominal	2(2) ← 2(1) ↘ 1(1) → 1(1) ↘ 0(1) ↘						
Nominal		Nominal							

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

4.6 HORIZON YEAR (2051) CONDITIONS

Traffic projections for Horizon Year (2040) Without Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of San Bernardino. The current version of the SBTAM reflects the local input in the adopted 2016 SCAG RTP within the County of San Bernardino.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2021) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in March 2019 and June 2021. The SBTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.27. These factors represent the relationship of the highest single AM peak hour to the modeled 3-hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4-hour PM peak period (an even distribution would result in a factor of 0.25).

The fully adopted Southern California Association of Governments (SCAG) 2020 Regional Transportation Plan (RTP)/Southern California Strategies (SCS) (Connect SoCal) (September 2020) growth forecasts for City of Rancho Cucamonga identifies projected growth in population of 176,500 in 2016 to 204,300 in 2045, or a 14.1% increase over the 29-year period. (11) The change in population equates to roughly a 0.45% growth rate compounded annually. Similarly, growth over the same 29-year period in households is projected to increase by 16.9%, or 0.54% annual growth rate. Finally, growth in employment over the same 29-year period is projected to increase by 19.0%, or a 0.60% annual growth rate. The average household, population, and employment growth is 0.53% per year. (11)

The traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Horizon Year (2051) turning volumes were developed by taking the post-processed Horizon Year (2040) volumes and increasing them by 0.53% per year, compounded annually over 11 years (2040 to

2051). The initial estimate of the future Horizon Year (2051) peak hour turning movements were then reviewed by Urban Crossroads for reasonableness at intersections where model results showed unreasonable turning movements. The initial raw model estimates were adjusted to achieve flow conservation (where applicable), reasonable growth, and reasonable diversion between parallel routes. Post-processing worksheets for Horizon Year with Project traffic conditions are provided in Appendix 4.1.

The Horizon Year (2051) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's DIF program or other approved funding mechanisms, can accommodate the long-range cumulative traffic at the target LOS identified by the City of Rancho Cucamonga (lead agency). If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative improvements. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

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5 EXISTING PLUS PROJECT TRAFFIC ANALYSIS

This section discusses the traffic forecasts for E+P conditions and the resulting peak hour intersection operations and traffic signal warrant analyses.

5.1 E+P VOLUME FORECASTS

Project traffic has been added to Existing (2021) traffic volumes (no cumulative development project or ambient growth has been added for this analysis scenario). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

5.2 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized in Table 5-1, which indicates that the following intersection is anticipated to operate at an unacceptable LOS during the peak hours:

- Haven Av. & I-210 Eastbound Ramps (#8) – LOS E AM and PM peak hours

The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TA.

TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS

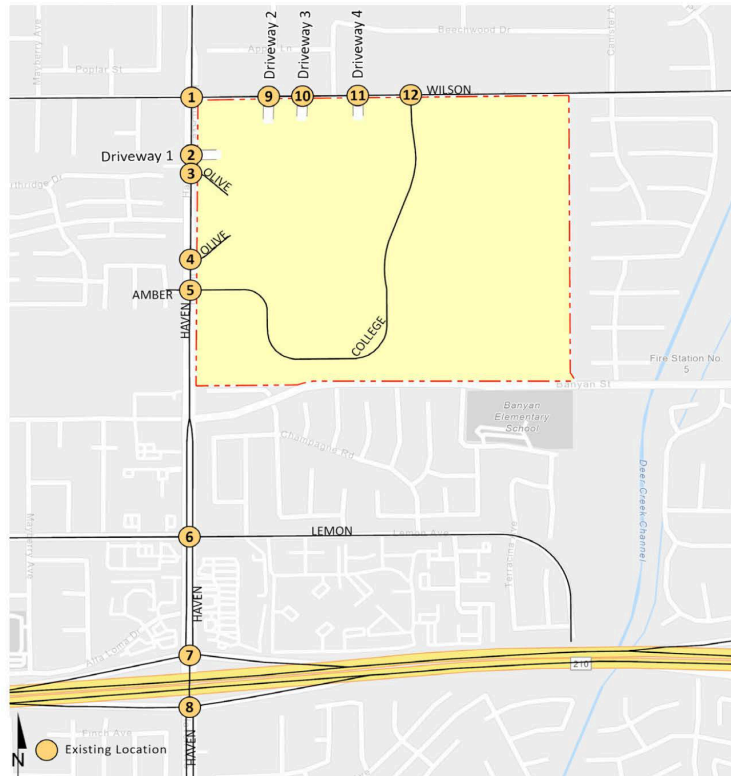
#	Intersection	Traffic Control ²	Existing (2021)				E+P			
			Delay ¹ (secs.)		Level of Service		Delay ¹ (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Haven Av. & Wilson Av.	TS	18.2	16.8	B	B	18.3	16.8	B	B
2	Haven Av. & Driveway 1	CSS	10.5	10.5	B	B	10.5	10.5	B	B
3	Haven Av. & Olive Wy.-North	CSS	13.5	13.3	B	B	13.6	13.4	B	B
4	Haven Av. & Olive Wy.-South	CSS	11.7	11.9	B	B	11.8	12.0	B	B
5	Haven Av. & Amber Ln./College Dr.	TS	14.8	17.4	B	B	15.0	17.8	B	B
6	Haven Av. & Lemon Av.	TS	23.1	23.3	C	C	23.8	23.6	C	C
7	Haven Av. & I-210 WB Ramps	TS	34.8	45.2	C	D	35.8	47.6	D	D
8	Haven Av. & I-210 EB Ramps	TS	56.8	60.9	E	E	59.4	64.4	E	E
9	Driveway 2 & Wilson Av.	CSS	12.6	12.2	B	B	12.6	12.2	B	B
10	Driveway 3 & Wilson Av.	CSS	12.2	11.4	B	B	12.3	11.5	B	B
11	Driveway 4 & Wilson Av.	CSS	12.7	11.2	B	B	12.7	11.3	B	B
12	College Dr. & Wilson Av.	CSS	13.3	11.9	B	B	13.4	11.9	B	B

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

² TS = Traffic Signal; CSS = Cross-street Stop

EXHIBIT 5-1: E+P TRAFFIC VOLUMES (IN ACTUAL VEHICLES)



1 Haven Av. & Wilson Av.	2 Haven Av. & Driveway 1	3 Haven Av. & N. Olive Wy.	4 Haven Av. & S. Olive Wy.	5 Haven Av. & College Dr.
5,950 24(17) 325(153) 16(33) 31(60) 131(117) 74(202) 9(54) 187(157) 57(68) 39(71) 95(186) 236(143) 8,450	9,750 456(422) 3(8) 367(892) 77(54) 600	10,150 456(421) 4(8) 18(42) 441(439) 600	11,700 486(505) 5(23) 361(469) 319(221) 2,350	13,500 3(2) 397(459) 85(43) 9(10) 336(765) 12(18) 671(681) 1090(687) 16,100
5,650	9,750	10,150	10,550	13,500
6 Haven Av. & Lemon Av.	7 Haven Av. & I-210 WB Ramps	8 Haven Av. & I-210 EB Ramps	9 Driveway 2 & Wilson Av.	10 Driveway 3 & Wilson Av.
36,450 65(84) 741(1448) 9(22) 27(28) 51(40) 292(183) 124(174) 24(103) 65(111) 83(173) 2094(1484) 94(228) 7,200	52,300 537(747) 1073(1406) 890(814) 8(5) 476(553) 537(646) 1678(1574) 15,600	48,850 1002(1201) 546(760) 1377(634) 5(8) 335(313) 839(1586) 536(971) 20,850	8,450 232(371) 16(11) 423(322) 16(11) 3(8) 3(8) 8,450	8,450 245(373) 16(11) 412(320) 16(11) 3(8) 8,450
8,050	16,750	10,350	8,450	400
11 Driveway 4 & Wilson Av.	12 College Dr. & Wilson Av.	##(###) AM(PM) Peak Hour Intersection Volumes ## Average Daily Trips		
8,450 256(375) 16(11) 400(317) 16(11) 3(8) 3(8) 400	8,600 268(377) 35(23) 385(315) 19(11) 3(8) 9(29) 550			
8,450	8,400			

5.3 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for E+P traffic conditions are based on E+P peak hour intersection turning volumes. There are no study area intersections that are anticipated to meet a traffic signal warrant under E+P traffic conditions. E+P traffic conditions traffic signal warrant analysis worksheets are provided in Appendix 5.2.

5.4 DEFICIENCIES AND IMPROVEMENTS

This section provides a summary of Project deficiencies and identified improvements. Based on the deficiency criteria discussed in Section 2.6 *Deficiency Criteria*, the following intersection was found to be deficient:

- Haven Av. & I-210 Eastbound Ramps (#8)

The effectiveness of the identified improvement strategies to address E+P traffic deficiencies are presented in Table 5-2 and described below. Improvements to address E+P traffic deficiencies should be identified to reduce the incremental Project delay in order to bring the LOS back to pre-project conditions. As such, the following improvements will be implemented/constructed by the Project.

Haven Avenue & I-210 Eastbound Ramps (#8) – The following improvement is necessary to address deficiencies during the peak hours:

- Restripe the northbound approach from three through lanes to accommodate two through lanes and a dedicated right turn lane.

Worksheets for E+P traffic conditions, with improvements, HCM calculation worksheets are provided in Appendix 5.3.

TABLE 5-2: INTERSECTION ANALYSIS FOR E+P CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Delay ² (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
			L	T	R	L	T	R	L	T	R	L	T	R				
8	Haven Av. & I-210 EB Ramps																	
	Without Improvements:	TS	0	3	0	2	3	0	1	1	1	0	0	0	59.4	64.4	E	E
	With Improvements:	TS	0	<u>2</u>	<u>1</u>	2	3	0	1	1	1	0	0	0	45.9	49.5	D	D

¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes (20-feet).

L = Left; T = Through; R = Right; 1 = Improvement; d = Defacto Right Turn Lane; > = Right Turn Overlap Phasing

² Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal

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6 HORIZON YEAR (2051) TRAFFIC ANALYSIS

This section discusses the methods used to develop Horizon Year (2051) Without and With Project traffic forecasts and the resulting peak hour intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2051) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.

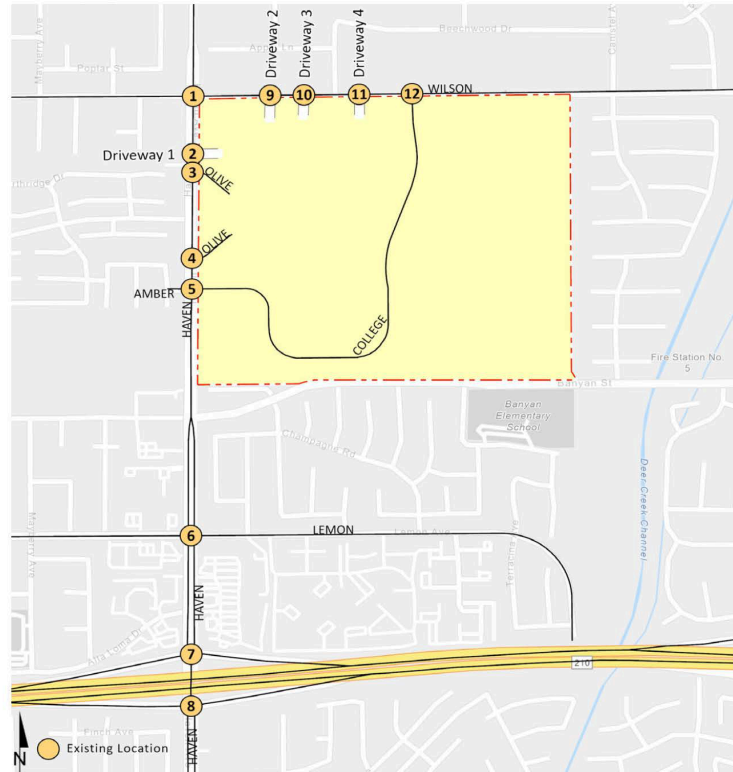
6.2 HORIZON YEAR (2051) WITHOUT PROJECT VOLUME FORECASTS

The Horizon Year (2051) Without Project analysis scenario includes the refined post-process volumes obtained from the SBTAM (see Section 4.6 *Horizon Year (2051) Conditions* of this TA for a detailed discussion on the post-processing methodology) plus 6.01% growth (or 0.53% per year compounded annually over 11 years to adjust 2040 SBTAM forecasts to Year 2051). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2051) Without Project traffic conditions are shown on Exhibit 6-1.

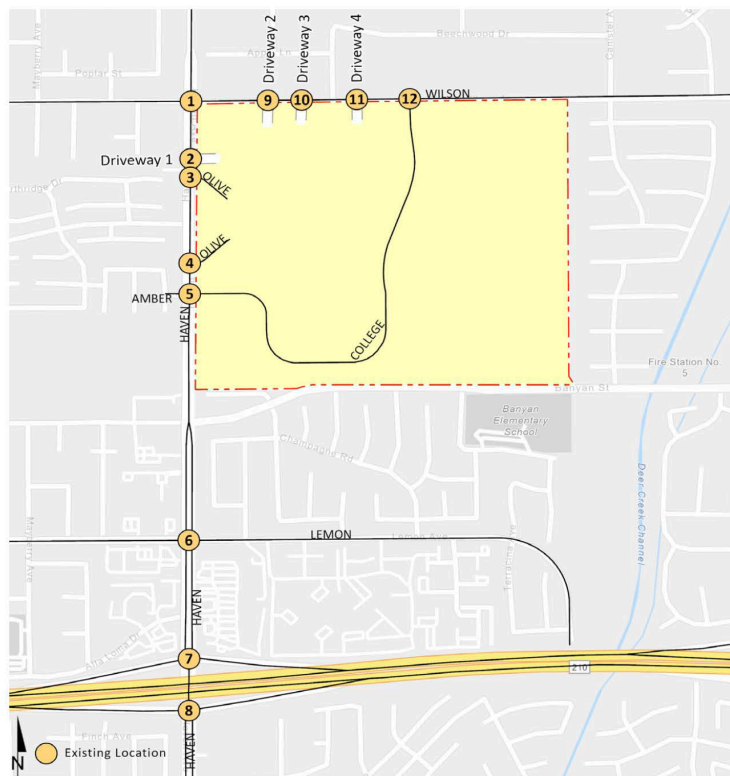
6.3 HORIZON YEAR (2051) WITH PROJECT VOLUME FORECASTS

The Horizon Year (2051) Without Project analysis scenario as described in Section 6.2 plus the traffic generated by the buildout of the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2051) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: HORIZON YEAR (2051) WITHOUT PROJECT TRAFFIC VOLUMES (IN ACTUAL VEHICLES)



1	Haven Av. & Wilson Av.	2	Haven Av. & Driveway 1	3	Haven Av. & N. Olive Wy.	4	Haven Av. & S. Olive Wy.	5	Haven Av. & College Dr.
6,450	28(19) ↓ 365(195) ↓ 14(52) ↓ 8(67) ↓ 230(313) → 72(76) ↓	11,400	562(492) ↓ ↑ 3(8) 430(475) → 73(51) ↑	11,850	562(492) ↓ ↑ 4(8) 17(40) ↓ 500(518) ↑	13,600	565(587) ↓ ↑ 5(23) 419(547) ↑ 302(210) ↑	16,250	5(2) ↓ 477(544) ↓ 82(41) ↓ 21(32) ↓ 16(19) ↓ 711(747) ↑ 1039(652) ↑
7,050	12,750	11,350	650	11,850	650	12,300	15,600	11,000	33,450
6	Haven Av. & Lemon Av.	7	Haven Av. & I-210 WB Ramps	8	Haven Av. & I-210 EB Ramps	9	Driveway 2 & Wilson Av.	10	Driveway 3 & Wilson Av.
22,400	77(86) ↓ 878(1503) ↓ 11(22) ↓ 128(233) → 24(129) → 71(146) →	54,500	556(763) ↓ 1162(1484) ↓ ↑ 930(843) ↑ 8(5) ↑ 513(552) 548(638) ↓ 1731(1652) ↑	50,450	1093(1271) ↓ 582(765) ↓ 1375(559) ↓ 5(7) → 338(314) ↓ 904(1731) ↑ 559(1114) ↑	22,150	384(434) ↓ 15(10) ↓ 493(571) → 15(10) ↓	9,850	397(436) ↓ 15(10) ↓ 481(569) → 15(10) ↓
8,600	7,100	28,550	15,000	50,450	51,950	9,850	450	9,850	450
11	Driveway 4 & Wilson Av.	12	College Dr. & Wilson Av.	##(##) AM(PM) Peak Hour Intersection Volumes ## Average Daily Trips					
9,850	409(438) ↓ 15(10) ↓ 468(567) → 15(10) →	12,750	421(440) ↓ 33(22) ↓ 453(565) → 18(10) →						
450	3(8) ↓ 3(8) ↓	350	3(8) ↓ 9(28) ↓						

EXHIBIT 6-2: HORIZON YEAR (2051) WITH PROJECT TRAFFIC VOLUMES (IN ACTUAL VEHICLES)

1 Haven Av. & Wilson Av. 6,450 28(19) ↓ 367(197) ↓ 14(52) ↓ 8(67) → 57(78) → 112(191) → 265(215) → 233(315) → 73(77) → 7,100	2 Haven Av. & Driveway 1 11,450 565(494) ↓ 3(8) ↑ 431(476) → 77(54) → 11,900	3 Haven Av. & N. Olive Wy. 11,900 565(494) ↓ 4(8) ↑ 18(42) → 505(522) → 12,350	4 Haven Av. & S. Olive Wy. 13,700 569(592) ↓ 5(23) ↑ 423(550) → 319(221) → 15,800	5 Haven Av. & College Dr. 16,450 5(2) ↓ 478(546) ↓ 85(43) ↓ 16(19) → 732(761) → 1090(687) → 34,400
6 Haven Av. & Lemon Av. 23,300 78(88) ↓ 892(1537) ↓ 11(22) ↓ 132(236) → 91(186) → 2218(1668) → 93(236) → 24(129) → 71(146) → 8,650	7 Haven Av. & I-210 WB Ramps 55,300 564(781) ↓ 1169(1500) ↓ 548(638) → 1768(1678) → 16,800	8 Haven Av. & I-210 EB Ramps 50,900 1094(1273) ↓ 588(779) ↓ 1408(582) → 5(7) → 338(314) → 908(1734) → 559(1114) → 52,000	9 Driveway 2 & Wilson Av. 9,900 385(435) ↓ 16(11) ↑ 495(573) → 16(11) → 450	10 Driveway 3 & Wilson Av. 9,900 398(437) ↓ 16(11) ↑ 483(571) → 16(11) → 450
11 Driveway 4 & Wilson Av. 9,900 411(440) ↓ 16(11) ↑ 469(568) → 3(8) → 3(8) → 16(11) → 450	12 College Dr. & Wilson Av. 19,650 423(442) ↓ 35(23) ↑ 454(566) → 3(8) → 9(29) → 19(11) → 350	##(##) AM(PM) Peak Hour Intersection Volumes ## Average Daily Trips		

6.4 INTERSECTION OPERATIONS ANALYSIS

Horizon Year (2051) Without and With Project peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized in Table 6-1 for both Horizon Year (2051) Without and With Project traffic conditions.

6.4.1 HORIZON YEAR (2051) WITHOUT PROJECT CONDITIONS

As shown in Table 6-1, the following study area intersection is anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2051) Without Project conditions:

- Haven Av. & I-210 Eastbound Ramps (#8) – LOS E AM and PM peak hours

The intersection operations analysis worksheets for Horizon Year (2051) Without Project traffic conditions are included in Appendix 6.1 of this TA.

6.4.2 HORIZON YEAR (2051) WITH PROJECT CONDITIONS

There are no additional study area intersections that are anticipated to operate at an unacceptable LOS during the peak hours with the addition of Project traffic. The intersection operations analysis worksheets for Horizon Year (2051) With Project traffic conditions are included in Appendix 6.2 of this TA.

TABLE 6-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2051) CONDITIONS

#	Intersection	Traffic Control ²	2051 Without Project				2051 With Project			
			Delay ¹ (secs.)		Level of Service		Delay ¹ (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Haven Av. & Wilson Av.	TS	20.4	20.1	C	C	20.5	20.1	C	C
2	Haven Av. & Driveway 1	CSS	10.8	10.8	B	B	10.8	10.8	B	B
3	Haven Av. & Olive Wy.-North	CSS	14.4	14.4	B	B	14.5	14.5	B	B
4	Haven Av. & Olive Wy.-South	CSS	12.0	12.3	B	B	12.1	12.4	B	B
5	Haven Av. & Amber Ln./College Dr.	TS	15.0	17.6	B	B	15.1	18.1	B	B
6	Haven Av. & Lemon Av.	TS	25.5	27.7	C	C	26.7	28.3	C	C
7	Haven Av. & I-210 WB Ramps	TS	42.0	53.4	D	D	44.4	54.1	D	D
8	Haven Av. & I-210 EB Ramps	TS	69.4	78.8	E	E	72.0	81.7	E	F
9	Driveway 2 & Wilson Av.	CSS	14.2	14.4	B	B	14.2	14.5	B	B
10	Driveway 3 & Wilson Av.	CSS	13.5	14.0	B	B	13.5	14.0	B	B
11	Driveway 4 & Wilson Av.	CSS	14.1	13.6	B	B	14.2	13.6	B	B
12	College Dr. & Wilson Av.	CSS	15.4	13.7	C	B	15.4	13.7	C	B

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

² TS = Traffic Signal; CSS = Cross-street Stop

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Horizon Year (2051) Without and With Project traffic conditions are based on peak hour intersection turning volumes. There are no study area intersections that are anticipated to meet a traffic signal warrant under either Horizon Year (2051) Without or With Project traffic conditions. Horizon Year (2051) Without Project traffic conditions traffic signal warrant analysis worksheets are provided in Appendix 6.3 and in Appendix 6.4 for Horizon Year (2051) With Project traffic conditions.

6.6 DEFICIENCIES AND IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the deficiency criteria discussed in Section 2.6 *Deficiency Criteria*, the following intersection was found to be deficient:

- Haven Av. & I-210 Eastbound Ramps (#8)

The effectiveness of the identified improvement strategies to address Horizon Year (2051) traffic deficiencies are presented in Table 6-2 and discussed below. As noted previously in Section 5.4 *Deficiencies and Improvements*, the Project is to construct/implement the following improvement.

Haven Avenue & I-210 Eastbound Ramps (#8) – The following improvement is necessary to address deficiencies during the peak hours:

- Restripe the northbound approach from three through lanes to accommodate two through lanes and a dedicated right turn lane.

Worksheets for Horizon Year (2051) With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 6.5.

TABLE 6-2: INTERSECTION ANALYSIS FOR HORIZON YEAR (2051) CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Delay ² (secs.)		Level of Service	
			Northbound				Southbound				Eastbound							
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
8	Haven Av. & I-210 EB Ramps																	
	Without Improvements:	TS	0	3	0	2	3	0	1	1	1	0	0	0	72.0	81.7	E	F
	With Improvements:	TS	0	<u>2</u>	<u>1</u>	2	3	0	1	1	1	0	0	0	54.9	54.2	D	D

¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes (20-feet).

L = Left; T = Through; R = Right; 1 = Improvement; d = Defacto Right Turn Lane; > = Right Turn Overlap Phasing

² Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal

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7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Rancho Cucamonga are funded through a combination of direct project mitigation, fair share contributions or development impact fee programs, such as the County's Measure "I" Fund and the City of Rancho Cucamonga DIF program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors. The proposed Project would be required to pay DIF fees.

7.1 MEASURE "I"

In 2004, the voters of San Bernardino County approved the 30-year connection of Measure "I," a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" connection requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by SBCTA and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in November 2011. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study. While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

7.2 CITY OF RANCHO CUCAMONGA DEVELOPMENT IMPACT FEE (DIF)

The City of Rancho Cucamonga adopted the latest update to their DIF program in July 2019. Fees from new residential, commercial, and industrial development are collected to fund Measure "I" compliant regional facilities as well as local facilities. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

After the City's DIF fees are collected, they are placed in a separate restricted use account pursuant to the requirements of Government Code sections 66000 et seq. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Engineering Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds. The City's DIF program establishes a timeline to fund, design, and build the improvements.

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8 REFERENCES

1. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.
2. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.
3. **City of Rancho Cucamonga.** *City of Rancho Cucamonga Traffic Impact Analysis Guidelines.* Rancho Cucamonga : s.n., June 2020.
4. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.
5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
6. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.
7. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.
8. **Southern California Association of Governments.** *2020 Regional Transportation Plan/Sustainable Communities Strategy.* May 2020 (to be adopted September 2020).

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APPENDIX 1.1:

APPROVED SCOPING AGREEMENT

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May 4, 2021 (Revised)

Mr. Jason Welday
City of Rancho Cucamonga
10500 Civic Center Drive
Rancho Cucamonga, CA 91730

**SUBJECT: CHAFFEY COMMUNITY COLLEGE DISTRICT'S RANCHO CUCAMONGA CAMPUS MASTER PLAN
TRAFFIC ANALYSIS SCOPING AGREEMENT (REVISED)**

Dear Mr. Jason Welday:

This letter has been prepared to document the recommended scoping assumptions for the proposed Chaffey Community College District's Rancho Cucamonga Campus Master Plan (**Project**), which is located on the southeast corner of Haven Avenue and Wilson Avenue in the City of Rancho Cucamonga. This letter describes the proposed analysis methodology, project trip generation, trip distribution, and project traffic assignment/project trips on the surrounding roadway network, which establish the draft proposed project study area. This scoping agreement has been prepared in accordance with the City of Rancho Cucamonga's Traffic Impact Analysis Guidelines (dated June 2020) (**TIA Guidelines**).

PROPOSED PROJECT

Exhibit 1 identifies the general location of the proposed Project (Master Plan) in relation to the surrounding area. As shown on Exhibit 2, the proposed Project will include the demolition of approximately 127,000 square feet within 16 buildings (to be demolished and replaced with new modern buildings). As shown on Exhibit 3, 9 new buildings totaling 673,000 square feet of new construction is proposed in conjunction with renovation of 187,000 square feet and a new parking structure with approximately 650 parking spaces. Vehicular access will be maintained via existing driveways on Haven Avenue and Wilson Avenue. The proposed Project will be developed in 5 phases over 30 years. The pre-pandemic student headcount at the Chaffey College Rancho Cucamonga Campus was 16,474 students actively enrolled in Fall 2019. By 2051, the student count is anticipated to increase by approximately 5.65% resulting in a headcount of 17,404 students. The proposed study area analysis locations are shown on Exhibit 4.

TRIP GENERATION ASSUMPTIONS

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, the trip generation rates used for this analysis are based upon

information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition (2017) for the Junior/Community College land use (ITE Land Use Code 540). Trip generation rates for the proposed Project are shown in Table 1. The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project is also shown in Table 1.

TABLE 1: PROJECT TRIP GENERATION SUMMARY

Land Use ¹	ITE LU Units ² Code	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Project Trip Generation Rates:								
Junior/Community College	STU 540	0.09	0.02	0.11	0.06	0.05	0.11	1.15

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

² STU - Students

Project Land Use	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Project Trip Generation Summary:								
Chaffey College - Rancho Cucamonga	930 STU	83	19	102	57	45	102	1,070

¹ STU = Students

As shown in Table 1, the proposed Project is anticipated to generate a total of 1,070 two-way trips per day, with 102 AM peak hour trips and 102 PM peak hour trips.

TRIP DISTRIBUTION ASSUMPTIONS

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. Exhibit 5 illustrates the Project trip distribution patterns.

PROPOSED STUDY AREA INTERSECTIONS

Consistent with the City's TIA guidelines, the study area intersections were selected based on where Project is expected to add at least 50 peak hour trips (however, site adjacent and Project driveways have been included even with less than 50 peak hour trips). Exhibit 2 shows the proposed study area intersections.

ANALYSIS SCENARIOS

Intersection analysis will be performed for the following analysis scenarios:

- Existing (2021) Conditions
- Existing Plus Project (E+P)
- Horizon Year (2051) Without Project
- Horizon Year (2051) With Project

In light of the current economic conditions and social-distancing practices in effect related to the COVID-19 pandemic, Urban Crossroads will work with City staff and local count companies in order to obtain historic counts for the study area intersections. We are proposing the application of a 2% per year growth factor be applied to any historic data provided by City staff for the purposes of establishing the baseline condition.

INTERSECTION ANALYSIS METHODOLOGY

For the purposes of this analysis, signalized intersection operations analysis will be based on the methodology described in the Highway Capacity Manual (6th Edition). Intersection LOS operations are based on an intersection's average control delay. Unsignalized intersections will be evaluated using the methodology described in the HCM 6th Edition. At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane.

LEVEL OF SERVICE CRITERIA

City of Rancho Cucamonga: Per the City's General Plan Mobility Element and TIA guidelines, the City of Rancho Cucamonga allows LOS D to be used as the maximum acceptable threshold for study area intersections and roadways.

San Bernardino County CMP: The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document.

PROJECT DEFICIENCIES

Per the City's TIA guidelines:

The identification of project deficiencies is designed to identify potential LOS problems and to address them before they occur. This will also provide a framework for establishing transportation related project conditions by the City. Deficiencies beyond the boundaries of the City must be identified in the same fashion as impacts within the City. Jurisdictions with identified deficiencies will be provided an opportunity for review of the LOS analysis. It is the responsibility of the applicant to obtain written concurrence on proposed improvements from the affected jurisdictions.

For conformity with the CMP, the improvements on CMP roadways must bring the roadway into conformance with the LOS standards established for the CMP. However, the City may require conformance to higher standards, and will be determined in consultation with the City.

The LOS with improvements must be computed and shown on a map or table along with the traffic LOS without improvements. Delay values, volume/capacity ratios (if appropriate), or other measures of LOS must be included in the results (could be in an appendix) along with the letter designation.

A key element of SB 743 is the elimination of automobile delay and level of service as the sole basis of determining CEQA impacts. The most recent CEQA guidelines, released in December 2018, recommend vehicle miles traveled (VMT) as the most appropriate measure of discerning project transportation impacts for the purposes of CEQA. However, SB 743 does not prevent a City or County from continuing to analyze delay or LOS as part of other plans (i.e., the general plan), studies, or ongoing network monitoring. VMT thresholds, methodology, analysis, and findings will be presented under separate cover from the focused traffic memo.

FAIR SHARE CALCULATION METHODOLOGY

The following equation will be used to calculate the Project's fair share:

$$\text{Fair Share \%} = \frac{\text{Project Total trips}}{\text{2051 Net New Traffic}}$$

* where Net New Traffic is 2051 With Project forecasts less existing baseline traffic

SPECIAL ISSUES

The following special issues will be addressed in the focused traffic memo:

- Queuing analysis at the site adjacent intersections/Project driveways to determine adequate storage lengths.
- Traffic signal warrant analysis for all applicable unsignalized study area intersections.
- As noted previously, VMT analysis will be prepared under separate cover and will be prepared in accordance with the City's TIA guidelines (June 2020).

CUMULATIVE DEVELOPMENTS

It is requested that the City provide a list of applicable cumulative development projects for inclusion in the traffic analysis.

If you have any questions or comments, I can be reached at (949) 861-0177.

URBAN CROSSROADS, INC.



Charlene So, PE
Associate Principal

Attachments

EXHIBIT 1: LOCATION MAP

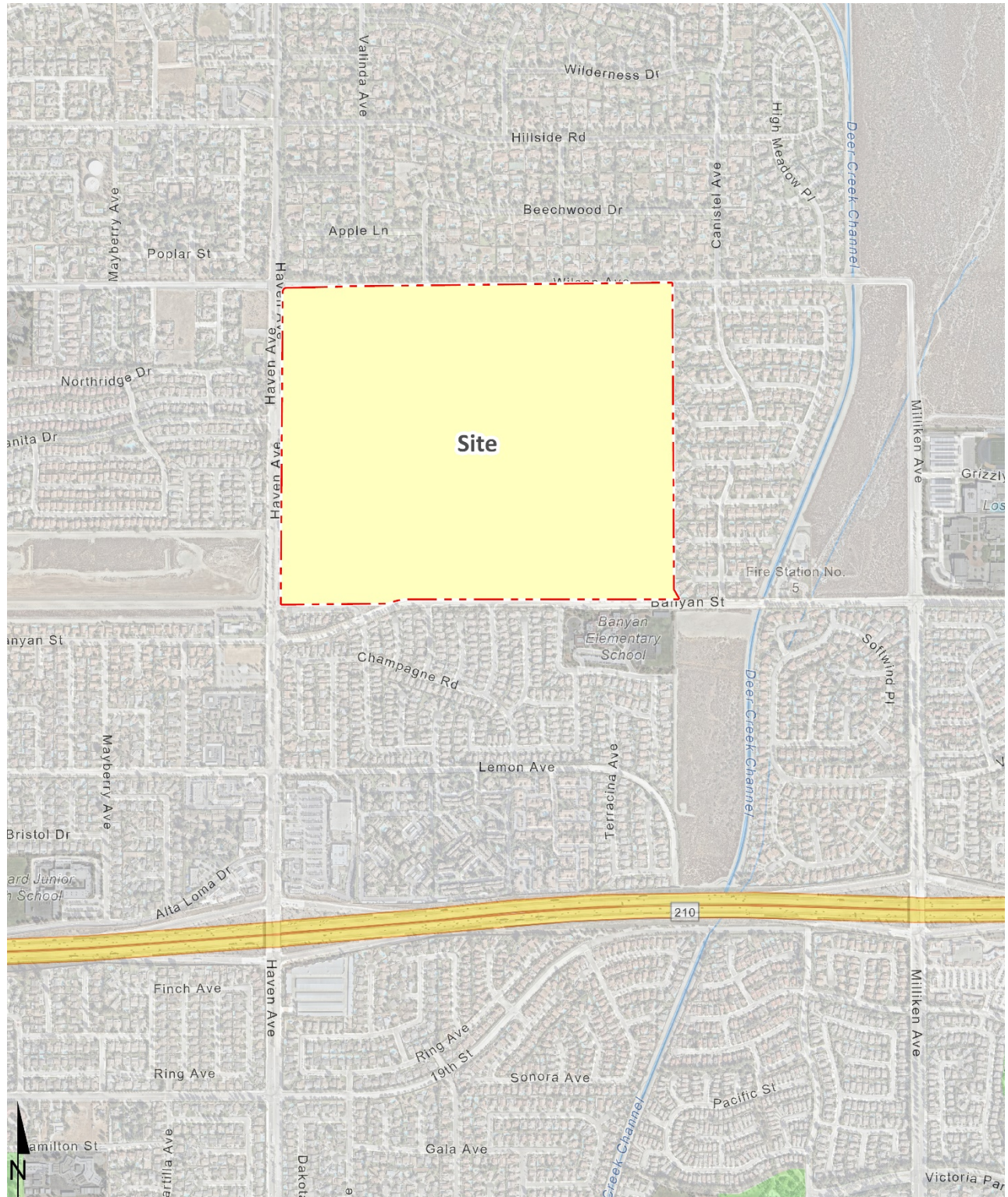


EXHIBIT 3: PROPOSED NEW BUILDINGS

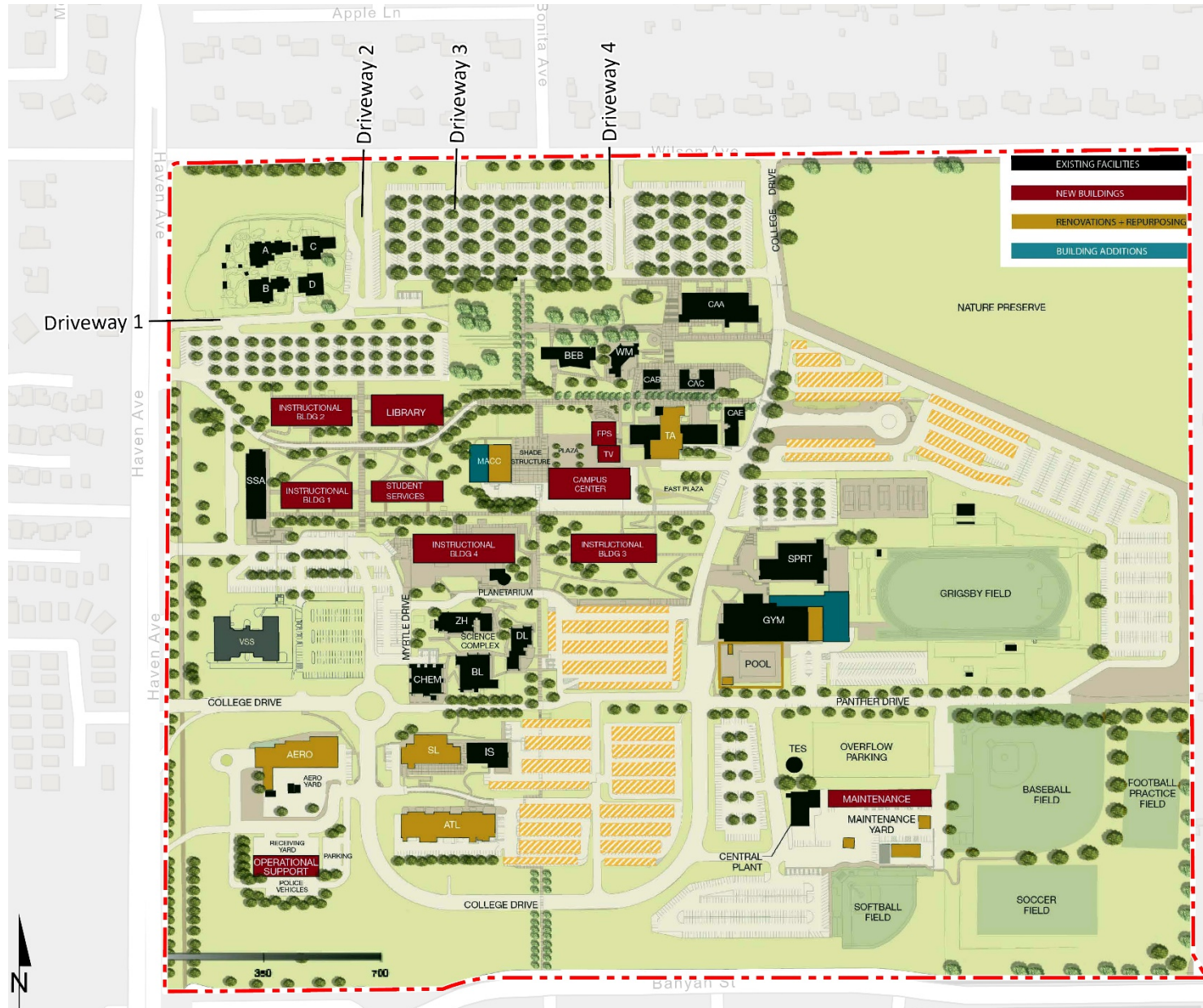


EXHIBIT 4: STUDY AREA

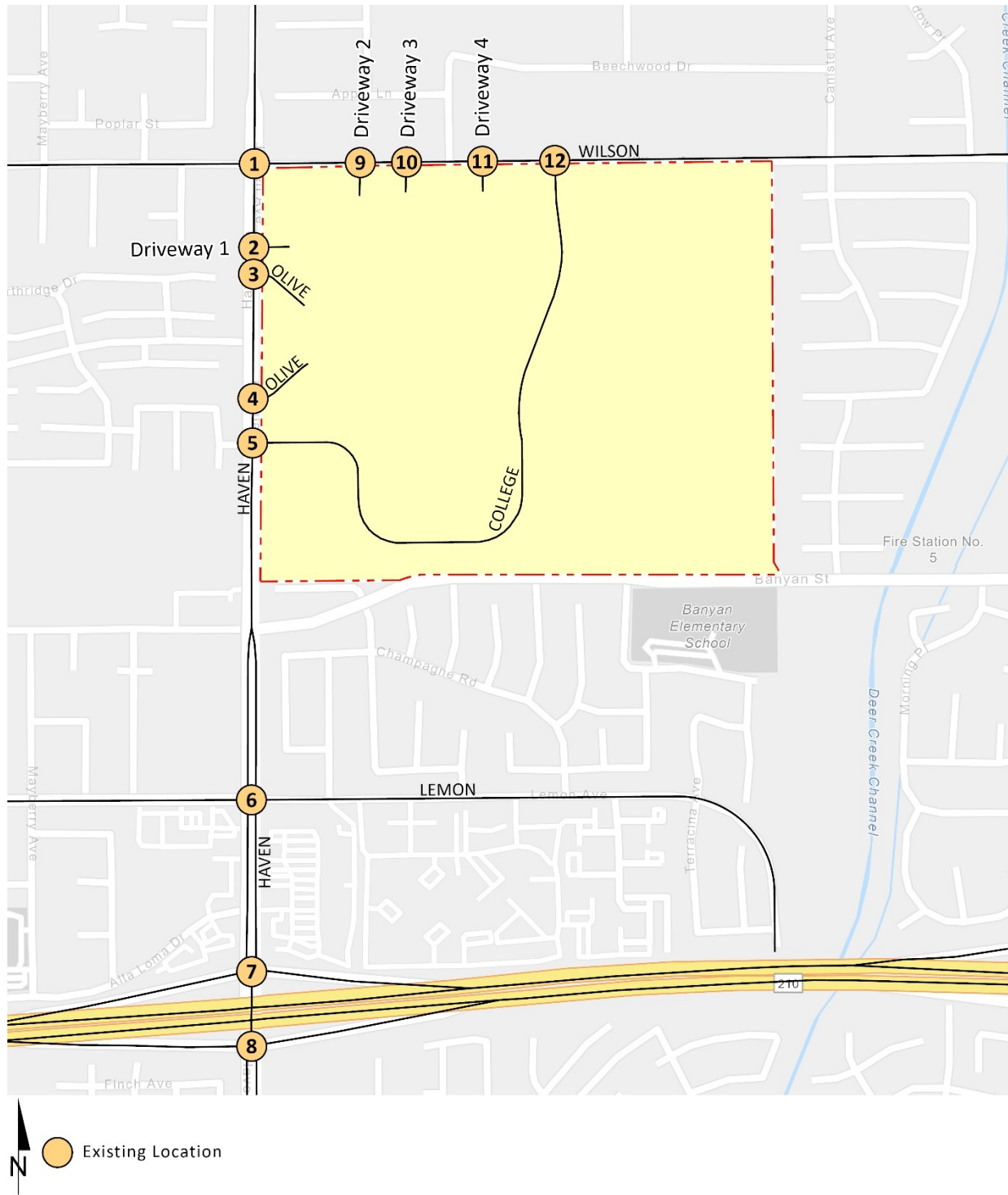
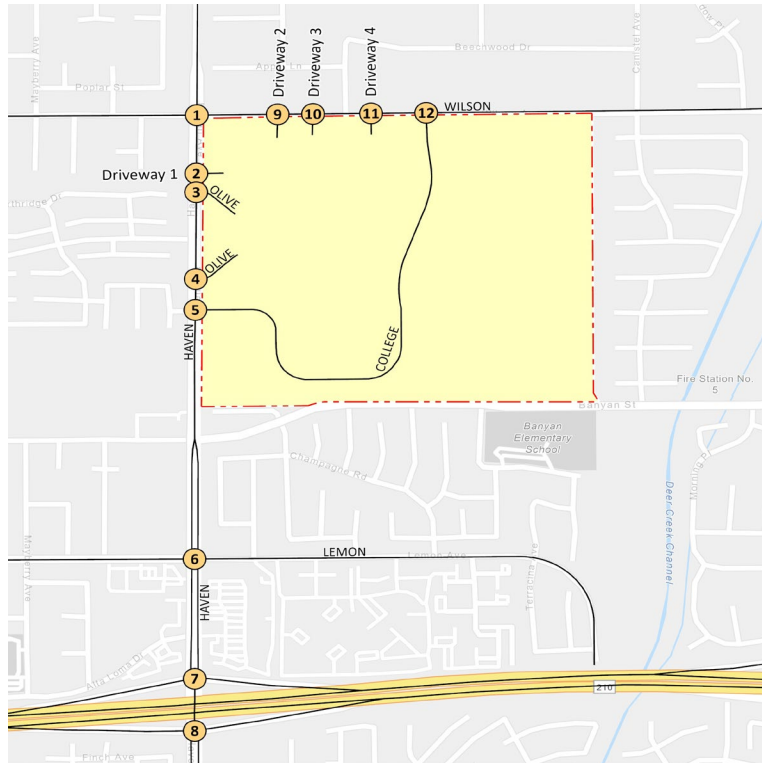


EXHIBIT 5: PROJECT TRIP DISTRIBUTION



1 Haven Av. & Wilson Av.	2 Haven Av. & Driveway 1	3 Haven Av. & N. Olive Wy.	4 Haven Av. & S. Olive Wy.	5 Haven Av. & College Dr.
← 3(0) → 4(0) 0(1) ↑ 0(3) ↓	← 4(0) → 0(1) 0(3) ↑ 5(0) ↓	← 4(0) → 0(1) 0(5) ↑ 5(2) ↓	← 4(5) → 0(1) 5(1) ↑ 20(0) ↓	← 0(5) → 0(1) 4(8) ↑ 25(0) ↓
6 Haven Av. & Lemon Av.	7 Haven Av. & I-210 WB Ramps	8 Haven Av. & I-210 EB Ramps	9 Driveway 2 & Wilson Av.	10 Driveway 3 & Wilson Av.
← 0(5) → 1(0) 0(75) ↓ 75(0) ↑	← 0(40) → 30(0) 0(35) ↓ 45(0) ↑	← 0(5) → 40(0) 0(80) ↓ 5(0) ↑	← 0(3) → 3(0) 1(0) ↓ 0(1) ↑	← 1(2) → 2(1) 1(0) ↓ 0(1) ↑
11 Driveway 4 & Wilson Av.	12 College Dr. & Wilson Av.			
← 2(1) → 1(2) 1(0) ↓ 0(1) ↑	← 3(0) → 0(3) 2(0) ↓ 0(1) ↑			

##(##) Percent Inbound(Outbound) Peak Hour Distribution

APPENDIX 1.2:

SITE ADJACENT QUEUING WORKSHEETS

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Queuing and Blocking Report
Horizon Year (2051) With Project - AM Peak Hour

07/30/2021

Intersection: 1: Haven Av. & Wilson Av.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	30	175	72	177	70	64	38	66	103	118	164	26
Average Queue (ft)	3	90	26	50	30	20	10	26	21	26	41	6
95th Queue (ft)	16	153	52	104	62	49	27	53	63	74	95	23
Link Distance (ft)		1277	1277		557	557			464	464	464	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100			215			250	100				100
Storage Blk Time (%)		5							0			
Queuing Penalty (veh)		0							0			

Intersection: 1: Haven Av. & Wilson Av.

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	128	146	17
Average Queue (ft)	36	78	4
95th Queue (ft)	83	128	16
Link Distance (ft)	1269	1269	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)	0	1	
Queuing Penalty (veh)	0	0	

Intersection: 2: Haven Av. & Driveway 1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Queuing and Blocking Report
Horizon Year (2051) With Project - AM Peak Hour

07/30/2021

Intersection: 3: Haven Av. & Olive Wy. - North

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	49	30
Average Queue (ft)	14	9
95th Queue (ft)	37	31
Link Distance (ft)	393	393
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Haven Av. & Olive Wy. - South

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	27	141	150
Average Queue (ft)	5	6	5
95th Queue (ft)	23	50	50
Link Distance (ft)	297	220	220
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Haven Av. & Amber Ln./College Dr.

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LTR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	31	161	132	49	1152	1899	2139	96	97	96	125
Average Queue (ft)	18	80	54	13	238	1398	1597	48	38	43	39
95th Queue (ft)	42	133	102	38	845	1839	2059	86	82	84	85
Link Distance (ft)	156	527	527	2163	2163	2163	2163	220	220	220	220
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Horizon Year (2051) With Project - AM Peak Hour

07/30/2021

Intersection: 9: Driveway 2 & Wilson Av.

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	31	31
Average Queue (ft)	3	4
95th Queue (ft)	17	21
Link Distance (ft)		195
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Driveway 3 & Wilson Av.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	29	30
Average Queue (ft)	6	6
95th Queue (ft)	25	25
Link Distance (ft)		96
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	60	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Driveway 4 & Wilson Av.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	28	30
Average Queue (ft)	7	2
95th Queue (ft)	27	14
Link Distance (ft)		97
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
Horizon Year (2051) With Project - AM Peak Hour

07/30/2021

Intersection: 12: College Dr. & Wilson Av.

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	31	29	28
Average Queue (ft)	8	2	4
95th Queue (ft)	30	14	21
Link Distance (ft)	344		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	170	50	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1

Queuing and Blocking Report
Horizon Year (2051) With Project - PM Peak Hour

07/30/2021

Intersection: 1: Haven Av. & Wilson Av.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	149	212	60	167	63	70	42	104	83	110	120	78
Average Queue (ft)	38	115	27	83	26	26	15	44	23	37	45	33
95th Queue (ft)	96	182	52	138	53	59	32	89	59	81	91	67
Link Distance (ft)		1277	1277		557	557			464	464	464	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100			215			250	100				100
Storage Blk Time (%)		11		0				1	0			0
Queuing Penalty (veh)		8		0				1	0			0

Intersection: 1: Haven Av. & Wilson Av.

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	57	124	18
Average Queue (ft)	16	51	5
95th Queue (ft)	43	100	17
Link Distance (ft)	1269	1269	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 2: Haven Av. & Driveway 1

Movement	WB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	28
Link Distance (ft)	386
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
Horizon Year (2051) With Project - PM Peak Hour

07/30/2021

Intersection: 3: Haven Av. & Olive Wy. - North

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	54	36
Average Queue (ft)	23	7
95th Queue (ft)	44	28
Link Distance (ft)	393	393
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Haven Av. & Olive Wy. - South

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	38	13	13
Average Queue (ft)	16	0	0
95th Queue (ft)	38	8	8
Link Distance (ft)	297	220	220
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Haven Av. & Amber Ln./College Dr.

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LTR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	54	244	289	48	362	788	909	74	120	121	120
Average Queue (ft)	21	143	129	13	83	203	345	32	60	63	54
95th Queue (ft)	46	230	228	37	261	668	849	65	106	104	100
Link Distance (ft)	156	527	527	2163	2163	2163	2163	220	220	220	220
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Horizon Year (2051) With Project - PM Peak Hour

07/30/2021

Intersection: 9: Driveway 2 & Wilson Av.

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	30	35	31
Average Queue (ft)	5	5	6
95th Queue (ft)	23	23	25
Link Distance (ft)		195	195
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Driveway 3 & Wilson Av.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	34	36
Average Queue (ft)	5	13
95th Queue (ft)	23	38
Link Distance (ft)		96
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	60	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 11: Driveway 4 & Wilson Av.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	28	38
Average Queue (ft)	3	12
95th Queue (ft)	17	36
Link Distance (ft)		97
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
Horizon Year (2051) With Project - PM Peak Hour

07/30/2021

Intersection: 12: College Dr. & Wilson Av.

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	35	39	48
Average Queue (ft)	9	7	18
95th Queue (ft)	30	29	43
Link Distance (ft)	344		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	170		50
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Zone Summary

Zone wide Queuing Penalty: 9

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS

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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	4	28	4	3	36	5	13	4	2	22	6	20	1	1	27	2	5	10	4	17	10	102	112
07:15 AM	1	24	2	2	27	4	6	11	4	21	2	10	2	0	14	1	4	4	1	9	7	71	78
07:30 AM	4	32	6	2	42	6	15	7	5	28	5	10	8	2	23	1	16	4	3	21	12	114	126
07:45 AM	5	34	5	4	44	8	27	4	1	39	4	19	7	2	30	3	29	10	6	42	13	155	168
Total	14	118	17	11	149	23	61	26	12	110	17	59	18	5	94	7	54	28	14	89	42	442	484
08:00 AM	3	38	3	0	44	9	17	8	6	34	11	31	7	2	49	3	12	5	4	20	12	147	159
08:15 AM	4	37	2	2	43	8	14	10	7	32	6	24	4	2	34	2	6	5	2	13	13	122	135
08:30 AM	3	35	3	0	41	7	13	6	2	26	2	21	6	2	29	1	7	10	5	18	9	114	123
08:45 AM	4	42	1	0	47	11	11	4	3	26	3	22	4	1	29	0	9	6	6	15	10	117	127
Total	14	152	9	2	175	35	55	28	18	118	22	98	21	7	141	6	34	26	17	66	44	500	544
Grand Total	28	270	26	13	324	58	116	54	30	228	39	157	39	12	235	13	88	54	31	155	86	942	1028
% Approach	8.6	83.3	8			25.4	50.9	23.7			16.6	66.8	16.6			8.4	56.8	34.8					
% Total	3	28.7	2.8		34.4	6.2	12.3	5.7		24.2	4.1	16.7	4.1		24.9	1.4	9.3	5.7		16.5	8.4	91.6	
Passenger Vehicles	27	266	26		332	58	115	52		255	38	147	38		235	13	87	54		185	0	0	1007
% Passenger Vehicles	96.4	98.5	100	100	98.5	100	99.1	96.3	100	98.8	97.4	93.6	97.4	100	95.1	100	98.9	100	100	99.5	0	0	98
Large 2 Axle Vehicles	0	2	0	0	2	0	0	1	0	1	1	7	1	0	9	0	0	0	0	0	0	0	12
% Large 2 Axle Vehicles	0	0.7	0	0	0.6	0	0	1.9	0	0.4	2.6	4.5	2.6	0	3.6	0	0	0	0	0	0	0	1.2
3 Axle Vehicles	1	1	0	0	2	0	1	1	1	2	0	1	0	0	1	0	1	0	0	1	0	0	6
% 3 Axle Vehicles	3.6	0.4	0	0	0.6	0	0.9	1.9	0	0.8	0	0.6	0	0	0.4	0	1.1	0	0	0.5	0	0	0.6
4+ Axle Trucks	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	3
% 4+ Axle Trucks	0	0.4	0	0	0.3	0	0	0	0	0	0	1.3	0	0	0.8	0	0	0	0	0	0	0	0.3

Start Time	Haven Avenue Southbound				Wilson Avenue Westbound				Haven Avenue Northbound				Wilson Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	4	32	6	42	6	15	7	28	5	10	8	23	1	16	4	21	114
07:45 AM	5	34	5	44	8	27	4	39	4	19	7	30	3	29	10	42	155
08:00 AM	3	38	3	44	9	17	8	34	11	31	7	49	3	12	5	20	147
08:15 AM	4	37	2	43	8	14	10	32	6	24	4	34	2	6	5	13	122
Total Volume	16	141	16	173	31	73	29	133	26	84	26	136	9	63	24	96	538
% App. Total	9.2	81.5	9.2		23.3	54.9	21.8		19.1	61.8	19.1		9.4	65.6	25		
PHF	.800	.928	.667	.983	.861	.676	.725	.853	.591	.677	.813	.694	.750	.543	.600	.571	.868

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Wilson Avenue
Weather: Clear

3.1-3
G-91

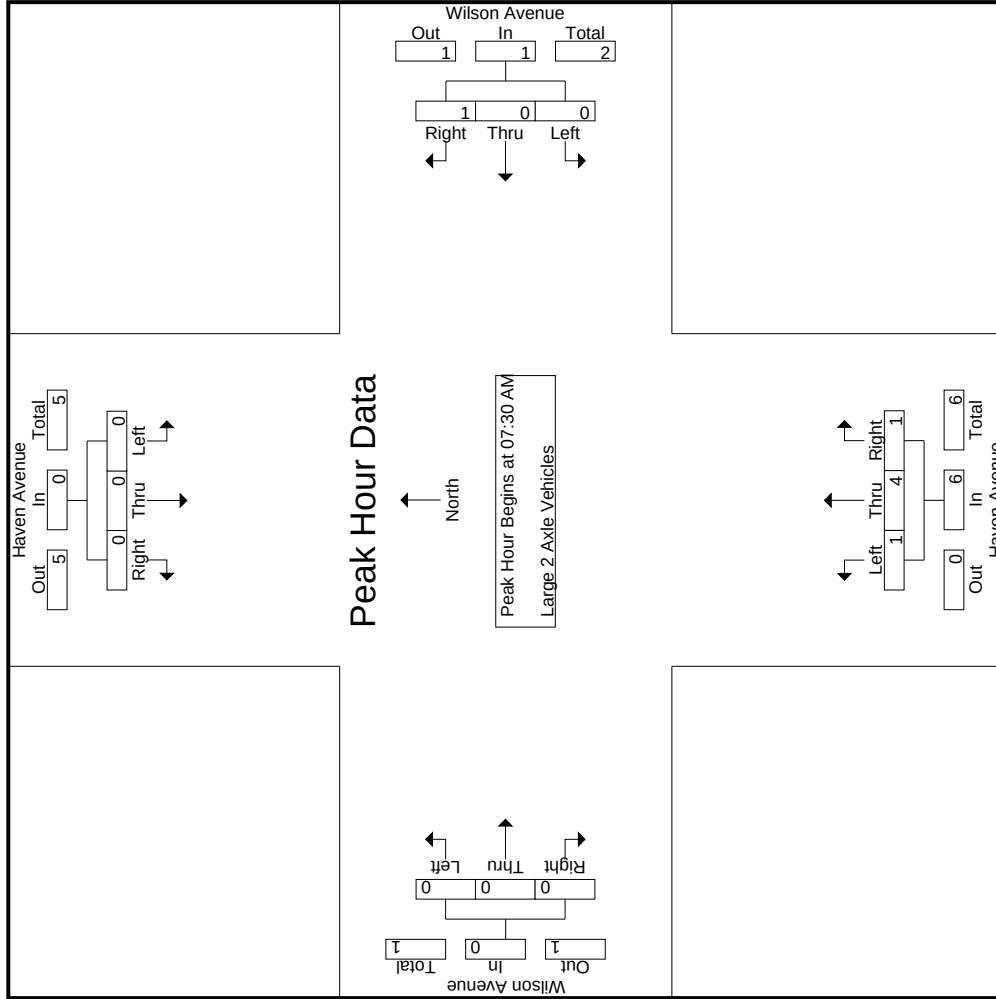
Start Time	Haven Avenue Southbound				Wilson Avenue Westbound				Haven Avenue Northbound				Wilson Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins.	08:00 AM				07:30 AM				07:45 AM				07:30 AM			
	3	38	3	44	6	15	7	28	4	19	7	30	1	16	4	21
	4	37	2	43	8	27	4	39	11	31	7	49	3	29	10	42
	3	35	3	41	9	17	8	34	6	24	4	30	3	12	5	20
Total Volume	14	152	9	175	31	73	29	133	23	95	24	142	9	63	24	96
% App. Total	8	86.9	5.1		23.3	54.9	21.8		16.2	66.9	16.9		9.4	65.6	25	
PHE	.875	.905	.750	.931	.861	.676	.725	.853	.523	.766	.857	.724	.750	.543	.600	.571

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	0	0	1	0	0	4	0	0	4	0	0	0	0	0	0	5	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	2	0	0	2	0	0	0	0	0	1	3	1	0	5	0	0	0	0	0	0	7	7
Grand Total	0	2	0	0	2	0	0	0	1	0	1	7	1	0	9	0	0	0	0	0	0	12	12
Approch %	0	100	0			0	0	100			11.1	77.8	11.1			0	0	0				0	
Total %	0	16.7	0		16.7	0	0	8.3		8.3	8.3	58.3	8.3		75	0	0	0			0	100	

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:30 AM																				
07:30 AM	0	0	0	0		0	0	0	1		0	1	0	0		0	0	0	0	2
07:45 AM	0	0	0	0		0	0	0	0		0	2	0	0		0	0	0	0	2
08:00 AM	0	0	0	0		0	0	0	0		1	1	0	0		0	0	0	0	2
08:15 AM	0	0	0	0		0	0	0	0		0	0	1	1		0	0	0	0	1
Total Volume	0	0	0	0		0	0	0	1		1	4	1	6		0	0	0	0	7
% App. Total	0	0	0	0		0	0	0	100		16.7	66.7	16.7			0	0	0		
PHF	.000	.000	.000	.000		.000	.000	.250	.250		.250	.500	.250	.750		.000	.000	.000	.000	.875

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Wilson Avenue
Weather: Clear

File Name : 01_RNC_Haven_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

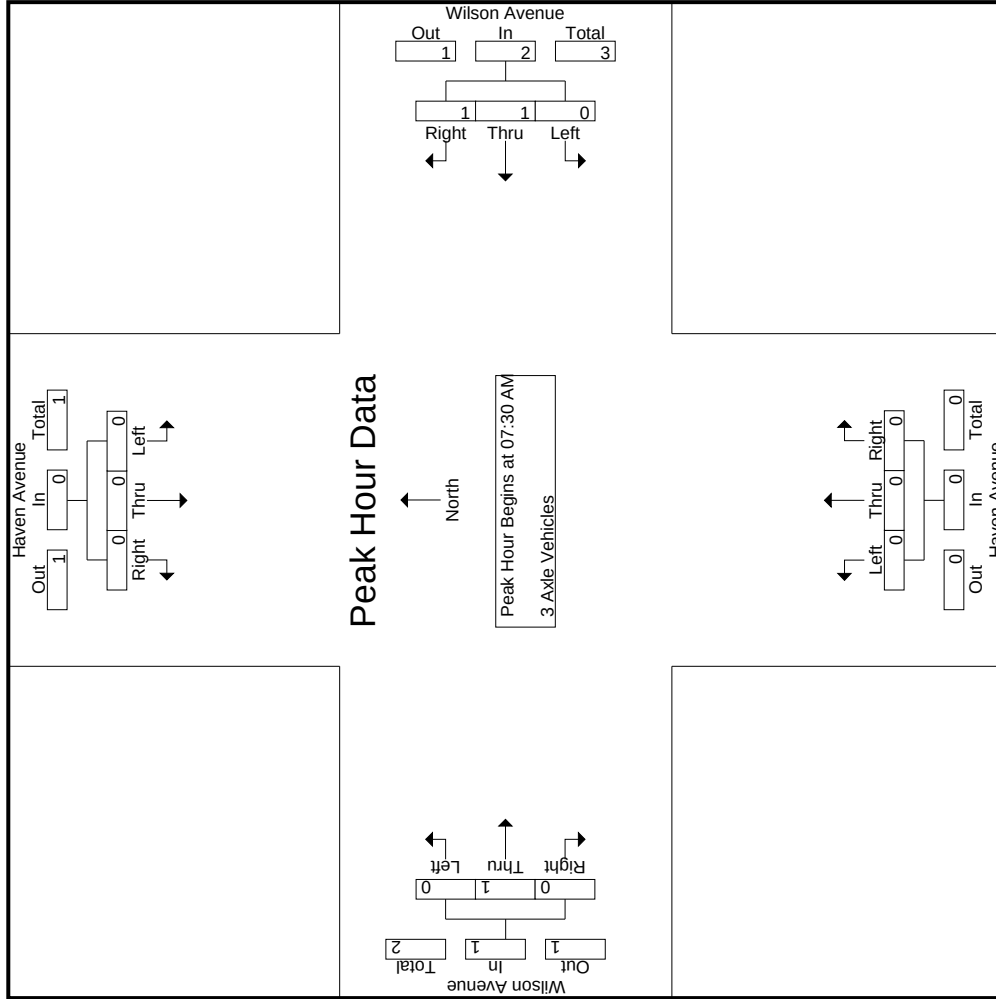
Start Time	Haven Avenue Southbound			Wilson Avenue Westbound			Haven Avenue Northbound			Wilson Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	07:30 AM			0	0	0	07:30 AM	
+15 mins.	0	0	0	0	0	0	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	1	0	0	0
Total Volume	0	0	0	0	0	0	1	1	16.7	66.7	4	1
% App. Total	0	0	0	0	0	0	100	.250	.250	.500	.167	.750
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.000

Groups Printed- 3 Axle Vehicles

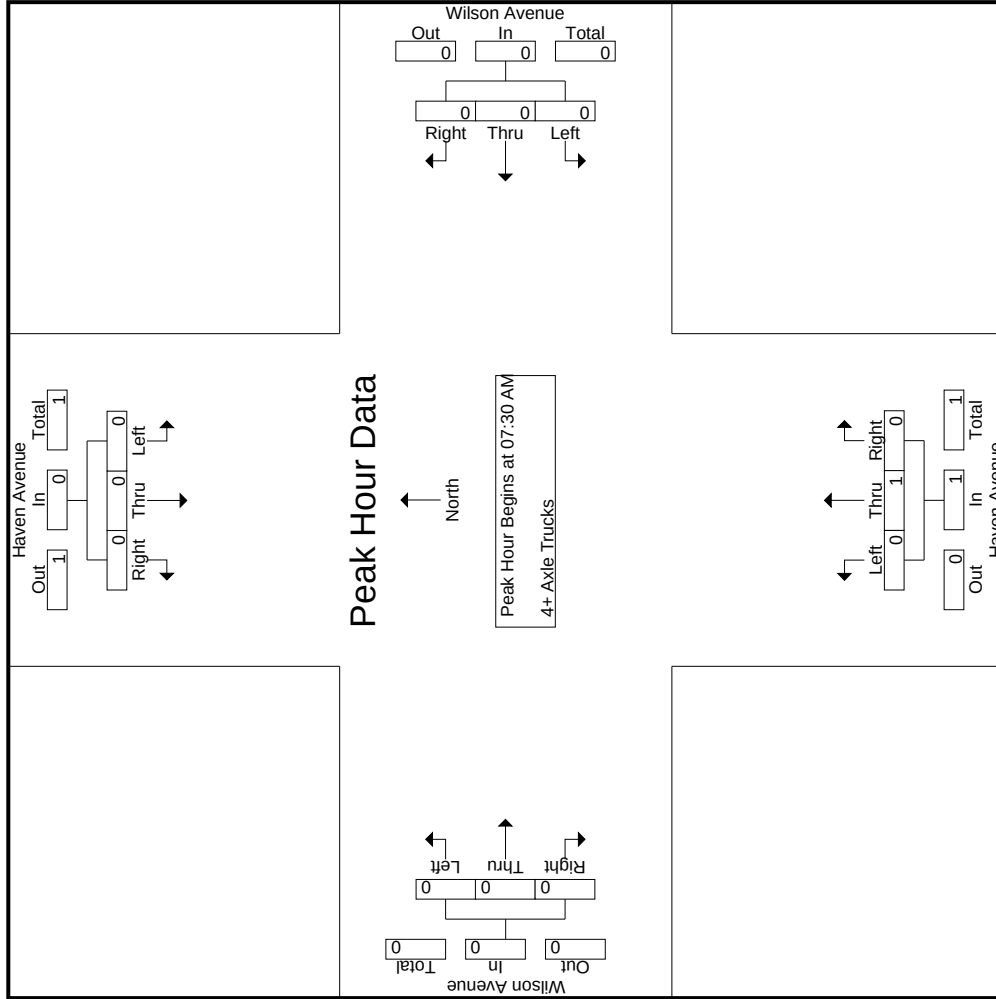
Start Time	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
08:30 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	0	1	0	0	5
Grand Total	1	1	0	0	2	0	1	1	0	2	0	1	0	0	1	0	1	0	0	6
Approch %	50	50	0	0	33.3	0	50	50	0	33.3	0	100	0	0	16.7	0	100	0	0	100
Total %	16.7	16.7	0	0	33.3	0	16.7	16.7	0	33.3	0	16.7	0	0	16.7	0	16.7	0	0	100

Start Time	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total Volume	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	3
% App. Total	0	0	0	0	0	0	50	50	0	100	0	0	0	0	0	0	100	0	0	37.5
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.250	.250	.000	.000	.000	.000	.000	.000	.250	.000	.250	.375

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM



Start Time	Haven Avenue Southbound			Wilson Avenue Westbound			Haven Avenue Northbound			Wilson Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	07:30 AM	0	0	0	0	07:30 AM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	1	2	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	1	1	2	0	1	0	1
% App. Total	0	0	0	0	0	50	50	0	0	100	0	0
PHF	.000	.000	.000	.000	.000	.250	.250	.250	.000	.250	.000	.250



	Haven Avenue Southbound				Wilson Avenue Westbound				Haven Avenue Northbound				Wilson Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	4	36	3	0	43	4	14	6	5	24	8	33	4	1	45	7	18	8	5	33	11	145	156
04:15 PM	4	28	4	2	36	11	8	10	6	29	10	27	6	2	43	6	19	13	8	38	18	146	164
04:30 PM	3	39	0	0	42	7	12	9	5	28	8	33	7	1	48	7	22	6	1	35	7	153	160
04:45 PM	7	37	7	1	51	2	10	10	5	22	7	23	7	1	37	5	26	7	5	38	12	148	160
Total	18	140	14	3	172	24	44	35	21	103	33	116	24	5	173	25	85	34	19	144	48	592	640
05:00 PM	10	34	1	0	45	3	8	13	7	24	6	46	4	1	56	10	16	10	7	36	15	161	176
05:15 PM	4	30	2	1	36	10	14	17	7	41	7	35	7	5	49	5	25	6	5	36	18	162	180
05:30 PM	7	24	6	1	37	3	11	9	7	23	9	44	5	2	58	6	14	12	7	32	17	150	167
05:45 PM	5	32	1	1	38	0	13	12	6	25	11	36	8	2	55	4	30	8	4	42	13	160	173
Total	26	120	10	3	156	16	46	51	27	113	33	161	24	10	218	25	85	36	23	146	63	633	696
Grand Total	44	260	24	6	328	40	90	86	48	216	66	277	48	15	391	50	170	70	42	290	111	1225	1336
% Approach	13.4	79.3	7.3			18.5	41.7	39.8			16.9	70.8	12.3			17.2	58.6	24.1					
% Total	3.6	21.2	2		26.8	3.3	7.3	7		17.6	5.4	22.6	3.9		31.9	4.1	13.9	5.7		23.7	8.3	91.7	
Passenger Vehicles	44	257	24		331	39	88	86		261	66	273	48		402	50	166	70		328	0	0	1322
% Passenger Vehicles	100	98.8	100	100	99.1	97.5	97.8	100	100	98.9	100	98.6	100	100	99	100	97.6	100	100	98.8	0	0	99
Large 2 Axle Vehicles	0	3	0	0	3	1	2	0	0	3	0	2	0	0	2	0	4	0	4	4	0	0	12
% Large 2 Axle Vehicles	0	1.2	0	0	0.9	2.5	2.2	0	0	1.1	0	0.7	0	0	0.5	0	2.4	0	0	1.2	0	0	0.9
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.2	0	0	0	0	0	0	0	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.2	0	0	0	0	0	0	0	0.1

Start Time	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 05:00 PM																				
05:00 PM	10	34	1	45		3	8	13	24		6	46	4	56		10	16	10	36	161
05:15 PM	4	30	2	36		10	14	17	41		7	35	7	49		5	25	6	36	162
05:30 PM	7	24	6	37		3	11	9	23		9	44	5	58		6	14	12	32	150
05:45 PM	5	32	1	38		0	13	12	25		11	36	8	55		4	30	8	42	160
Total Volume	26	120	10	156		16	46	51	113		33	161	24	218		25	85	36	146	633
% App. Total	16.7	76.9	6.4			14.2	40.7	45.1			15.1	73.9	11			17.1	58.2	24.7		
PHF	.650	.882	.417	.867		.400	.821	.750	.689		.750	.875	.750	.940		.625	.708	.750	.869	.977

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM

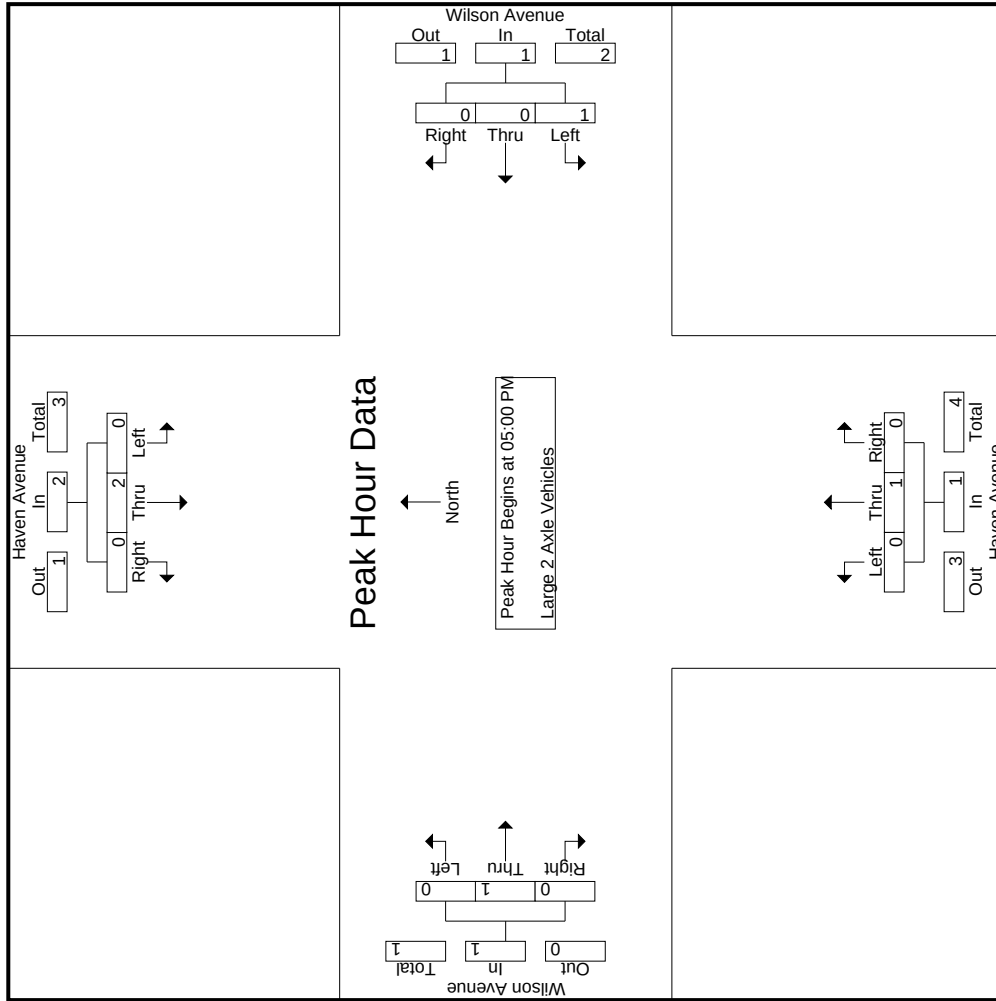
Start Time	Haven Avenue Southbound			Wilson Avenue Westbound			Haven Avenue Northbound			Wilson Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
	04:15 PM			04:30 PM			05:00 PM			04:15 PM		
+0 mins.	4	28	4	36	7	12	9	28	6	19	13	38
+15 mins.	3	39	0	42	2	10	10	22	7	22	6	35
+30 mins.	7	37	7	51	3	8	13	24	9	26	7	38
+45 mins.	10	34	1	45	10	14	17	41	11	16	10	36
Total Volume	24	138	12	174	22	44	49	115	33	83	36	147
% App. Total	13.8	79.3	6.9		19.1	38.3	42.6		15.1	56.5	24.5	
PHF	.600	.885	.429	.853	.550	.786	.721	.701	.750	.798	.692	.967

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1		
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	2		
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	0	3	3		
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1		
Total	0	1	0	0	1	0	2	0	0	2	0	3	0	0	3	0	7	7		
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
05:15 PM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	3	3		
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1		
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	0	5	5		
Grand Total	0	3	0	0	3	1	2	0	0	3	0	4	0	0	4	0	12	12		
% Approach	0	100	0	0	33.3	66.7	0	0	0	25	0	100	0	0	33.3	0	100	100		
% Total	0	25	0	0	25	8.3	16.7	0	0	16.7	0	33.3	0	0	33.3	0	100	100		

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		1
05:15 PM	0	2	0	2		1	0	0	1		0	0	0	0		0	0	0	0		3
05:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	1		1
05:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	2	0	2		1	0	0	1		0	1	0	0		0	1	0	1		5
% App. Total	0	100	0	0		100	0	0	0		0	100	0	0		0	100	0	0		
PHF	.000	.250	.000	.250		.250	.000	.000	.250		.000	.250	.000	.250		.000	.250	.000	.250		.417

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM



Start Time	Haven Avenue Southbound			Wilson Avenue Westbound			Haven Avenue Northbound			Wilson Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	05:00 PM			0	0	0	0	0
+15 mins.	0	2	0	2	05:00 PM			1	0	0	0	0
+30 mins.	0	0	0	0	05:00 PM			0	0	0	1	0
+45 mins.	0	0	0	0	05:00 PM			0	0	0	0	0
Total Volume	0	2	0	2	05:00 PM			1	0	0	1	0
% App. Total	0	100	0	0	05:00 PM			100	0	100	0	0
PHF	.000	.250	.000	.250	05:00 PM			.250	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
EW: Wilson Avenue
Weather: Clear

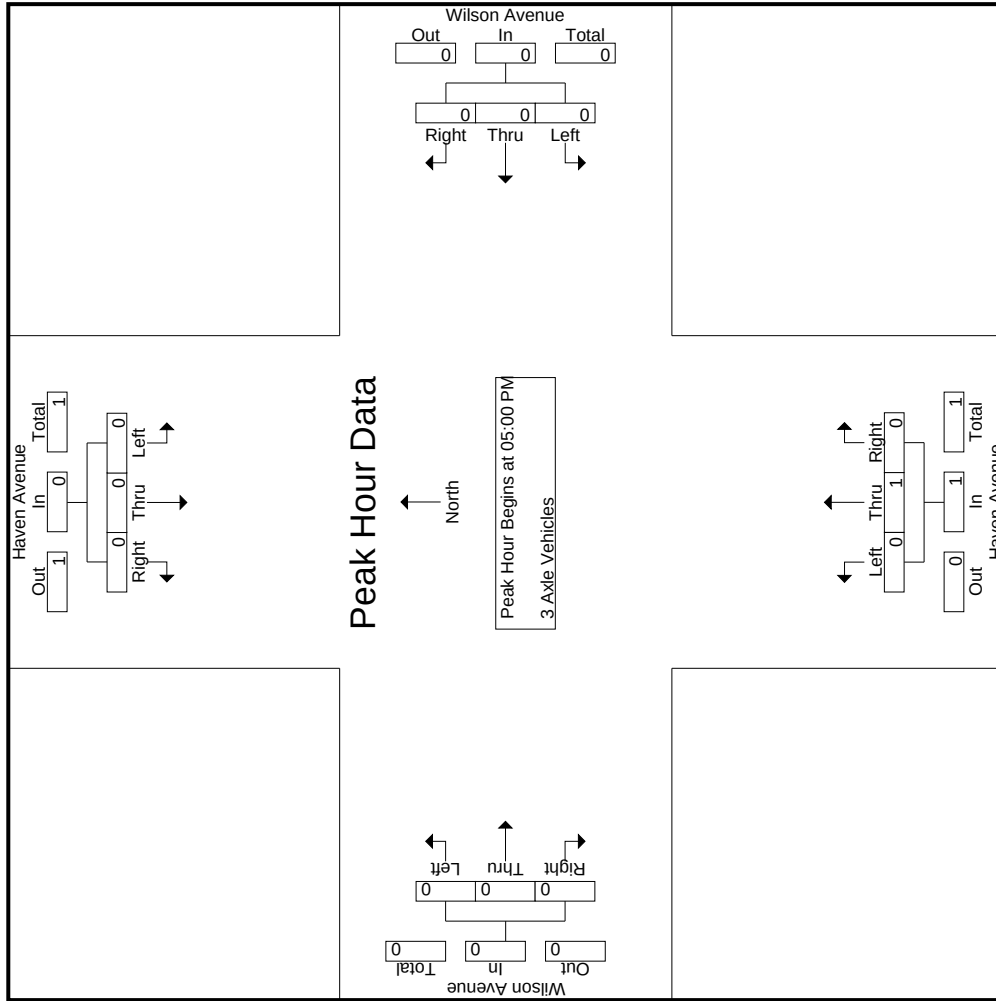
File Name : 01_RNC_Haven_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1
Approch %	0	0	0			0	0	0			0	100	0			0	0	0		
Total %	0	0	0			0	0	0			0	100	0		100	0	0	0		100

Start Time	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1
% App. Total	0	0	0	0		0	0	0			0	100	0			0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.000	.000	.250

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM



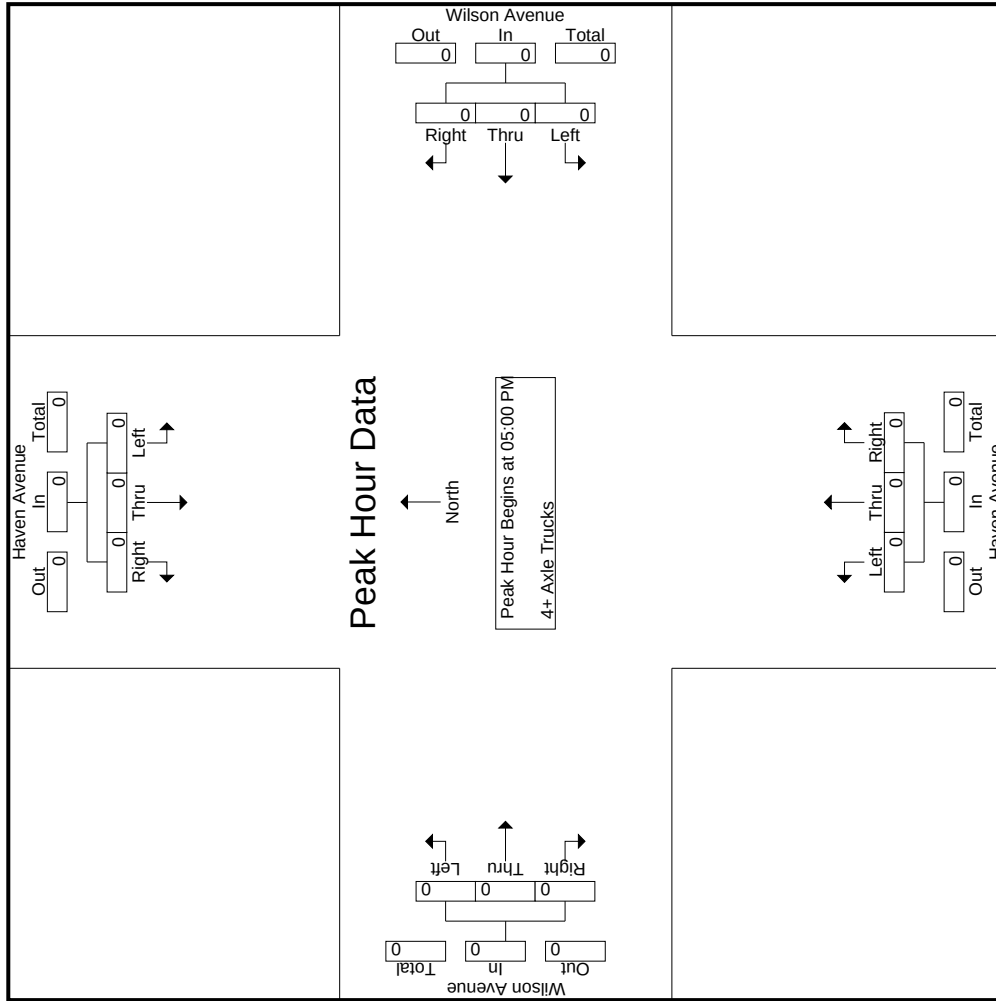
	Haven Avenue Southbound				Wilson Avenue Westbound				Haven Avenue Northbound				Wilson Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1		
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1		
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Grand Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1		
% Approach	0	0	0			0	0	0			0	100	0			0	0			
% Total	0	0	0			0	0	0			0	100	0			0	100			

	Haven Avenue Southbound					Wilson Avenue Westbound					Haven Avenue Northbound					Wilson Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
PHF	.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Wilson Avenue
Weather: Clear

File Name : 01_RNC_Haven_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

Start Time	Haven Avenue Southbound			Wilson Avenue Westbound			Haven Avenue Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Haven Avenue	East Leg Wilson Avenue	South Leg Haven Avenue	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	2	0	0	0	2
8:00 AM	2	0	1	2	5
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	4	0	1	3	8

	North Leg Haven Avenue	East Leg Wilson Avenue	South Leg Haven Avenue	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	3	0	0	3
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	1	1	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	4	1	0	5

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

BICYCLES

		Southbound Haven Avenue			Westbound Wilson Avenue			Northbound Haven Avenue			Eastbound Wilson Avenue			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
	7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:		0	0	0	0	4	0	0	0	0	0	3	0	7

		Southbound Haven Avenue			Westbound Wilson Avenue			Northbound Haven Avenue			Eastbound Wilson Avenue			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	2	0	0	0	2
	4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	1	0	0	0	2	0	1	0	4

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

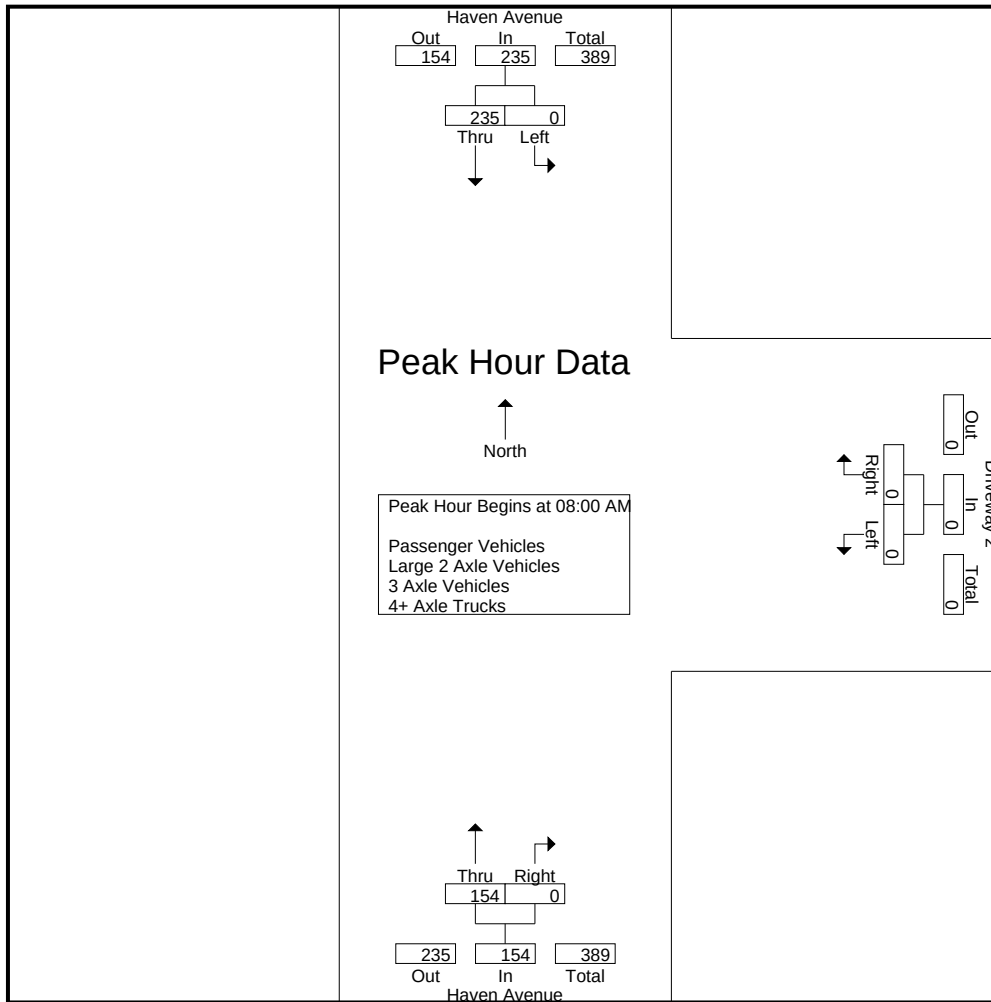
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	44	44	0	0	0	26	0	26	70
07:15 AM	0	33	33	0	0	0	15	0	15	48
07:30 AM	0	40	40	0	0	0	23	0	23	63
07:45 AM	0	50	50	0	0	0	30	0	30	80
Total	0	167	167	0	0	0	94	0	94	261
08:00 AM	0	54	54	0	0	0	50	0	50	104
08:15 AM	0	55	55	0	0	0	37	0	37	92
08:30 AM	0	60	60	0	0	0	31	0	31	91
08:45 AM	0	66	66	0	0	0	36	0	36	102
Total	0	235	235	0	0	0	154	0	154	389
Grand Total	0	402	402	0	0	0	248	0	248	650
Apprch %	0	100		0	0		100	0		
Total %	0	61.8	61.8	0	0	0	38.2	0	38.2	
Passenger Vehicles	0	394	394	0	0	0	227	0	227	621
% Passenger Vehicles	0	98	98	0	0	0	91.5	0	91.5	95.5
Large 2 Axle Vehicles	0	7	7	0	0	0	18	0	18	25
% Large 2 Axle Vehicles	0	1.7	1.7	0	0	0	7.3	0	7.3	3.8
3 Axle Vehicles	0	0	0	0	0	0	2	0	2	2
% 3 Axle Vehicles	0	0	0	0	0	0	0.8	0	0.8	0.3
4+ Axle Trucks	0	1	1	0	0	0	1	0	1	2
% 4+ Axle Trucks	0	0.2	0.2	0	0	0	0.4	0	0.4	0.3

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	54	54	0	0	0	50	0	50	104
08:15 AM	0	55	55	0	0	0	37	0	37	92
08:30 AM	0	60	60	0	0	0	31	0	31	91
08:45 AM	0	66	66	0	0	0	36	0	36	102
Total Volume	0	235	235	0	0	0	154	0	154	389
% App. Total	0	100		0	0		100	0		
PHF	.000	.890	.890	.000	.000	.000	.770	.000	.770	.935

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			08:00 AM		
+0 mins.	0	54	54	0	0	0	50	0	50
+15 mins.	0	55	55	0	0	0	37	0	37
+30 mins.	0	60	60	0	0	0	31	0	31
+45 mins.	0	66	66	0	0	0	36	0	36
Total Volume	0	235	235	0	0	0	154	0	154
% App. Total	0	100		0	0		100	0	
PHF	.000	.890	.890	.000	.000	.000	.770	.000	.770

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 AM
Site Code : 05121260
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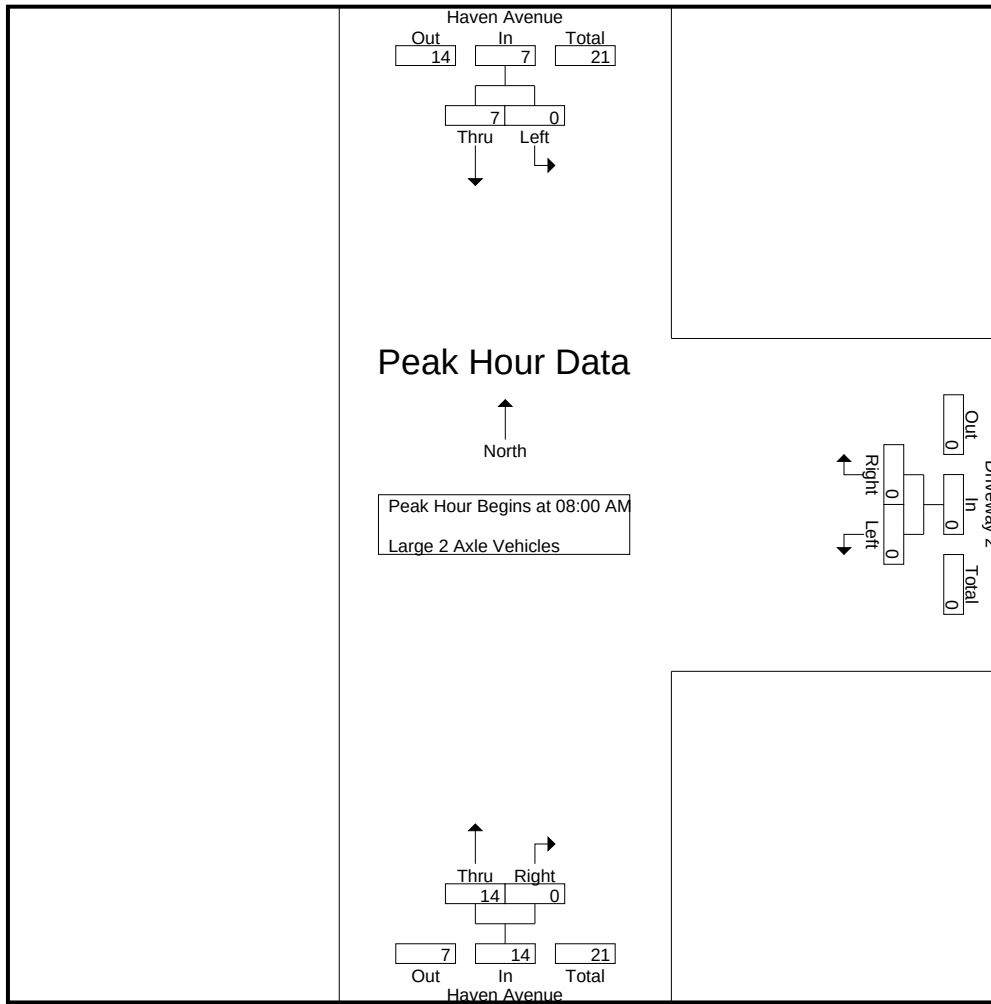
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	2	0	2	2
Total	0	0	0	0	0	0	4	0	4	4
08:00 AM	0	1	1	0	0	0	6	0	6	7
08:15 AM	0	0	0	0	0	0	3	0	3	3
08:30 AM	0	3	3	0	0	0	2	0	2	5
08:45 AM	0	3	3	0	0	0	3	0	3	6
Total	0	7	7	0	0	0	14	0	14	21
Grand Total	0	7	7	0	0	0	18	0	18	25
Apprch %	0	100		0	0		100	0		
Total %	0	28	28	0	0	0	72	0	72	

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	1	1	0	0	0	6	0	6	7
08:15 AM	0	0	0	0	0	0	3	0	3	3
08:30 AM	0	3	3	0	0	0	2	0	2	5
08:45 AM	0	3	3	0	0	0	3	0	3	6
Total Volume	0	7	7	0	0	0	14	0	14	21
% App. Total	0	100		0	0		100	0		
PHF	.000	.583	.583	.000	.000	.000	.583	.000	.583	.750

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

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Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	1	1	0	0	0	6	0	6
+15 mins.	0	0	0	0	0	0	3	0	3
+30 mins.	0	3	3	0	0	0	2	0	2
+45 mins.	0	3	3	0	0	0	3	0	3
Total Volume	0	7	7	0	0	0	14	0	14
% App. Total	0	100		0	0		100	0	
PHF	.000	.583	.583	.000	.000	.000	.583	.000	.583

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 AM
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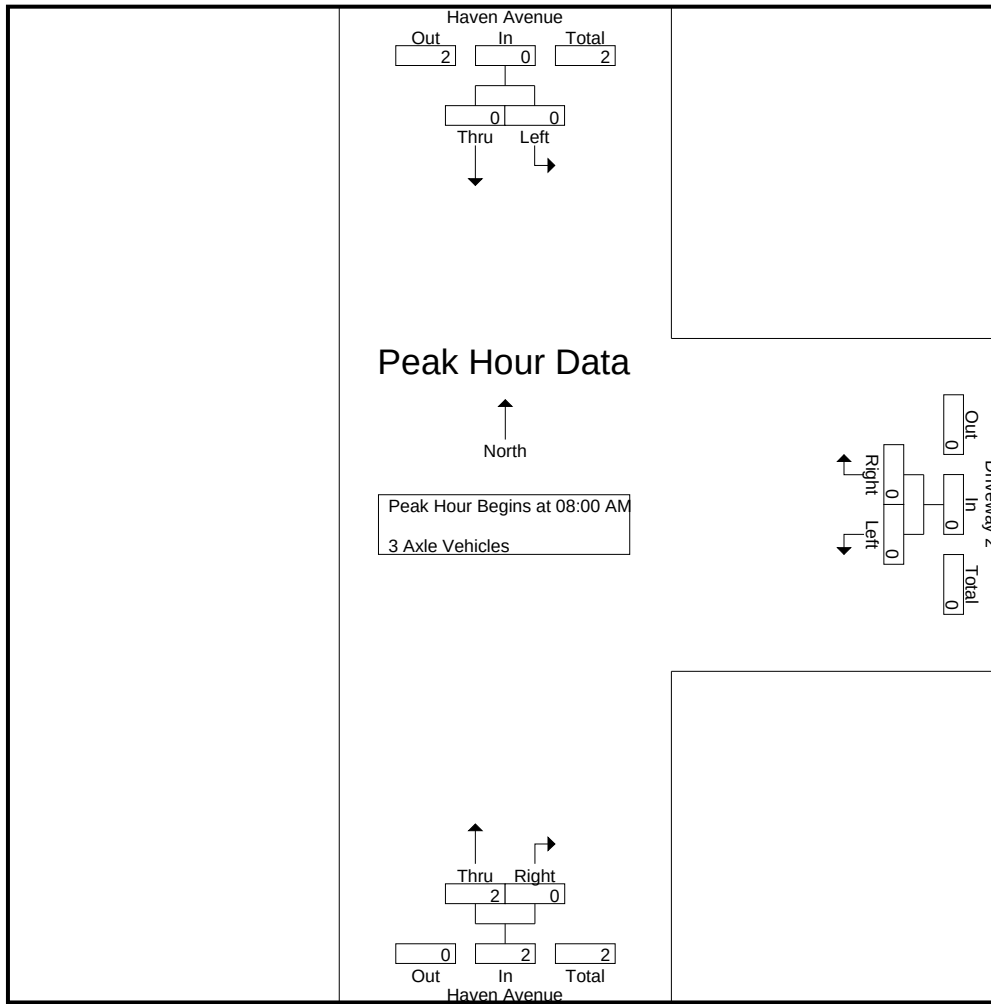
Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	2	0	2	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	2	2
Grand Total	0	0	0	0	0	0	2	0	2	2
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	2	0	2	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2	2
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Haven Avenue
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Weather: Clear

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Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 AM
Site Code : 05121260
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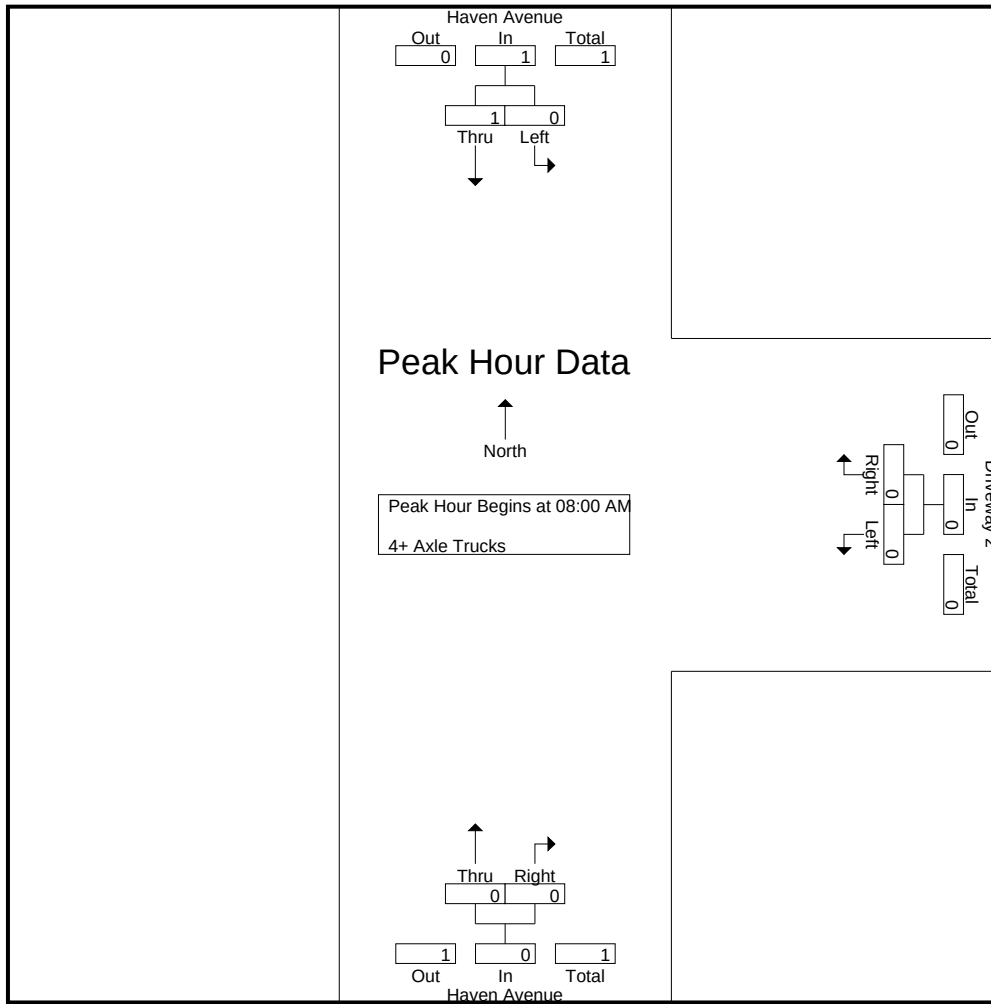
Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	0	0	0	1
Grand Total	0	1	1	0	0	0	1	0	1	2
Apprch %	0	100		0	0		100	0		
Total %	0	50	50	0	0	0	50	0	50	

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0	1
% App. Total	0	100		0	0		0	0		
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

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Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0
% App. Total	0	100		0	0		0	0	
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 PM
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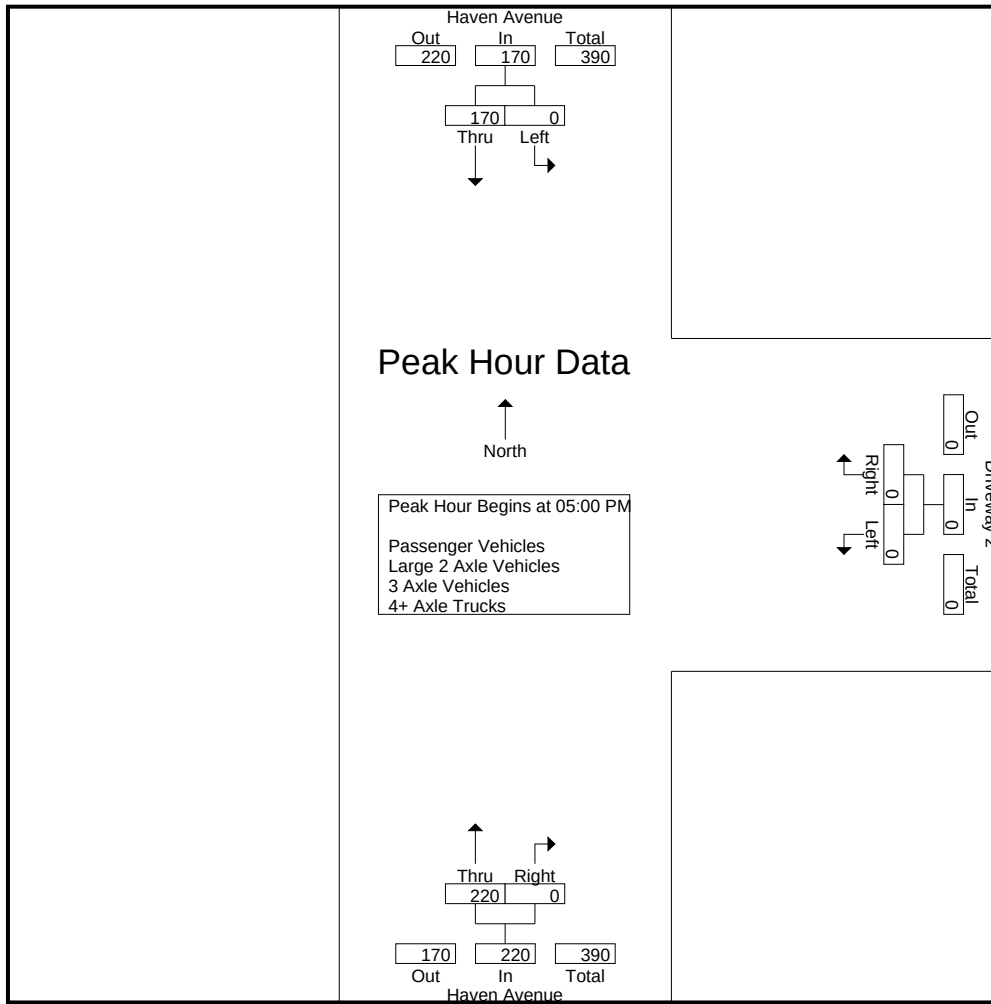
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	45	45	0	0	0	48	0	48	93
04:15 PM	0	51	51	0	0	0	44	0	44	95
04:30 PM	0	50	50	0	0	0	50	0	50	100
04:45 PM	0	47	47	0	0	0	36	0	36	83
Total	0	193	193	0	0	0	178	0	178	371
05:00 PM	0	45	45	0	0	0	55	0	55	100
05:15 PM	0	46	46	0	0	0	49	0	49	95
05:30 PM	0	40	40	0	0	0	59	0	59	99
05:45 PM	0	39	39	0	0	0	57	0	57	96
Total	0	170	170	0	0	0	220	0	220	390
Grand Total	0	363	363	0	0	0	398	0	398	761
Apprch %	0	100		0	0		100	0		
Total %	0	47.7	47.7	0	0	0	52.3	0	52.3	
Passenger Vehicles	0	354	354	0	0	0	393	0	393	747
% Passenger Vehicles	0	97.5	97.5	0	0	0	98.7	0	98.7	98.2
Large 2 Axle Vehicles	0	9	9	0	0	0	3	0	3	12
% Large 2 Axle Vehicles	0	2.5	2.5	0	0	0	0.8	0	0.8	1.6
3 Axle Vehicles	0	0	0	0	0	0	1	0	1	1
% 3 Axle Vehicles	0	0	0	0	0	0	0.3	0	0.3	0.1
4+ Axle Trucks	0	0	0	0	0	0	1	0	1	1
% 4+ Axle Trucks	0	0	0	0	0	0	0.3	0	0.3	0.1

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	45	45	0	0	0	55	0	55	100
05:15 PM	0	46	46	0	0	0	49	0	49	95
05:30 PM	0	40	40	0	0	0	59	0	59	99
05:45 PM	0	39	39	0	0	0	57	0	57	96
Total Volume	0	170	170	0	0	0	220	0	220	390
% App. Total	0	100		0	0		100	0		
PHF	.000	.924	.924	.000	.000	.000	.932	.000	.932	.975

City of Rancho Cucamonga
N/S: Haven Avenue
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Weather: Clear

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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			05:00 PM		
+0 mins.	0	45	45	0	0	0	55	0	55
+15 mins.	0	51	51	0	0	0	49	0	49
+30 mins.	0	50	50	0	0	0	59	0	59
+45 mins.	0	47	47	0	0	0	57	0	57
Total Volume	0	193	193	0	0	0	220	0	220
% App. Total	0	100		0	0		100	0	
PHF	.000	.946	.946	.000	.000	.000	.932	.000	.932

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 PM
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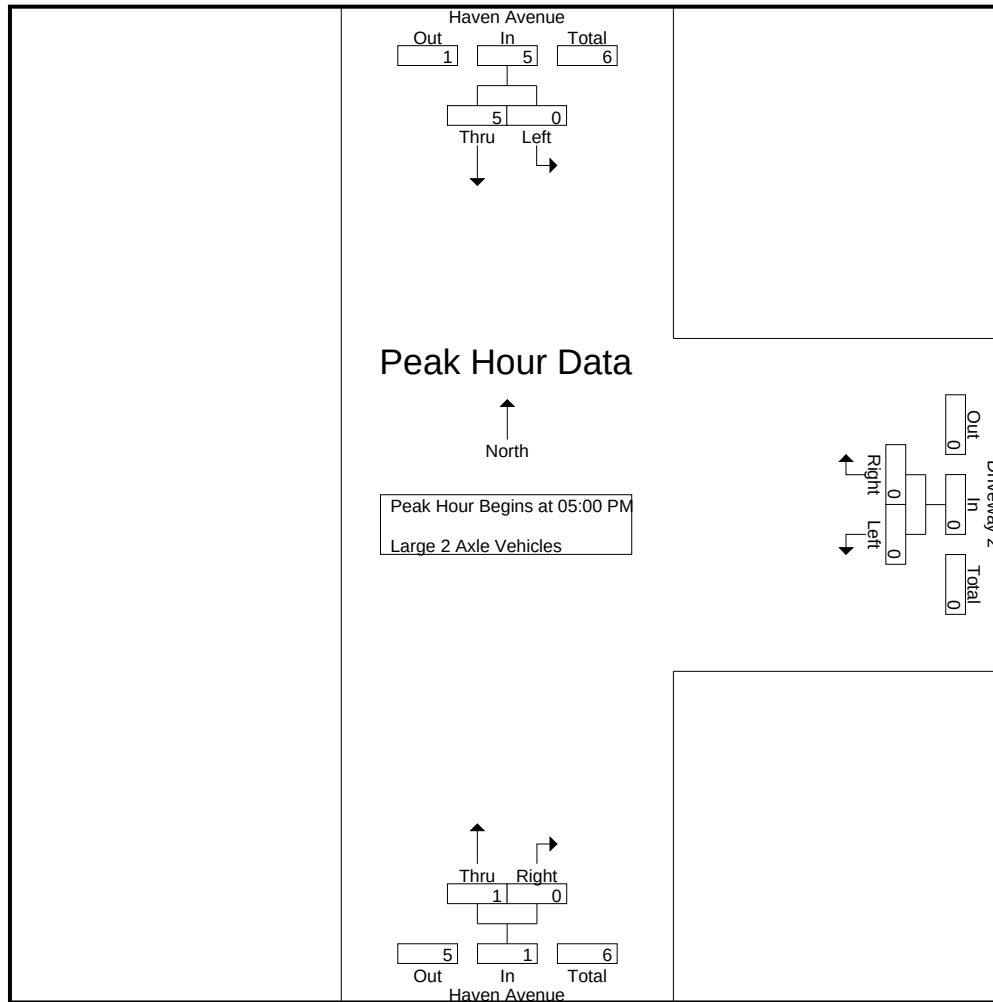
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	2	2	0	0	0	1	0	1	3
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	4	4	0	0	0	2	0	2	6
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	4	4	0	0	0	0	0	0	4
05:30 PM	0	1	1	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	5	5	0	0	0	1	0	1	6
Grand Total	0	9	9	0	0	0	3	0	3	12
Apprch %	0	100		0	0		100	0		
Total %	0	75	75	0	0	0	25	0	25	

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	4	4	0	0	0	0	0	0	4
05:30 PM	0	1	1	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	5	5	0	0	0	1	0	1	6
% App. Total	0	100		0	0		100	0		
PHF	.000	.313	.313	.000	.000	.000	.250	.000	.250	.375

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	1	0	1
+15 mins.	0	4	4	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	5	5	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.313	.313	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

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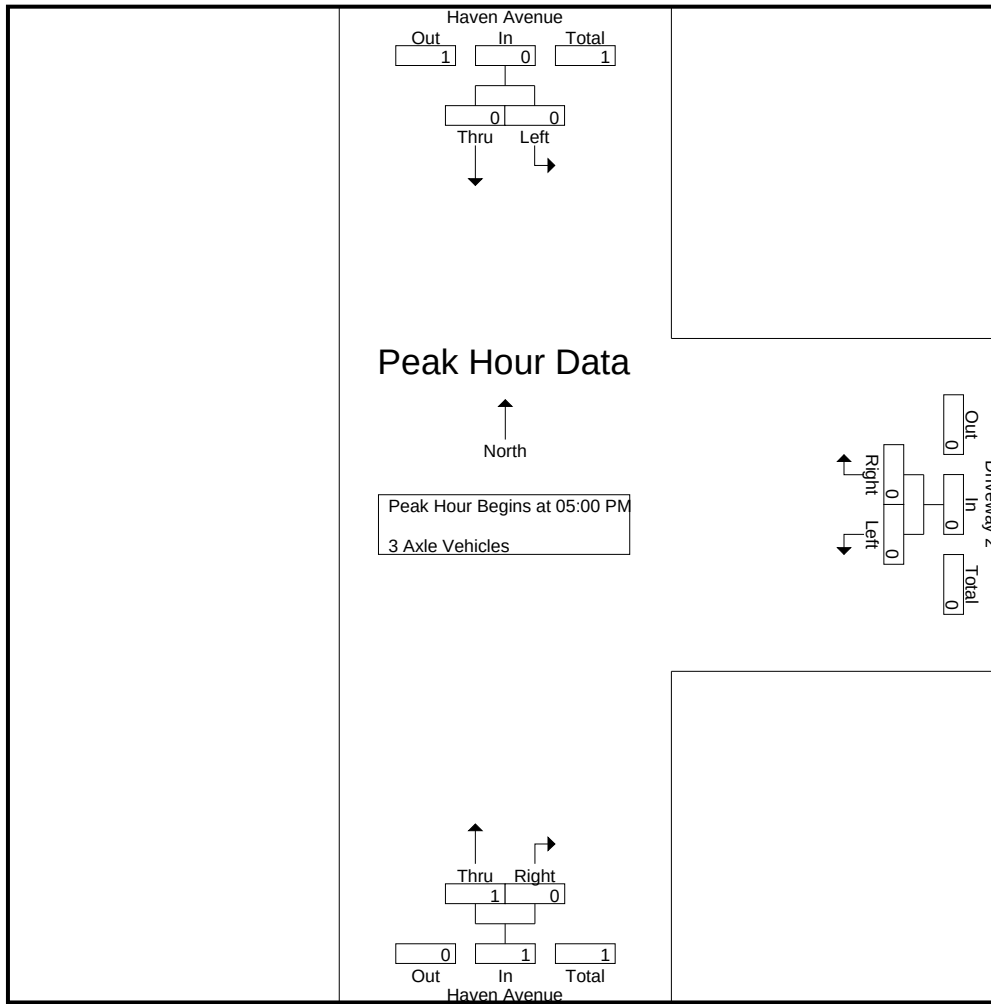
Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Haven Avenue
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Weather: Clear

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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	0	1	0	1
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

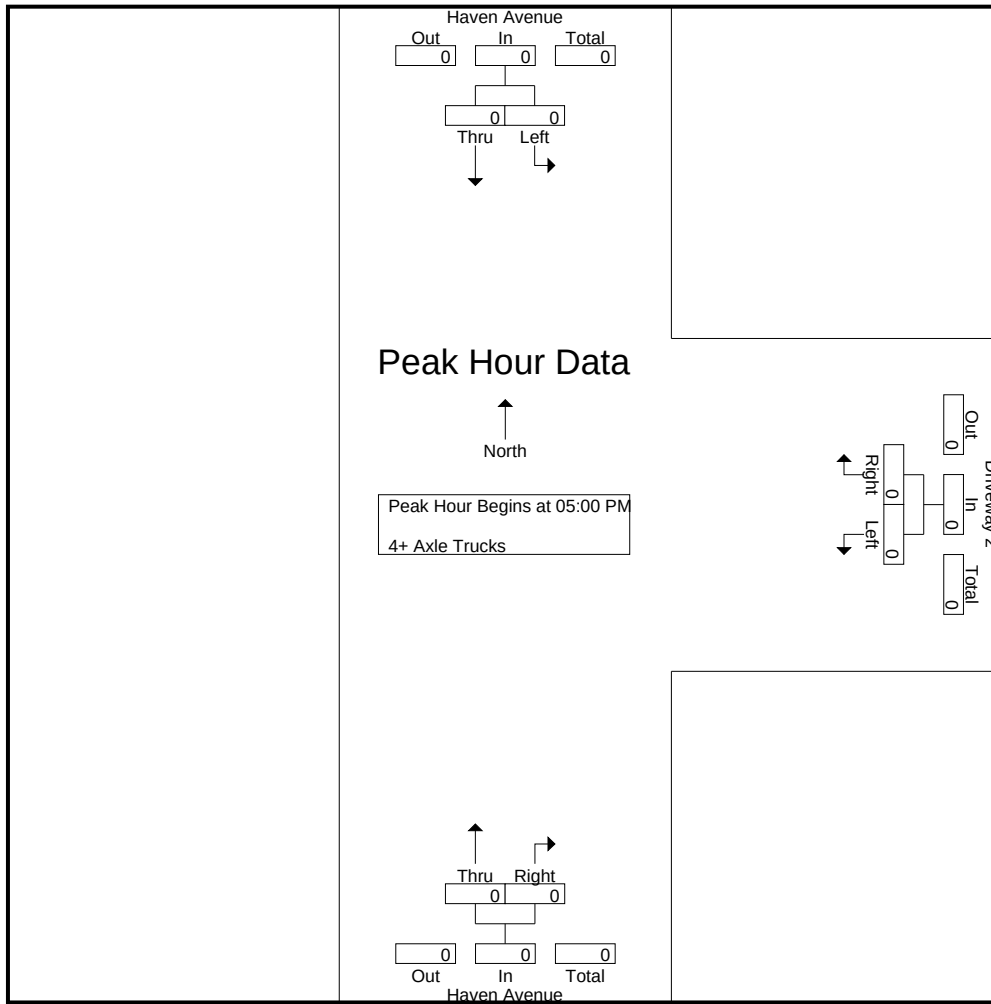
Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0	0	0	0	0	100	0	100	

	Haven Avenue Southbound			Driveway 2 Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Driveway 2
Weather: Clear

File Name : 02_RNC_Haven_DW1 PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Driveway 2



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Haven Avenue	East Leg Driveway 2	South Leg Haven Avenue	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

	North Leg Haven Avenue	East Leg Driveway 2	South Leg Haven Avenue	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	3	0	0	3
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	0	3

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Driveway 2



Date: 6/2/2021
 Day: Wednesday

BICYCLES

		Southbound Haven Avenue			Westbound Driveway 2			Northbound Haven Avenue			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

		Southbound Haven Avenue			Westbound Driveway 2			Northbound Haven Avenue			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	2	0	0	0	0	2

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

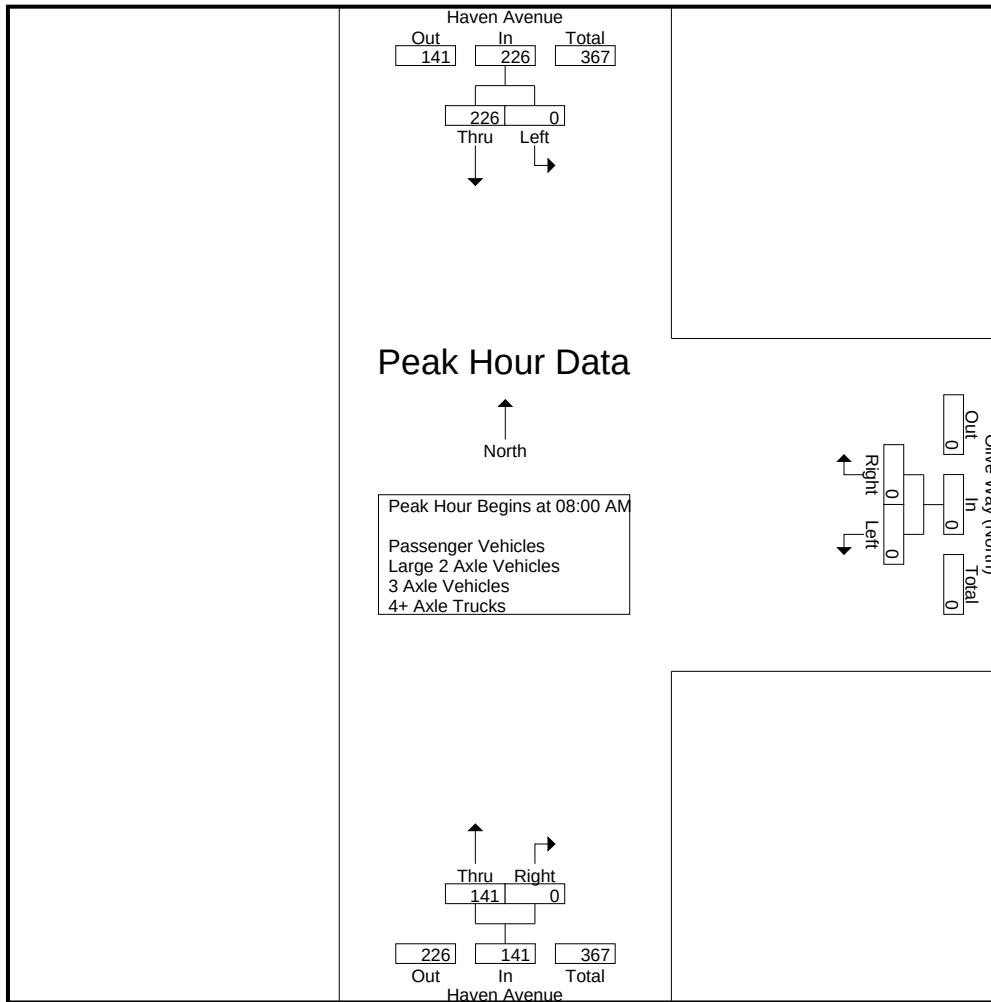
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	40	40	0	0	0	26	0	26	66
07:15 AM	0	33	33	0	0	0	14	0	14	47
07:30 AM	0	41	41	0	0	0	24	0	24	65
07:45 AM	0	50	50	0	0	0	30	0	30	80
Total	0	164	164	0	0	0	94	0	94	258
08:00 AM	0	53	53	0	0	0	50	0	50	103
08:15 AM	0	52	52	0	0	0	35	0	35	87
08:30 AM	0	62	62	0	0	0	29	0	29	91
08:45 AM	0	59	59	0	0	0	27	0	27	86
Total	0	226	226	0	0	0	141	0	141	367
Grand Total	0	390	390	0	0	0	235	0	235	625
Apprch %	0	100		0	0		100	0		
Total %	0	62.4	62.4	0	0	0	37.6	0	37.6	
Passenger Vehicles	0	380	380	0	0	0	217	0	217	597
% Passenger Vehicles	0	97.4	97.4	0	0	0	92.3	0	92.3	95.5
Large 2 Axle Vehicles	0	8	8	0	0	0	15	0	15	23
% Large 2 Axle Vehicles	0	2.1	2.1	0	0	0	6.4	0	6.4	3.7
3 Axle Vehicles	0	1	1	0	0	0	1	0	1	2
% 3 Axle Vehicles	0	0.3	0.3	0	0	0	0.4	0	0.4	0.3
4+ Axle Trucks	0	1	1	0	0	0	2	0	2	3
% 4+ Axle Trucks	0	0.3	0.3	0	0	0	0.9	0	0.9	0.5

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	53	53	0	0	0	50	0	50	103
08:15 AM	0	52	52	0	0	0	35	0	35	87
08:30 AM	0	62	62	0	0	0	29	0	29	91
08:45 AM	0	59	59	0	0	0	27	0	27	86
Total Volume	0	226	226	0	0	0	141	0	141	367
% App. Total	0	100		0	0		100	0		
PHF	.000	.911	.911	.000	.000	.000	.705	.000	.705	.891

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:45 AM		
+0 mins.	0	53	53	0	0	0	30	0	30
+15 mins.	0	52	52	0	0	0	50	0	50
+30 mins.	0	62	62	0	0	0	35	0	35
+45 mins.	0	59	59	0	0	0	29	0	29
Total Volume	0	226	226	0	0	0	144	0	144
% App. Total	0	100		0	0		100	0	
PHF	.000	.911	.911	.000	.000	.000	.720	.000	.720

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

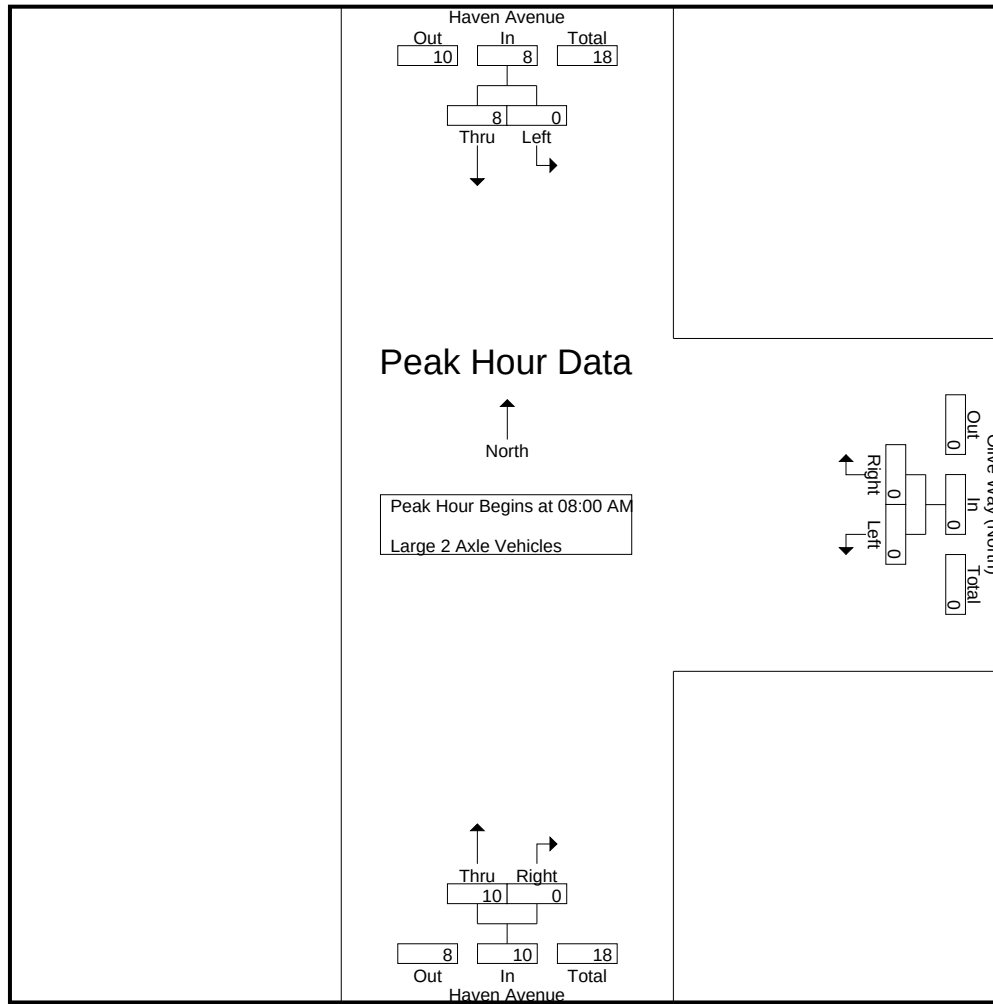
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	3	0	3	3
Total	0	0	0	0	0	0	5	0	5	5
08:00 AM	0	1	1	0	0	0	4	0	4	5
08:15 AM	0	0	0	0	0	0	2	0	2	2
08:30 AM	0	4	4	0	0	0	2	0	2	6
08:45 AM	0	3	3	0	0	0	2	0	2	5
Total	0	8	8	0	0	0	10	0	10	18
Grand Total	0	8	8	0	0	0	15	0	15	23
Apprch %	0	100		0	0		100	0		
Total %	0	34.8	34.8	0	0	0	65.2	0	65.2	

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	1	1	0	0	0	4	0	4	5
08:15 AM	0	0	0	0	0	0	2	0	2	2
08:30 AM	0	4	4	0	0	0	2	0	2	6
08:45 AM	0	3	3	0	0	0	2	0	2	5
Total Volume	0	8	8	0	0	0	10	0	10	18
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.625	.000	.625	.750

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	1	1	0	0	0	4	0	4
+15 mins.	0	0	0	0	0	0	2	0	2
+30 mins.	0	4	4	0	0	0	2	0	2
+45 mins.	0	3	3	0	0	0	2	0	2
Total Volume	0	8	8	0	0	0	10	0	10
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.625	.000	.625

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
Site Code : 05121260
Start Date : 6/2/2021
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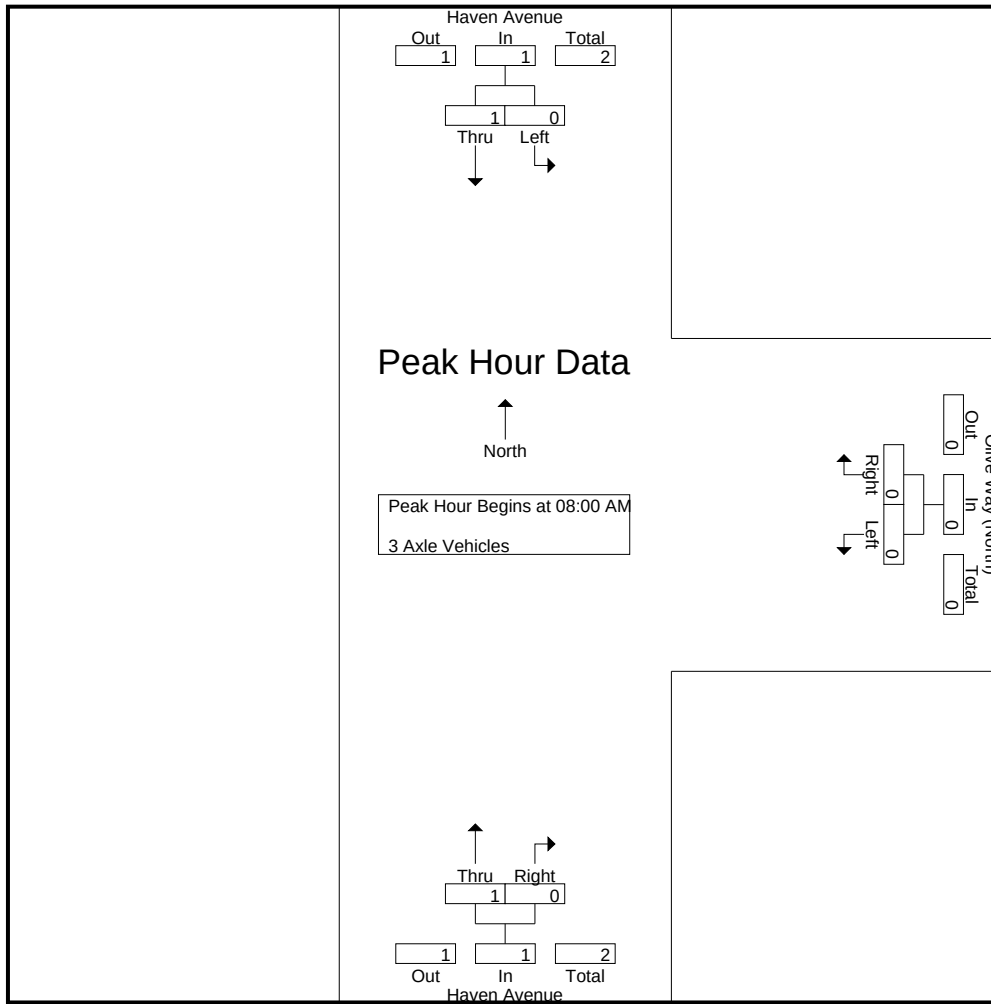
Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	1	0	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
Grand Total	0	1	1	0	0	0	1	0	1	2
Apprch %	0	100		0	0		100	0		
Total %	0	50	50	0	0	0	50	0	50	

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	1	0	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	1	0	1	2
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
Site Code : 05121260
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Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
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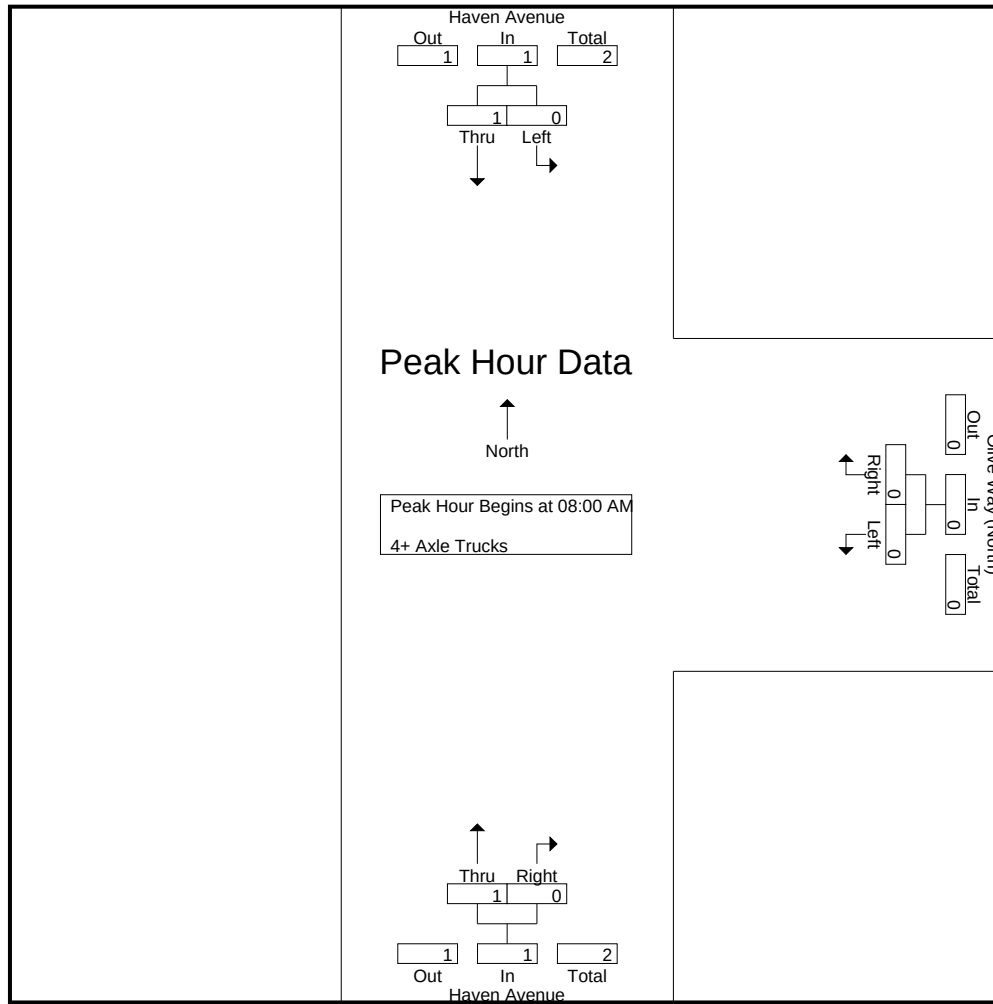
Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	1	0	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
Grand Total	0	1	1	0	0	0	2	0	2	3
Apprch %	0	100		0	0		100	0		
Total %	0	33.3	33.3	0	0	0	66.7	0	66.7	

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	1	0	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	1	0	1	2
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N AM
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Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
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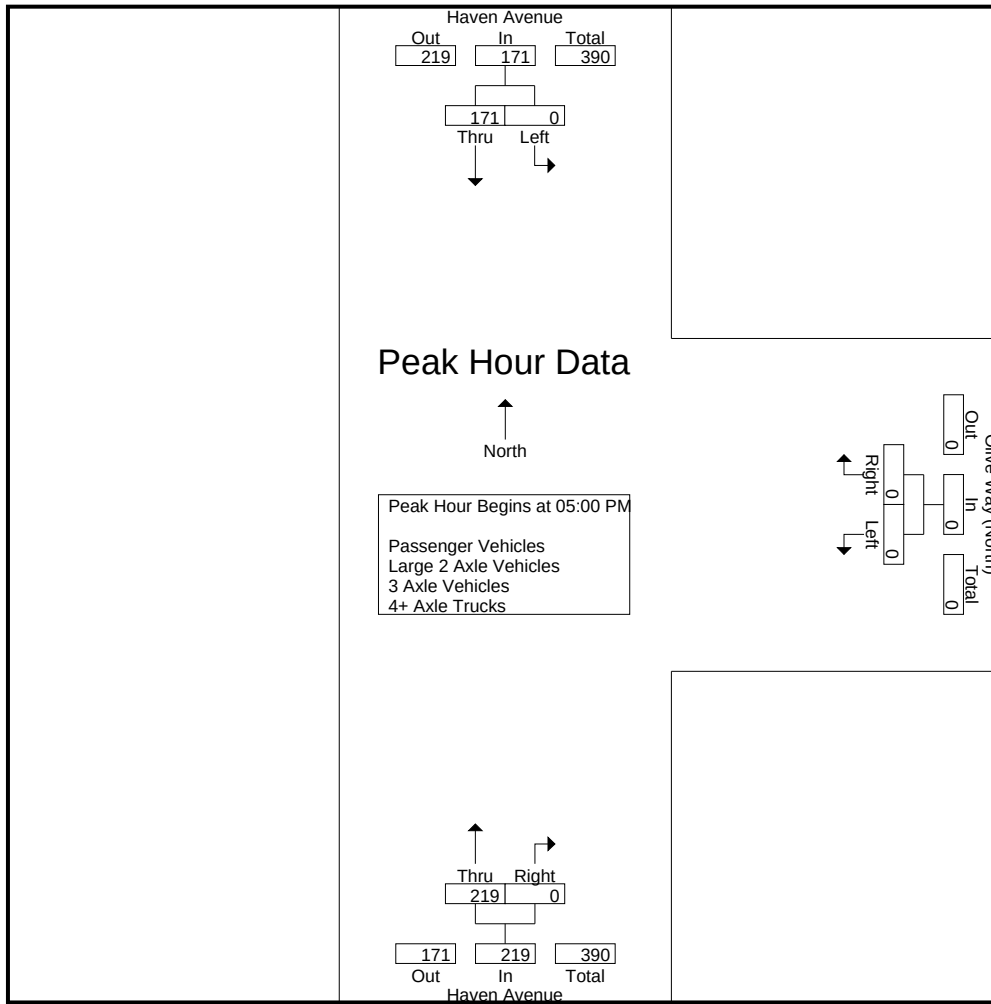
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	45	45	0	0	0	47	0	47	92
04:15 PM	0	55	55	0	0	0	43	0	43	98
04:30 PM	0	55	55	0	0	0	51	1	52	107
04:45 PM	0	48	48	0	0	0	37	0	37	85
Total	0	203	203	0	0	0	178	1	179	382
05:00 PM	0	43	43	0	0	0	52	0	52	95
05:15 PM	0	46	46	0	0	0	50	0	50	96
05:30 PM	0	40	40	0	0	0	59	0	59	99
05:45 PM	0	42	42	0	0	0	58	0	58	100
Total	0	171	171	0	0	0	219	0	219	390
Grand Total	0	374	374	0	0	0	397	1	398	772
Apprch %	0	100		0	0		99.7	0.3		
Total %	0	48.4	48.4	0	0	0	51.4	0.1	51.6	
Passenger Vehicles	0	363	363	0	0	0	391	1	392	755
% Passenger Vehicles	0	97.1	97.1	0	0	0	98.5	100	98.5	97.8
Large 2 Axle Vehicles	0	11	11	0	0	0	4	0	4	15
% Large 2 Axle Vehicles	0	2.9	2.9	0	0	0	1	0	1	1.9
3 Axle Vehicles	0	0	0	0	0	0	1	0	1	1
% 3 Axle Vehicles	0	0	0	0	0	0	0.3	0	0.3	0.1
4+ Axle Trucks	0	0	0	0	0	0	1	0	1	1
% 4+ Axle Trucks	0	0	0	0	0	0	0.3	0	0.3	0.1

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	43	43	0	0	0	52	0	52	95
05:15 PM	0	46	46	0	0	0	50	0	50	96
05:30 PM	0	40	40	0	0	0	59	0	59	99
05:45 PM	0	42	42	0	0	0	58	0	58	100
Total Volume	0	171	171	0	0	0	219	0	219	390
% App. Total	0	100		0	0		100	0		
PHF	.000	.929	.929	.000	.000	.000	.928	.000	.928	.975

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			05:00 PM		
+0 mins.	0	45	45	0	0	0	52	0	52
+15 mins.	0	55	55	0	0	0	50	0	50
+30 mins.	0	55	55	0	0	0	59	0	59
+45 mins.	0	48	48	0	0	0	58	0	58
Total Volume	0	203	203	0	0	0	219	0	219
% App. Total	0	100		0	0		100	0	
PHF	.000	.923	.923	.000	.000	.000	.928	.000	.928

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

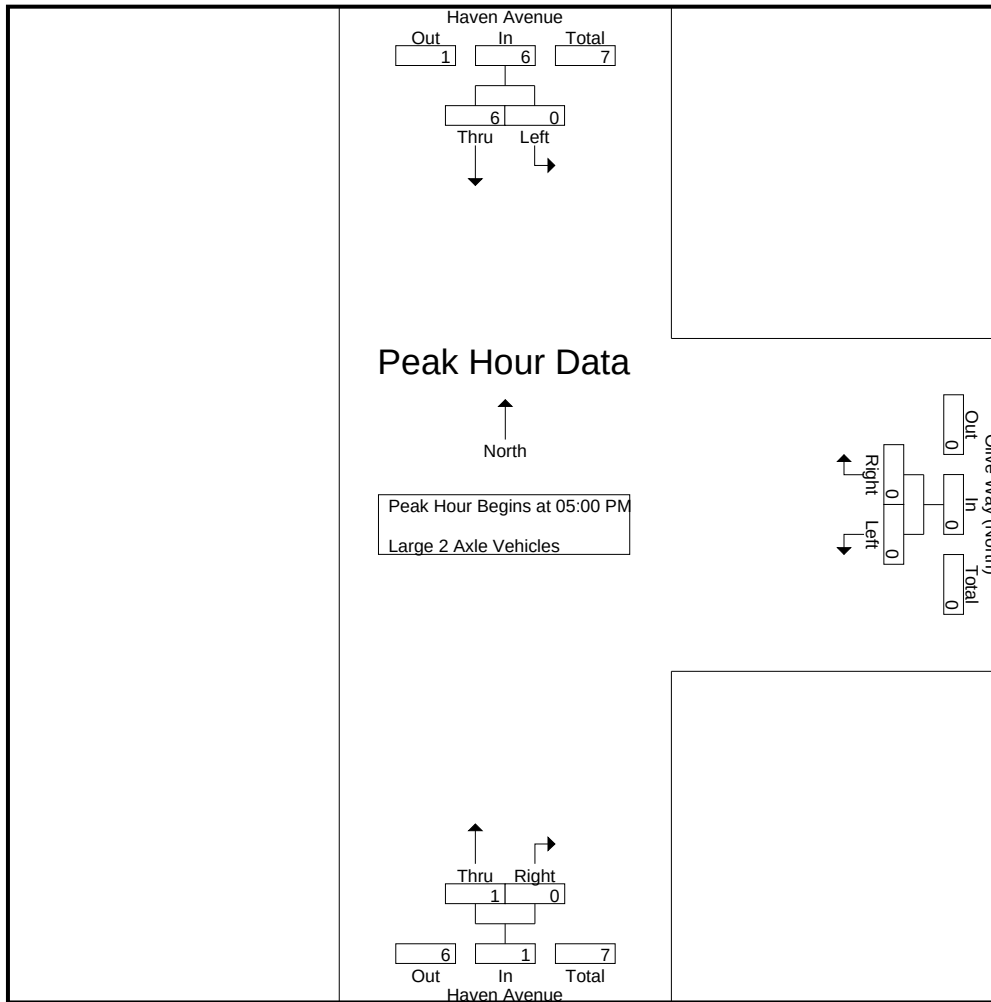
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	0	0	0	1	0	1	2
04:15 PM	0	1	1	0	0	0	1	0	1	2
04:30 PM	0	2	2	0	0	0	1	0	1	3
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	5	5	0	0	0	3	0	3	8
05:00 PM	0	1	1	0	0	0	1	0	1	2
05:15 PM	0	5	5	0	0	0	0	0	0	5
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	6	6	0	0	0	1	0	1	7
Grand Total	0	11	11	0	0	0	4	0	4	15
Apprch %	0	100		0	0		100	0		
Total %	0	73.3	73.3	0	0	0	26.7	0	26.7	

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	1	1	0	0	0	1	0	1	2
05:15 PM	0	5	5	0	0	0	0	0	0	5
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	6	6	0	0	0	1	0	1	7
% App. Total	0	100		0	0		100	0		
PHF	.000	.300	.300	.000	.000	.000	.250	.000	.250	.350

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	5	5	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	6	6	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.300	.300	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

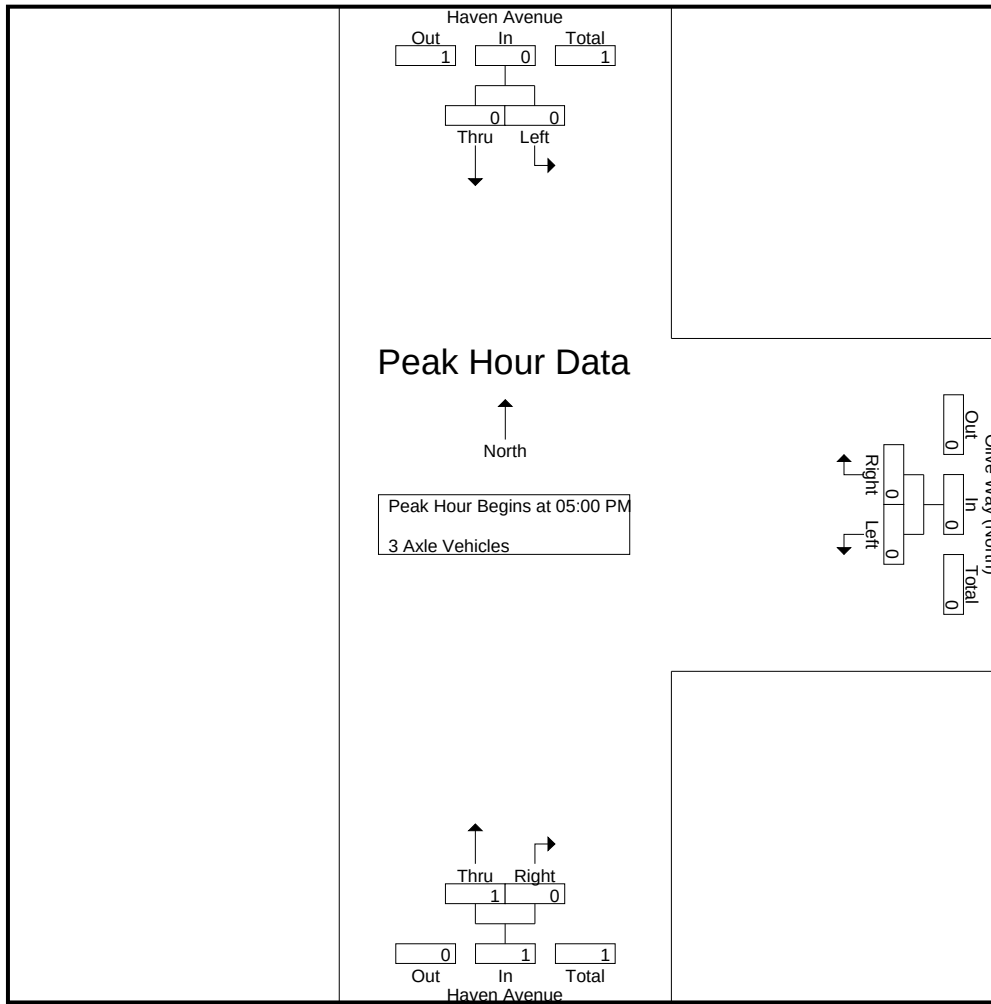
Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	0	1	0	1
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

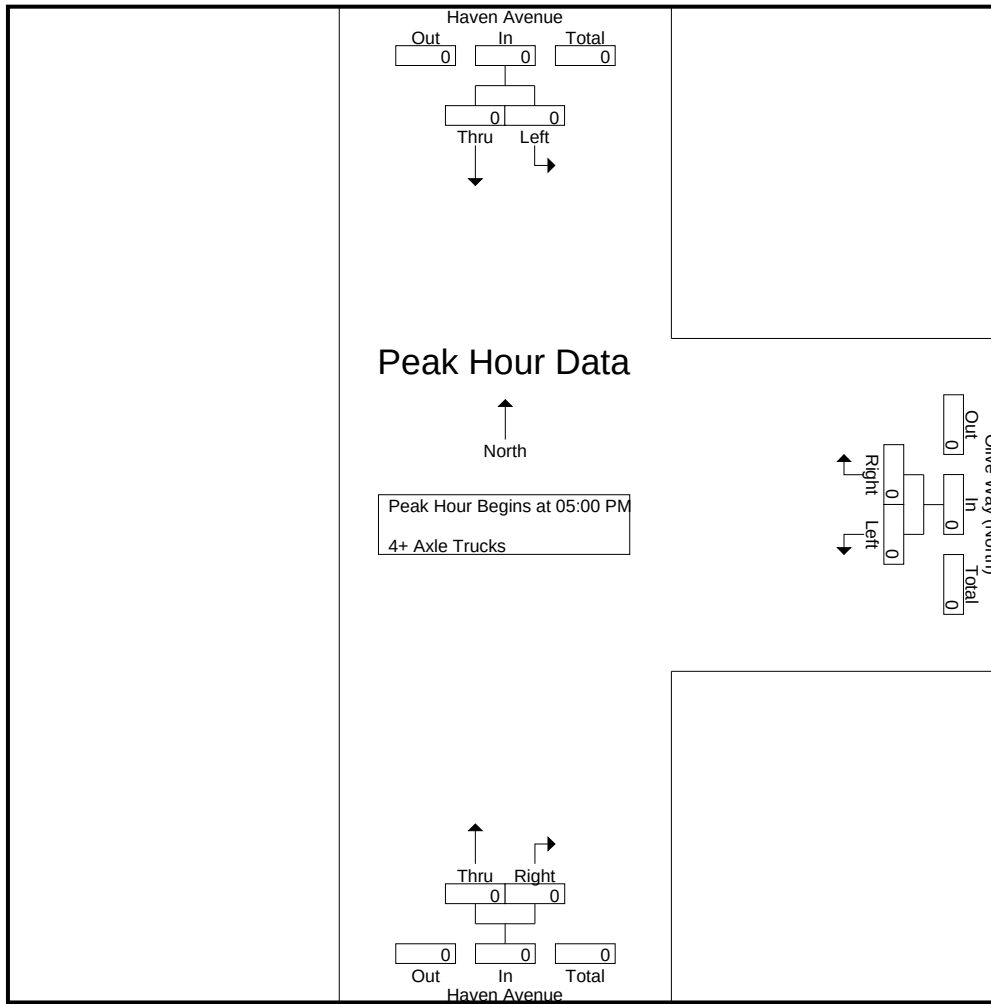
Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

	Haven Avenue Southbound			Olive Way (North) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (North)
Weather: Clear

File Name : 03_RNC_Haven_Olive N PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Olive Way (North)



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Haven Avenue	East Leg Olive Way (North)	South Leg Haven Avenue	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

	North Leg Haven Avenue	East Leg Olive Way (North)	South Leg Haven Avenue	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Olive Way (North)



Date: 6/2/2021
 Day: Wednesday

BICYCLES

		Southbound Haven Avenue			Westbound Olive Way (North)			Northbound Haven Avenue			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

		Southbound Haven Avenue			Westbound Olive Way (North)			Northbound Haven Avenue			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

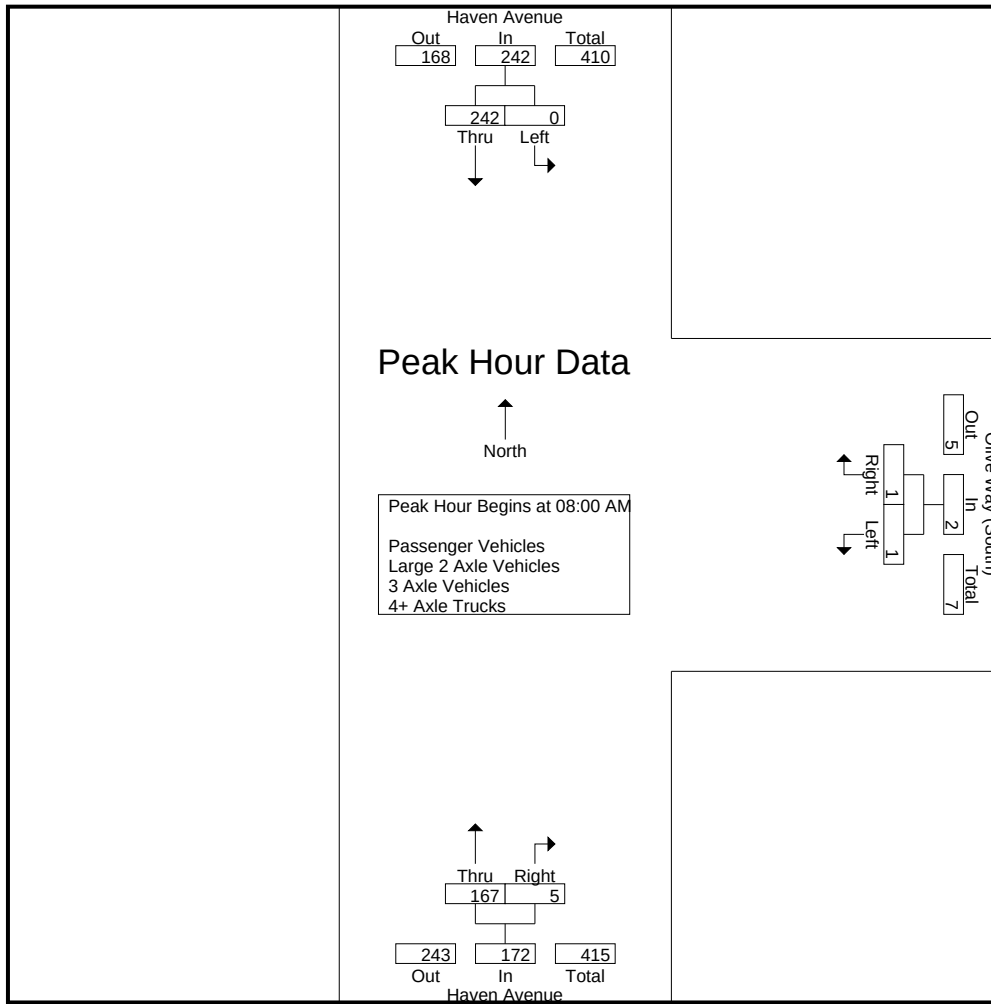
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	47	47	1	0	1	26	2	28	76
07:15 AM	0	39	39	0	1	1	17	1	18	58
07:30 AM	0	56	56	0	1	1	28	2	30	87
07:45 AM	0	50	50	0	1	1	31	1	32	83
Total	0	192	192	1	3	4	102	6	108	304
08:00 AM	0	56	56	1	0	1	56	1	57	114
08:15 AM	0	58	58	0	0	0	43	1	44	102
08:30 AM	0	56	56	0	0	0	29	3	32	88
08:45 AM	0	72	72	0	1	1	39	0	39	112
Total	0	242	242	1	1	2	167	5	172	416
Grand Total	0	434	434	2	4	6	269	11	280	720
Apprch %	0	100		33.3	66.7		96.1	3.9		
Total %	0	60.3	60.3	0.3	0.6	0.8	37.4	1.5	38.9	
Passenger Vehicles	0	428	428	2	4	6	256	11	267	701
% Passenger Vehicles	0	98.6	98.6	100	100	100	95.2	100	95.4	97.4
Large 2 Axle Vehicles	0	4	4	0	0	0	11	0	11	15
% Large 2 Axle Vehicles	0	0.9	0.9	0	0	0	4.1	0	3.9	2.1
3 Axle Vehicles	0	1	1	0	0	0	2	0	2	3
% 3 Axle Vehicles	0	0.2	0.2	0	0	0	0.7	0	0.7	0.4
4+ Axle Trucks	0	1	1	0	0	0	0	0	0	1
% 4+ Axle Trucks	0	0.2	0.2	0	0	0	0	0	0	0.1

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	56	56	1	0	1	56	1	57	114
08:15 AM	0	58	58	0	0	0	43	1	44	102
08:30 AM	0	56	56	0	0	0	29	3	32	88
08:45 AM	0	72	72	0	1	1	39	0	39	112
Total Volume	0	242	242	1	1	2	167	5	172	416
% App. Total	0	100		50	50		97.1	2.9		
PHF	.000	.840	.840	.250	.250	.500	.746	.417	.754	.912

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			08:00 AM		
+0 mins.	0	56	56	1	0	1	56	1	57
+15 mins.	0	58	58	0	1	1	43	1	44
+30 mins.	0	56	56	0	1	1	29	3	32
+45 mins.	0	72	72	0	1	1	39	0	39
Total Volume	0	242	242	1	3	4	167	5	172
% App. Total	0	100		25	75		97.1	2.9	
PHF	.000	.840	.840	.250	.750	1.000	.746	.417	.754

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

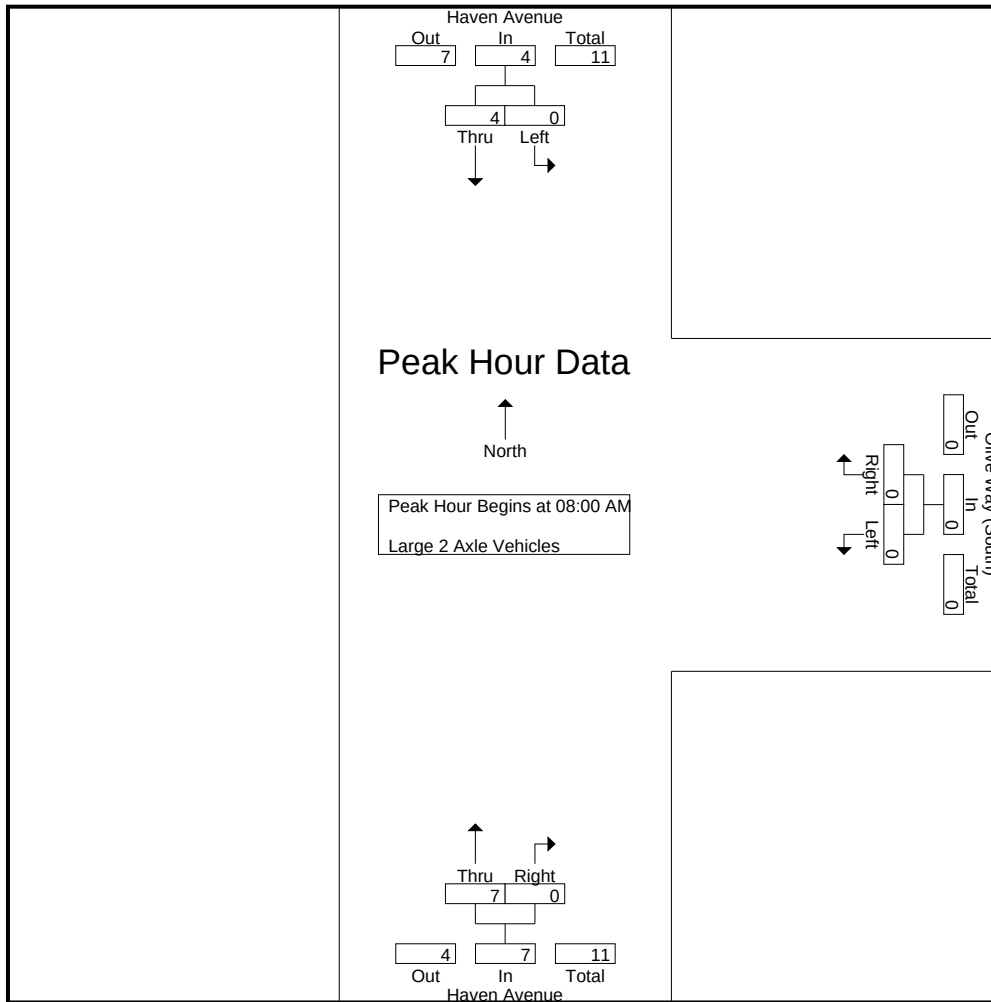
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	3	0	3	3
Total	0	0	0	0	0	0	4	0	4	4
08:00 AM	0	0	0	0	0	0	2	0	2	2
08:15 AM	0	0	0	0	0	0	3	0	3	3
08:30 AM	0	3	3	0	0	0	2	0	2	5
08:45 AM	0	1	1	0	0	0	0	0	0	1
Total	0	4	4	0	0	0	7	0	7	11
Grand Total	0	4	4	0	0	0	11	0	11	15
Apprch %	0	100		0	0		100	0		
Total %	0	26.7	26.7	0	0	0	73.3	0	73.3	

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	2	0	2	2
08:15 AM	0	0	0	0	0	0	3	0	3	3
08:30 AM	0	3	3	0	0	0	2	0	2	5
08:45 AM	0	1	1	0	0	0	0	0	0	1
Total Volume	0	4	4	0	0	0	7	0	7	11
% App. Total	0	100		0	0		100	0		
PHF	.000	.333	.333	.000	.000	.000	.583	.000	.583	.550

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	0	0	0	2	0	2
+15 mins.	0	0	0	0	0	0	3	0	3
+30 mins.	0	3	3	0	0	0	2	0	2
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	4	4	0	0	0	7	0	7
% App. Total	0	100		0	0		100	0	
PHF	.000	.333	.333	.000	.000	.000	.583	.000	.583

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

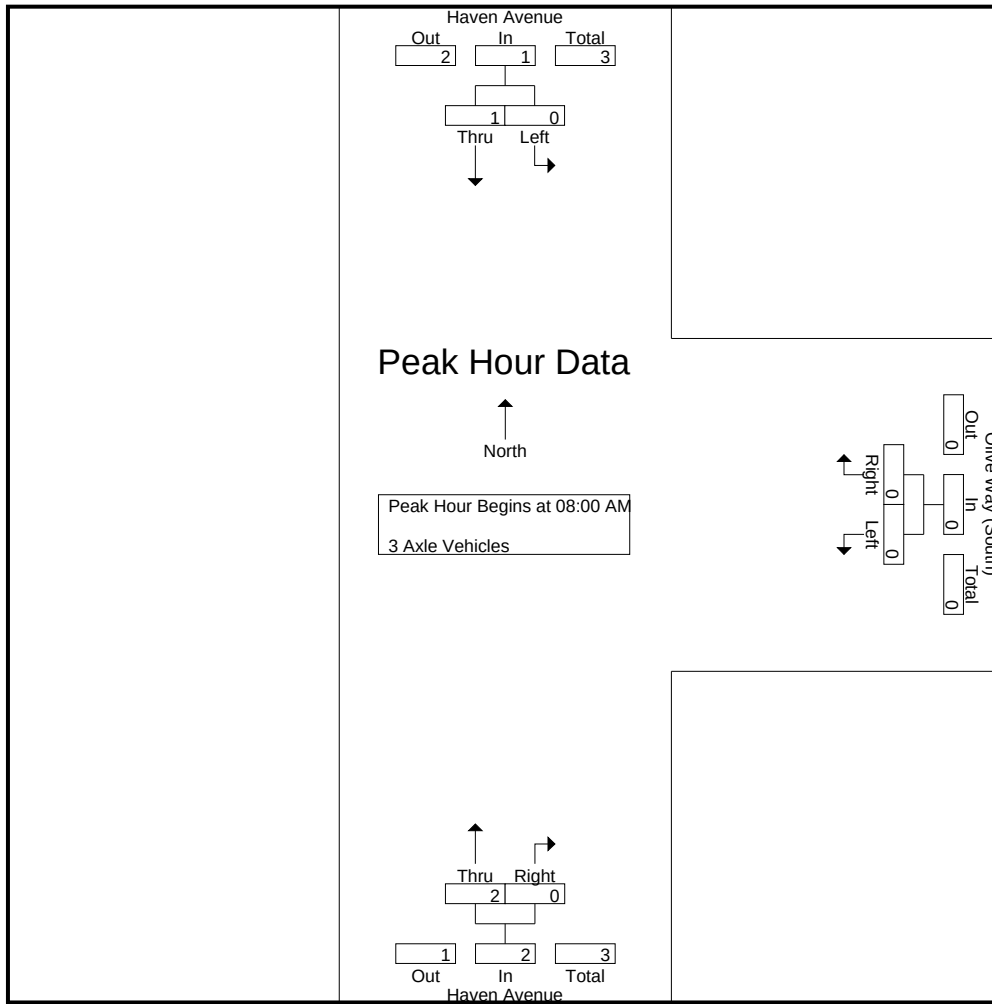
Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	2	0	2	3
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	2	0	2	3
Grand Total	0	1	1	0	0	0	2	0	2	3
Apprch %	0	100		0	0		100	0		
Total %	0	33.3	33.3	0	0	0	66.7	0	66.7	

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	2	0	2	3
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	2	0	2	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
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Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S AM
Site Code : 05121260
Start Date : 6/2/2021
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Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	0	0	0	1
Grand Total	0	1	1	0	0	0	0	0	0	1
Apprch %	0	100		0	0		0	0		
Total %	0	100	100	0	0		0	0		

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0	1
% App. Total	0	100		0	0		0	0		
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
Site Code : 05121260
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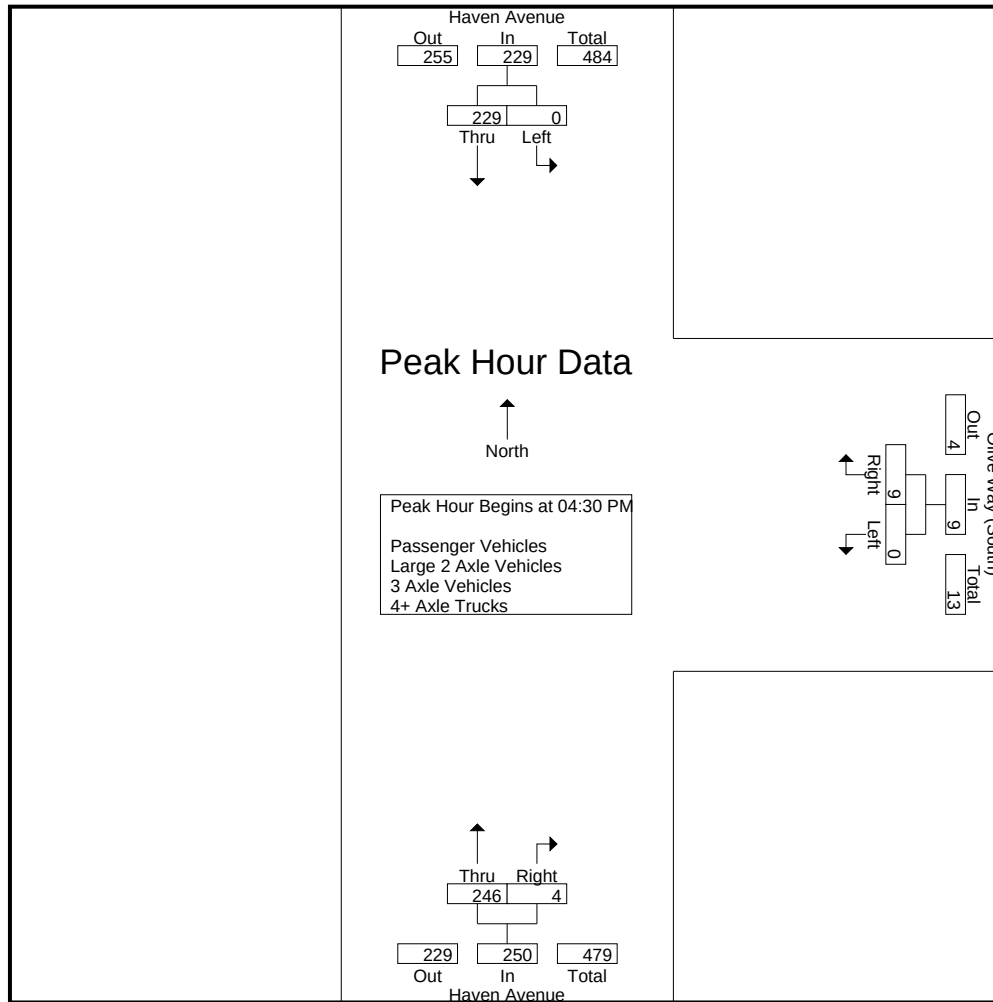
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	56	56	0	2	2	58	0	58	116
04:15 PM	0	65	65	0	0	0	51	0	51	116
04:30 PM	0	65	65	0	2	2	62	1	63	130
04:45 PM	0	66	66	0	4	4	48	1	49	119
Total	0	252	252	0	8	8	219	2	221	481
05:00 PM	0	48	48	0	0	0	74	0	74	122
05:15 PM	0	50	50	0	3	3	62	2	64	117
05:30 PM	0	51	51	0	1	1	69	0	69	121
05:45 PM	0	52	52	0	4	4	65	1	66	122
Total	0	201	201	0	8	8	270	3	273	482
Grand Total	0	453	453	0	16	16	489	5	494	963
Apprch %	0	100		0	100		99	1		
Total %	0	47	47	0	1.7	1.7	50.8	0.5	51.3	
Passenger Vehicles	0	444	444	0	16	16	484	5	489	949
% Passenger Vehicles	0	98	98	0	100	100	99	100	99	98.5
Large 2 Axle Vehicles	0	9	9	0	0	0	3	0	3	12
% Large 2 Axle Vehicles	0	2	2	0	0	0	0.6	0	0.6	1.2
3 Axle Vehicles	0	0	0	0	0	0	1	0	1	1
% 3 Axle Vehicles	0	0	0	0	0	0	0.2	0	0.2	0.1
4+ Axle Trucks	0	0	0	0	0	0	1	0	1	1
% 4+ Axle Trucks	0	0	0	0	0	0	0.2	0	0.2	0.1

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	65	65	0	2	2	62	1	63	130
04:45 PM	0	66	66	0	4	4	48	1	49	119
05:00 PM	0	48	48	0	0	0	74	0	74	122
05:15 PM	0	50	50	0	3	3	62	2	64	117
Total Volume	0	229	229	0	9	9	246	4	250	488
% App. Total	0	100		0	100		98.4	1.6		
PHF	.000	.867	.867	.000	.563	.563	.831	.500	.845	.938

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
Site Code : 05121260
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:30 PM			05:00 PM		
+0 mins.	0	56	56	0	2	2	74	0	74
+15 mins.	0	65	65	0	4	4	62	2	64
+30 mins.	0	65	65	0	0	0	69	0	69
+45 mins.	0	66	66	0	3	3	65	1	66
Total Volume	0	252	252	0	9	9	270	3	273
% App. Total	0	100		0	100		98.9	1.1	
PHF	.000	.955	.955	.000	.563	.563	.912	.375	.922

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
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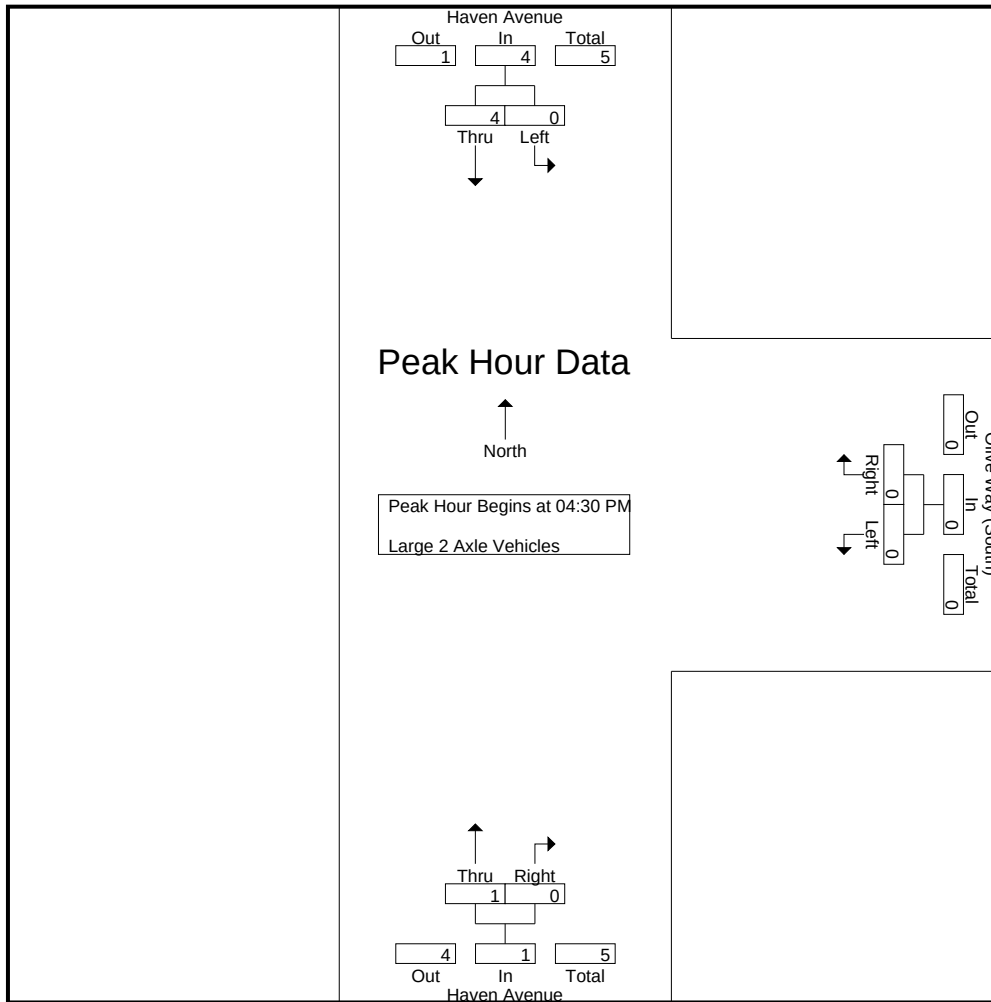
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	0	0	0	0	0	0	1
04:15 PM	0	2	2	0	0	0	1	0	1	3
04:30 PM	0	1	1	0	0	0	0	0	0	1
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	5	5	0	0	0	1	0	1	6
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	2	2	0	0	0	0	0	0	2
05:30 PM	0	1	1	0	0	0	0	0	0	1
05:45 PM	0	1	1	0	0	0	1	0	1	2
Total	0	4	4	0	0	0	2	0	2	6
Grand Total	0	9	9	0	0	0	3	0	3	12
Apprch %	0	100		0	0		100	0		
Total %	0	75	75	0	0	0	25	0	25	

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	1	1	0	0	0	0	0	0	1
04:45 PM	0	1	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	2	2	0	0	0	0	0	0	2
Total Volume	0	4	4	0	0	0	1	0	1	5
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.250	.000	.250	.625

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	1	1	0	0	0	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	2	2	0	0	0	0	0	0
Total Volume	0	4	4	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
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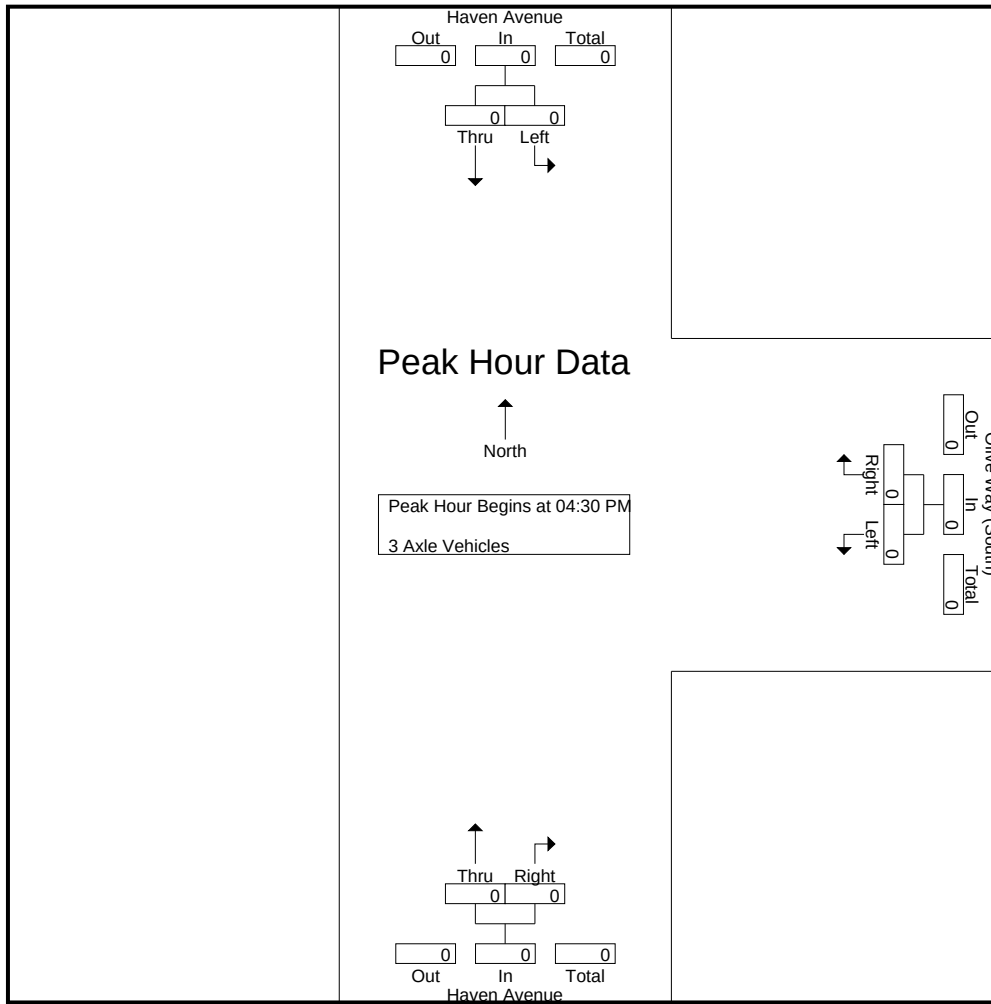
Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0	0	0	0	0	100	0	100	

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
Site Code : 05121260
Start Date : 6/2/2021
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
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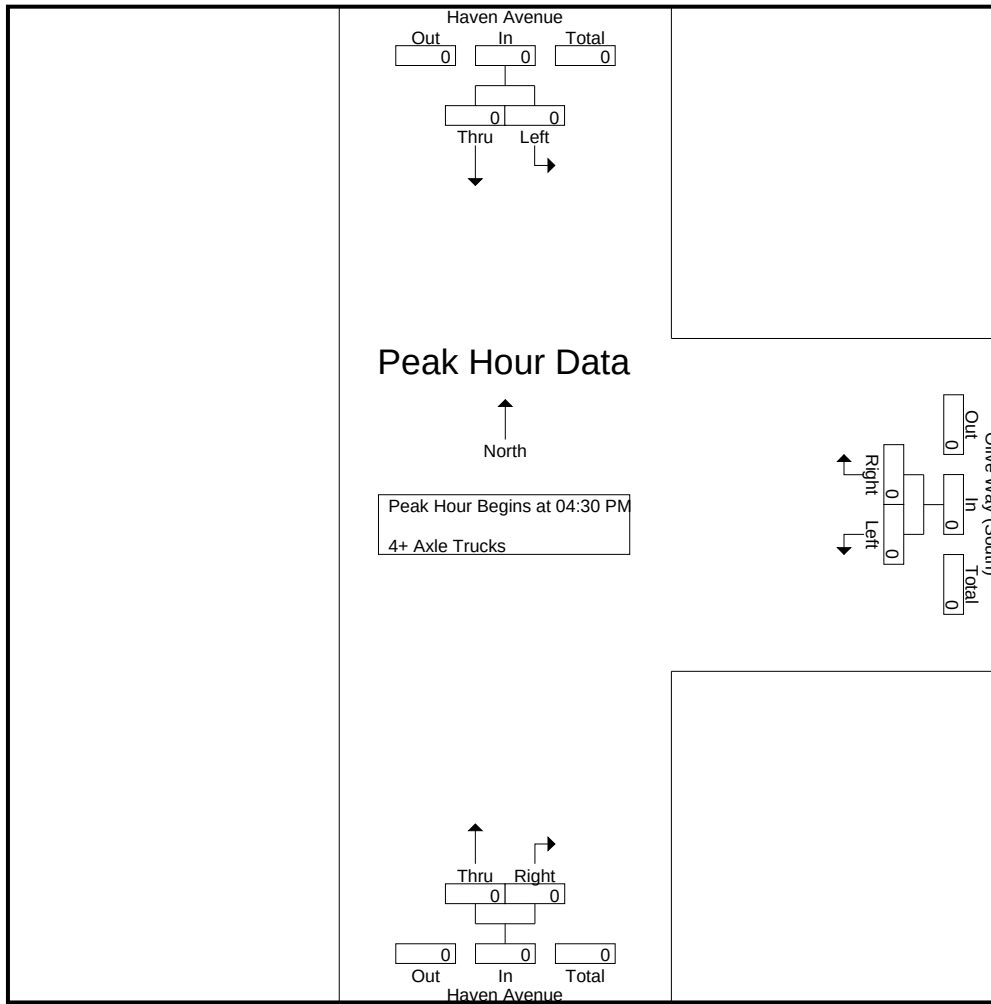
Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0	0	0	0	0	100	0	100	

	Haven Avenue Southbound			Olive Way (South) Westbound			Haven Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Olive Way (South)
Weather: Clear

File Name : 04_RNC_Haven_Olive S PM
Site Code : 05121260
Start Date : 6/2/2021
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Olive Way (South)



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

		North Leg Haven Avenue	East Leg Olive Way (South)	South Leg Haven Avenue	West Leg Dead End	
		Pedestrians	Pedestrians	Pedestrians	Pedestrians	
	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	0	0	0
	7:30 AM	0	2	0	0	2
	7:45 AM	0	0	0	0	0
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	0	0	0
	8:30 AM	0	0	0	0	0
	8:45 AM	0	0	0	0	0
	TOTAL VOLUMES:	0	2	0	0	2

		North Leg Haven Avenue	East Leg Olive Way (South)	South Leg Haven Avenue	West Leg Dead End	
		Pedestrians	Pedestrians	Pedestrians	Pedestrians	
	4:00 PM	0	0	0	0	0
	4:15 PM	0	3	0	0	3
	4:30 PM	0	0	0	0	0
	4:45 PM	0	0	0	0	0
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	0	0
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	0	0	0
	TOTAL VOLUMES:	0	3	0	0	3

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Olive Way (South)



Date: 6/2/2021
 Day: Wednesday

BICYCLES

		Southbound Haven Avenue			Westbound Olive Way (South)			Northbound Haven Avenue			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

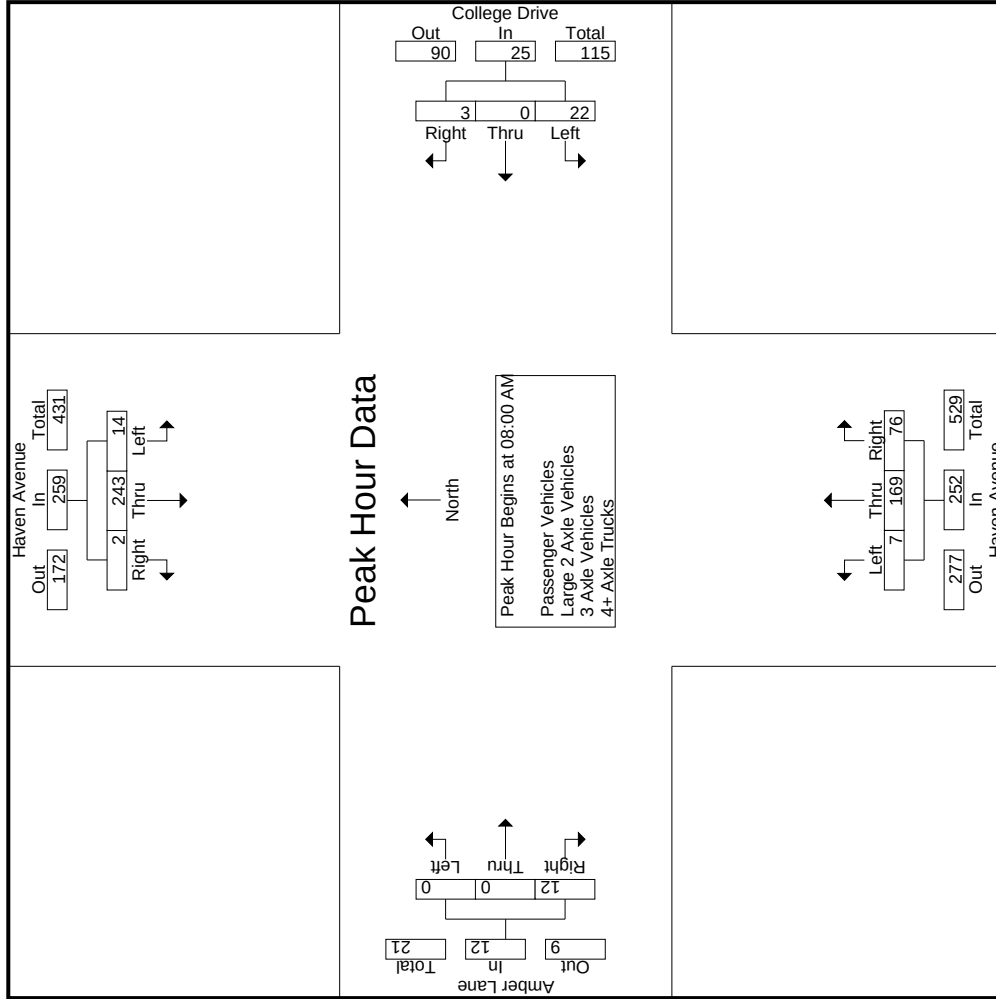
		Southbound Haven Avenue			Westbound Olive Way (South)			Northbound Haven Avenue			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
TOTAL VOLUMES:		0	3	0	0	0	0	0	2	0	0	0	0	5

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	44	0	0	46	6	0	1	1	7	0	28	13	0	41	0	0	2	1	2	2	96	98
07:15 AM	0	35	0	0	35	2	0	0	0	2	0	18	17	0	35	0	0	6	5	6	5	78	83
07:30 AM	1	56	0	0	57	4	0	3	3	7	1	23	18	0	42	0	0	5	4	5	7	111	118
07:45 AM	0	52	0	0	52	3	0	2	2	5	3	37	12	0	52	0	0	1	1	1	3	110	113
Total	3	187	0	0	190	15	0	6	6	21	4	106	60	0	170	0	0	14	11	14	17	395	412
08:00 AM	1	61	1	0	63	8	0	0	0	8	1	57	17	0	75	0	0	3	3	3	3	149	152
08:15 AM	3	59	0	0	62	1	0	1	0	2	2	44	18	0	64	0	0	2	2	2	2	130	132
08:30 AM	3	58	0	0	61	8	0	2	2	10	2	28	19	0	49	0	0	5	4	5	6	125	131
08:45 AM	7	65	1	0	73	5	0	0	0	5	2	40	22	0	64	0	0	2	2	2	2	144	146
Total	14	243	2	0	259	22	0	3	2	25	7	169	76	0	252	0	0	12	11	12	13	548	561
Grand Total	17	430	2	0	449	37	0	9	8	46	11	275	136	0	422	0	0	26	22	26	30	943	973
% Approach	3.8	95.8	0.4			80.4	0	19.6			2.6	65.2	32.2			0	0	100					
% Total	1.8	45.6	0.2		47.6	3.9	0	1		4.9	1.2	29.2	14.4		44.8	0	0	2.8		2.8	3.1	96.9	
Passenger Vehicles	17	419	2		438	28	0	9		45	10	253	129		392	0	0	26		48	0	0	923
% Passenger Vehicles	100	97.4	100	0	97.6	75.7	0	100	100	83.3	90.9	92	94.9	0	92.9	0	0	100	100	100	0	0	94.9
Large 2 Axle Vehicles	0	9	0	0	9	8	0	0	0	8	1	19	7		27	0	0	0	0	0	0	0	44
% Large 2 Axle Vehicles	0	2.1	0	0	2	21.6	0	0	0	14.8	9.1	6.9	5.1	0	6.4	0	0	0	0	0	0	0	4.5
3 Axle Vehicles	0	1	0	0	1	1	0	0	0	1	0	2	0		2	0	0	0	0	0	0	0	4
% 3 Axle Vehicles	0	0.2	0	0	0.2	2.7	0	0	0	1.9	0	0.7	0	0	0.5	0	0	0	0	0	0	0	0.4
4+ Axle Trucks	0	1	0	0	1	0	0	0	0	0	0	1	0		1	0	0	0	0	0	0	0	2
% 4+ Axle Trucks	0	0.2	0	0	0.2	0	0	0	0	0	0	0.4	0	0	0.2	0	0	0	0	0	0	0	0.2

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	61	1	63		8	0	0	8		1	57	17	75		0	0	3	3		149
08:15 AM	3	59	0	62		1	0	1	2		2	44	18	64		0	0	2	2		130
08:30 AM	3	58	0	61		8	0	2	10		2	28	19	49		0	0	5	5		125
08:45 AM	7	65	1	73		5	0	0	5		2	40	22	64		0	0	2	2		144
Total Volume	14	243	2	259		22	0	3	25		7	169	76	252		0	0	12	12		548
% App. Total	5.4	93.8	0.8			88	0	12			2.8	67.1	30.2			0	0	100			
PHF	.500	.935	.500	.887		.688	.000	.375	.625		.875	.741	.864	.840		.000	.000	.600	.600		.919

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

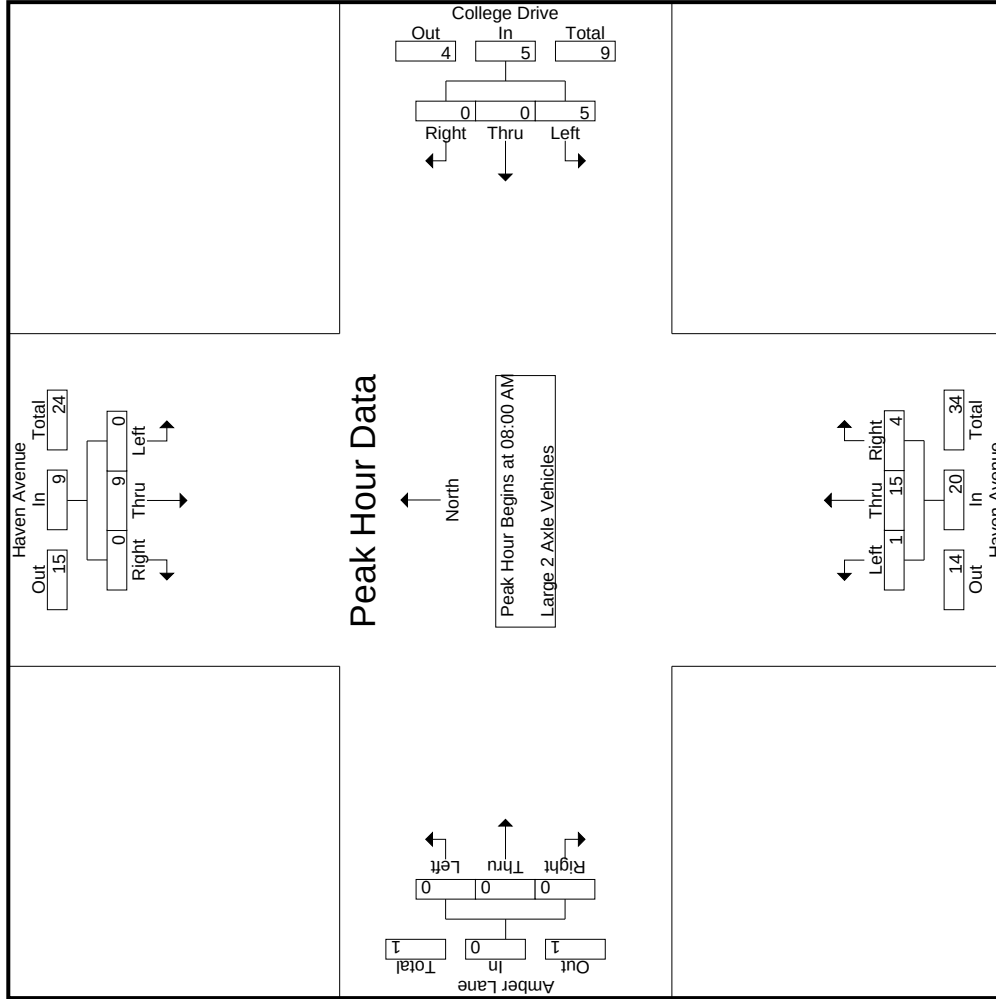


Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	1	61	1	63	07:45 AM			08:00 AM			07:15 AM	
+15 mins.	3	59	0	62	3	0	2	5	1	57	17	75
+30 mins.	3	58	0	61	8	0	0	8	2	44	18	64
+45 mins.	7	65	1	73	1	0	1	2	2	28	19	49
Total Volume	14	243	2	259	8	0	2	10	2	40	22	64
% App. Total	5.4	93.8	0.8	259	20	0	5	25	7	169	76	252
PHF	.500	.935	.500	.887	.625	.000	.625	.625	2.8	67.1	30.2	.840
									.875	.741	.864	
										.000	.000	.625
												.625

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
07:00 AM	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1	0	0	3		
07:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1		
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	0	0	3		
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	3		
Total	0	0	0	0	0	3	0	0	0	3	0	4	3	0	7	0	0	10		
08:00 AM	0	0	0	0	0	2	0	0	0	2	0	4	1	0	5	0	0	7		
08:15 AM	0	0	0	0	0	1	0	0	0	1	0	6	0	0	6	0	0	7		
08:30 AM	0	5	0	0	5	2	0	0	0	2	1	2	2	0	5	0	0	12		
08:45 AM	0	4	0	0	4	0	0	0	0	0	0	3	1	0	4	0	0	8		
Total	0	9	0	0	9	5	0	0	0	5	1	15	4	0	20	0	0	34		
Grand Total	0	9	0	0	9	8	0	0	0	8	1	19	7	0	27	0	0	44		
Approch %	0	100	0		20.5	100	0	0		18.2	3.7	70.4	25.9		61.4	0	0			
Total %	0	20.5	0			18.2	0	0			2.3	43.2	15.9			0	0	100		

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0		2	0	0	2		0	4	1	5		0	0	0	0		7
08:15 AM	0	0	0	0		1	0	0	1		0	6	0	6		0	0	0	0		7
08:30 AM	0	5	0	5		2	0	0	2		1	2	2	5		0	0	0	0		12
08:45 AM	0	4	0	4		0	0	0	0		0	3	1	4		0	0	0	0		8
Total Volume	0	9	0	9		5	0	0	5		1	15	4	20		0	0	0	0		34
% App. Total	0	100	0			100	0	0			5	75	20			0	0	0			
PHF	.000	.450	.000	.450		.625	.000	.000	.625		.250	.625	.500	.833		.000	.000	.000	.000		.708



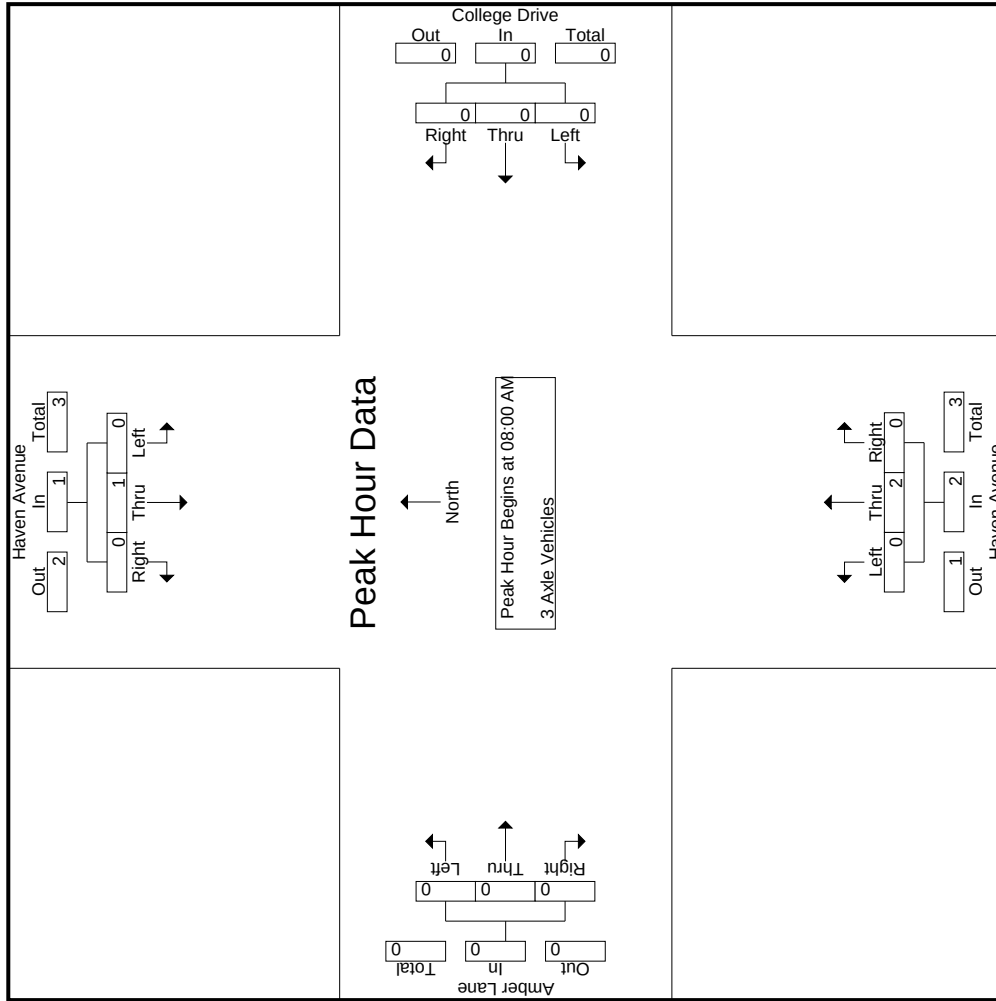
Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	08:00 AM	2	0	0	2	08:00 AM	4	1
+15 mins.	0	0	0	0	1	0	0	1	0	0	0	0
+30 mins.	0	5	0	5	2	0	0	2	1	0	0	0
+45 mins.	0	4	0	4	0	0	0	0	3	1	0	0
Total Volume	0	9	0	9	5	0	0	5	15	4	20	0
% App. Total	0	100	0		100	0	0		75	20	0	0
PHF	.000	.450	.000	.450	.625	.000	.000	.625	.250	.625	.500	.000
									.000	.000	.000	.000

Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound						College Drive Westbound						Haven Avenue Northbound						Amber Lane Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total				
07:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0				
07:15 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0				
07:30 AM	0	0	0	0	0		1	0	0	0	1		0	0	0	0	0	0	0	1				
07:45 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0				
Total	0	0	0	0	0		1	0	0	0	1		0	0	0	0	0	0	0	1				
08:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0				
08:15 AM	0	0	0	0	0		0	0	0	0	0		1	0	0	0	0	0	0	1				
08:30 AM	0	1	0	0	1		0	0	0	0	0		1	0	0	0	0	0	0	2				
08:45 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0				
Total	0	1	0	0	1		0	0	0	0	0		2	0	0	0	0	0	0	3				
Grand Total	0	1	0	0	1		1	0	0	0	1		2	2	0	0	0	0	0	4				
Approch %	0	100	0		25		100	0	0		25		0	100	0		50		0	100				
Total %	0	25	0		25		25	0	0		25		0	50	0		50		0	100				

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
08:15 AM	0	0	0	0		0	0	0	0		0	1	0	0		0	0	0	0		1
08:30 AM	0	1	0	1		0	0	0	0		0	1	0	0		0	0	0	0		2
08:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	1	0	1		0	0	0	0		0	2	0	0		0	0	0	0		3
% App. Total	0	100	0			0	0	0			0	100	0			0	0	0			
PHF	.000	.250	.000	.250		.000	.000	.000	.000		.000	.500	.000	.500		.000	.000	.000	.000		.375

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

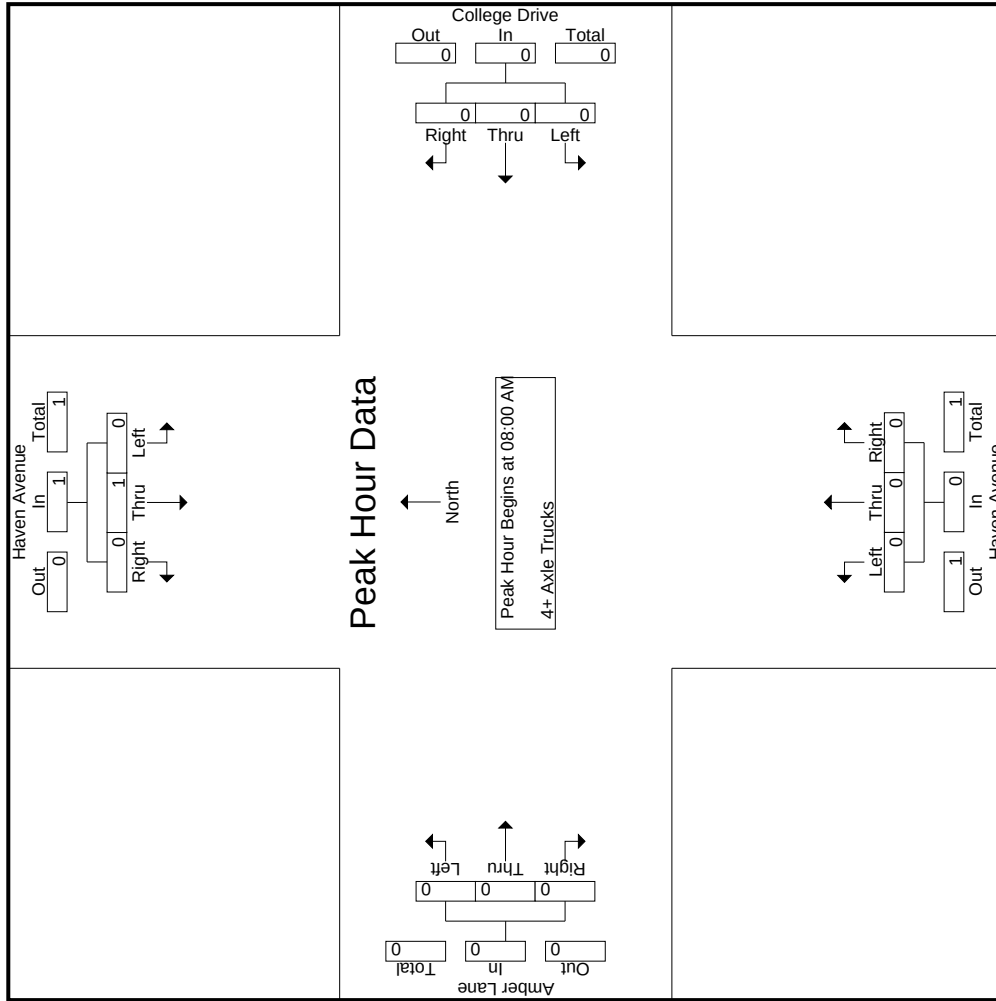


Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	08:00 AM	0	0	0	08:00 AM	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound						College Drive Westbound						Haven Avenue Northbound						Amber Lane Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0		0	0	0	0	0		0	1	0	0	0	1		0	0	0	0	0	0	1
Total	0	0	0	0	0		0	0	0	0	0		0	1	0	0	0	1		0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
08:30 AM	0	1	0	0	1		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	1	1
08:45 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
Total	0	1	0	0	1		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	1	1
Grand Total	0	1	0	0	1		0	0	0	0	0		0	1	0	0	0	1		0	0	0	0	0	2	2
Approch %	0	100	0				0	0	0				0	100	0					0	0	0				
Total %	0	50	0		50		0	0	0				0	50	0			50		0	0	0		0	100	

Start Time	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
08:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
08:30 AM	0	1	0	1		0	0	0	0		0	0	0	0		0	0	0	0		1
08:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	1	0	1		0	0	0	0		0	0	0	0		0	0	0	0		1
% App. Total	0	100	0			0	0	0			0	0	0			0	0	0			
PHF	.000	.250	.000	.250		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.250



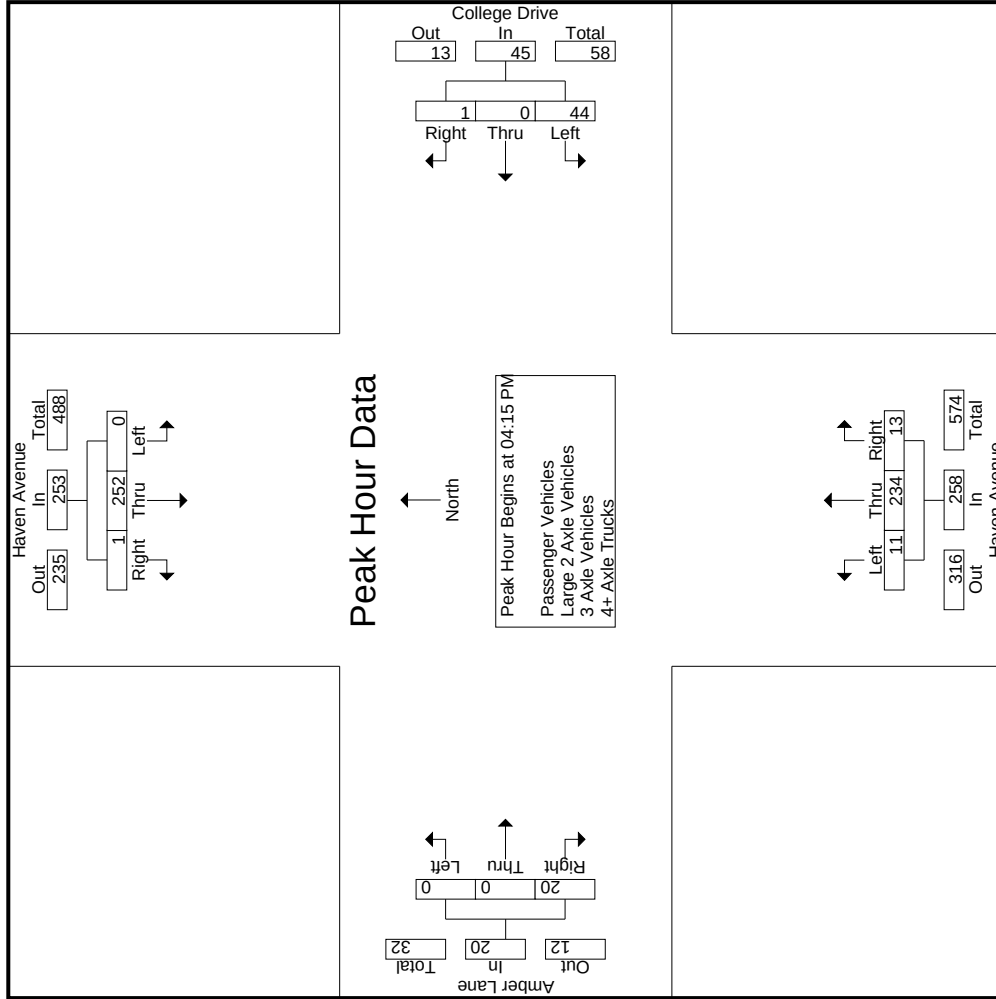
Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	08:00 AM	0	0	0	08:00 AM	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	60	0	0	60	8	0	1	1	9	2	56	4	0	62	3	134	137		
04:15 PM	0	67	0	0	67	10	0	0	0	10	2	52	4	0	58	3	138	141		
04:30 PM	0	65	1	0	66	19	0	1	0	20	1	63	4	0	68	7	163	170		
04:45 PM	0	66	0	0	66	5	0	0	0	5	3	47	2	0	52	4	127	131		
Total	0	258	1	0	259	42	0	2	1	44	8	218	14	0	240	17	562	579		
05:00 PM	0	54	0	0	54	10	0	0	0	10	5	72	3	0	80	3	148	151		
05:15 PM	1	51	0	0	52	4	0	0	0	4	2	64	2	0	68	4	128	132		
05:30 PM	2	52	0	0	54	4	0	1	0	5	4	68	2	0	74	4	139	143		
05:45 PM	0	52	0	0	52	6	0	0	0	6	5	67	3	0	75	0	136	136		
Total	3	209	0	0	212	24	0	1	0	25	16	271	10	0	297	11	551	562		
Grand Total	3	467	1	0	471	66	0	3	1	69	24	489	24	0	537	28	1113	1141		
% Approach %	0.6	99.2	0.2			95.7	0	4.3			4.5	91.1	4.5			0	0	100		
% Total %	0.3	42	0.1		42.3	5.9	0	0.3		6.2	2.2	43.9	2.2		48.2	2.5	97.5			
Passenger Vehicles	3	456	1		460	58	0	3		62	24	483	18		525	0	0	36		
% Passenger Vehicles	100	97.6	100	0	97.7	87.9	0	100	100	88.6	100	98.8	75	0	97.8	0	0	100		
Large 2 Axle Vehicles	0	11	0		11	8	0	0		8	0	4	6		10	0	0	0		
% Large 2 Axle Vehicles	0	2.4	0	0	2.3	12.1	0	0	0	11.4	0	0.8	25	0	1.9	0	0	0		
3 Axle Vehicles	0	0	0		0	0	0	0		0	0	1	0		1	0	0	1		
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0		
4+ Axle Trucks	0	0	0		0	0	0	0		0	0	1	0		1	0	0	1		
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0		

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	67	0	67		10	0	0	10		2	52	4	58		0	0	3	3		138
04:30 PM	0	65	1	66		19	0	1	20		1	63	4	68		0	0	9	9		163
04:45 PM	0	66	0	66		5	0	0	5		3	47	2	52		0	0	4	4		127
05:00 PM	0	54	0	54		10	0	0	10		5	72	3	80		0	0	4	4		148
Total Volume	0	252	1	253		44	0	1	45		11	234	13	258		0	0	20	20		576
% App. Total	0	99.6	0.4			97.8	0	2.2			4.3	90.7	5			0	0	100			
PHF	.000	.940	.250	.944		.579	.000	.250	.563		.550	.813	.813	.806		.000	.000	.556	.556		.883

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



File Name : 05_RNC_Haven_College PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

File Name : 05_RNC_Haven_College PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

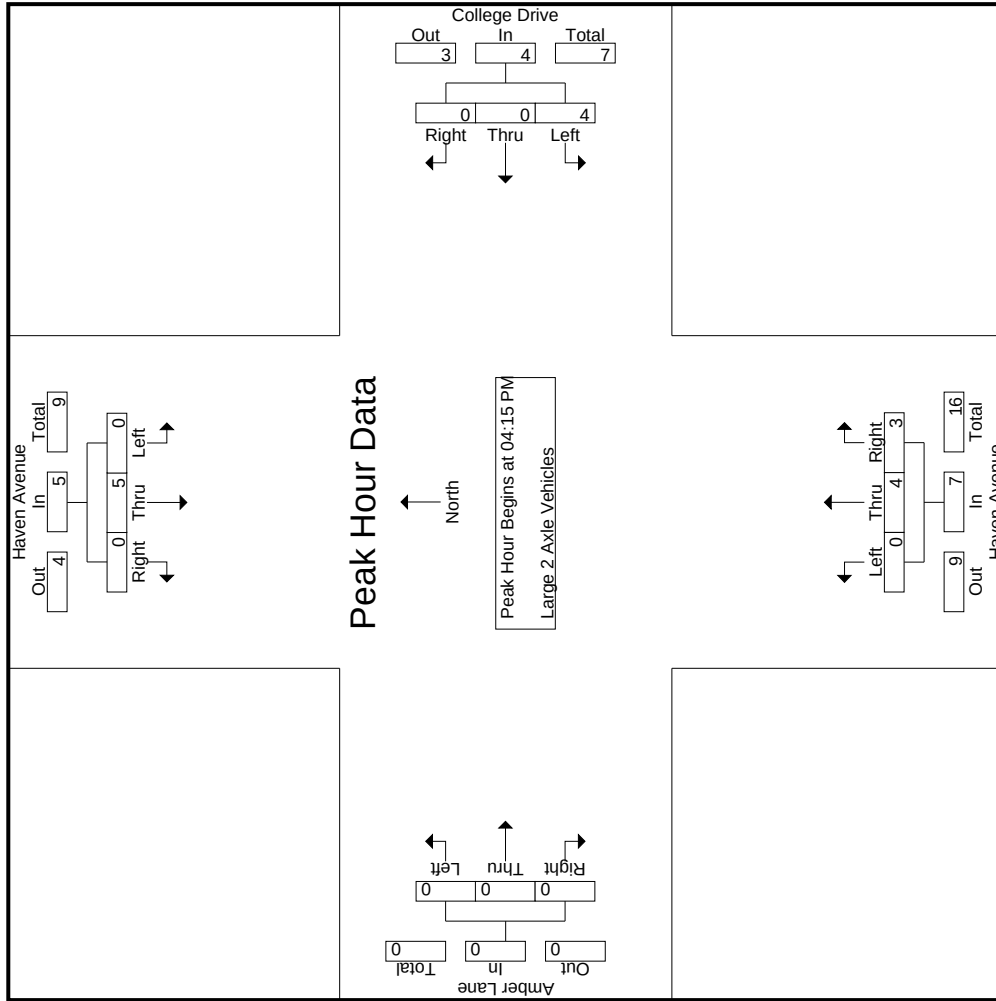
G-183

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound						College Drive Westbound						Haven Avenue Northbound						Amber Lane Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total				
04:00 PM	0	1	0	0	1		2	0	0	0	2		0	0	0	0	0	0	3	3				
04:15 PM	0	2	0	0	2		1	0	0	0	1		0	1	0	0	1	0	4	4				
04:30 PM	0	1	0	0	1		0	0	0	0	0		0	2	1	0	3	0	0	4				
04:45 PM	0	1	0	0	1		1	0	0	0	1		0	0	1	0	1	0	0	3				
Total	0	5	0	0	5		4	0	0	0	4		0	3	2	0	5	0	14	14				
05:00 PM	0	1	0	0	1		2	0	0	0	2		0	1	1	0	2	0	5	5				
05:15 PM	0	3	0	0	3		1	0	0	0	1		0	0	0	0	0	0	4	4				
05:30 PM	0	1	0	0	1		1	0	0	0	1		0	0	1	0	1	0	3	3				
05:45 PM	0	1	0	0	1		0	0	0	0	0		0	0	2	0	2	0	3	3				
Total	0	6	0	0	6		4	0	0	0	4		0	1	4	0	5	0	15	15				
Grand Total	0	11	0	0	11		8	0	0	0	8		0	4	6	0	10	0	29	29				
% Approach	0	100	0	0			100	0	0	0			0	40	60			0	0					
% Total	0	37.9	0	0	37.9		27.6	0	0	0	27.6		0	13.8	20.7		34.5	0	100	100				

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	2	0	0		1	0	0	1		0	1	0	0		0	0	0	0		4
04:30 PM	0	1	0	0		0	0	0	0		0	2	1	3		0	0	0	0		4
04:45 PM	0	1	0	1		1	0	0	1		0	0	1	1		0	0	0	0		3
05:00 PM	0	1	0	1		2	0	0	2		0	1	1	2		0	0	0	0		5
Total Volume	0	5	0	5		4	0	0	4		0	4	3	7		0	0	0	0		16
% App. Total	0	100	0			100	0	0			0	57.1	42.9			0	0	0			
PHF	.000	.625	.000	.625		.500	.000	.000	.500		.000	.500	.750	.583		.000	.000	.000	.000		.800

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



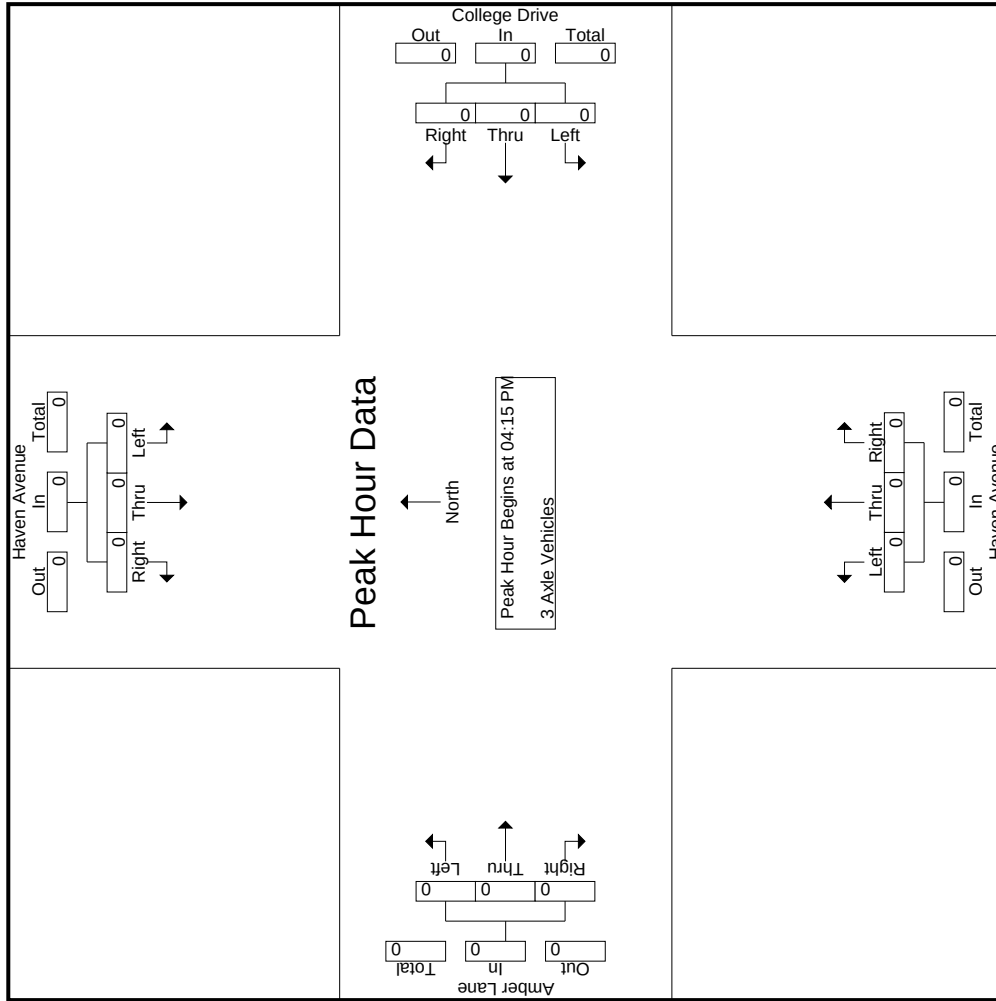
Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	2	0	2	04:15 PM			1	0	0	0	0
+15 mins.	0	1	0	1	04:15 PM			2	0	0	0	0
+30 mins.	0	1	0	1	04:15 PM			0	0	0	0	0
+45 mins.	0	1	0	1	04:15 PM			1	0	0	0	0
Total Volume	0	5	0	5	04:15 PM			4	0	0	0	0
% App. Total	0	100	0		04:15 PM			57.1	0	0	0	0
PHF	.000	.625	.000	.625	04:15 PM			.500	.000	.000	.000	.000
					04:15 PM			.583	.000	.000	.000	.000

Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound						College Drive Westbound						Haven Avenue Northbound						Amber Lane Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total					
04:00 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
04:15 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
04:30 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
04:45 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
Total	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
05:00 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
05:15 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
05:30 PM	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					
05:45 PM	0	0	0	0	0		0	0	0	0	1	0	0	0	0	1	0	1	1					
Total	0	0	0	0	0		0	0	0	0	1	0	0	0	0	1	0	1	1					
Grand Total	0	0	0	0	0		0	0	0	0	1	0	0	0	0	1	0	1	1					
% Approach	0	0	0				0	0	0			0	0	0			0							
% Total	0	0	0				0	0	0		100	0	0	0		100	0	100						

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
04:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
04:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
PHF	.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



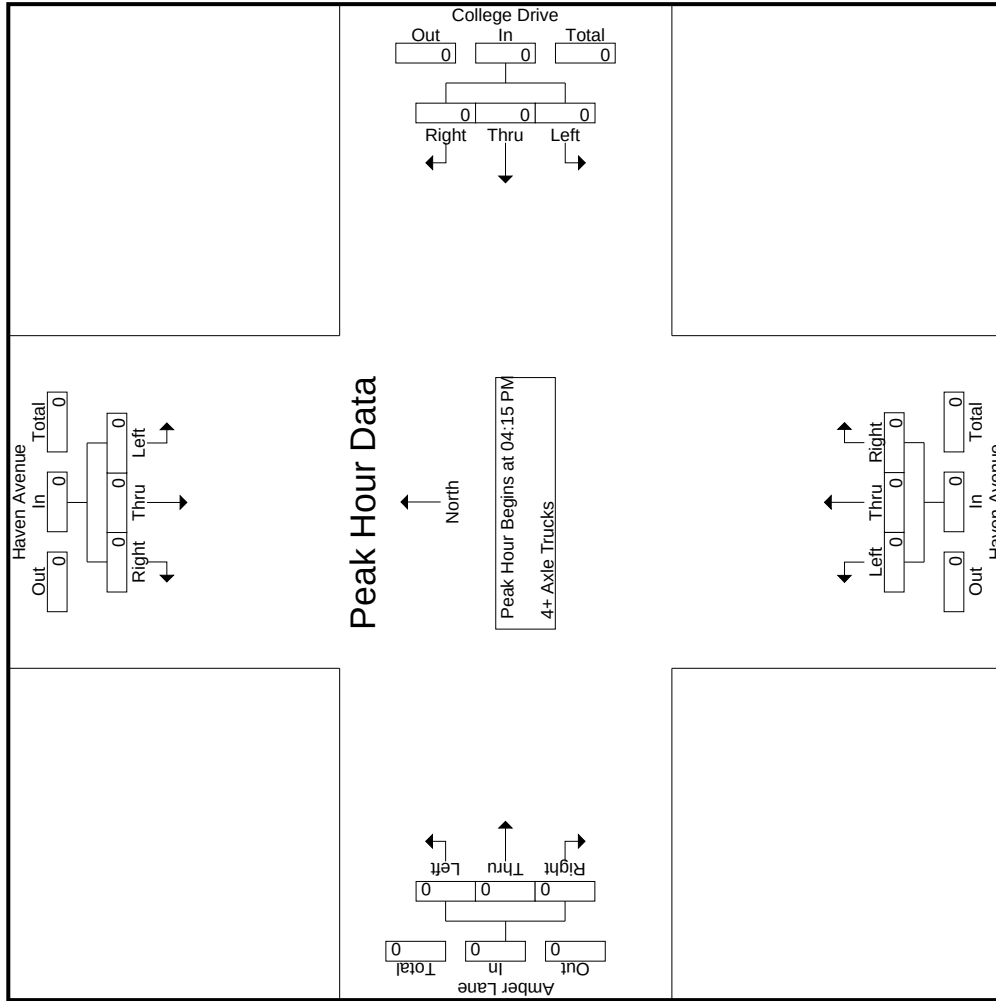
Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	04:15 PM	0	0	0	0	04:15 PM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

Start Time	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1		
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1		
Grand Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1		
Approach %	0	0	0			0	0	0			0	0	0			0	0			
Total %	0	0	0			0	0	0			0	0	0			0	100			

	Haven Avenue Southbound					College Drive Westbound					Haven Avenue Northbound					Amber Lane Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
04:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
04:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
PHF	.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



Start Time	Haven Avenue Southbound			College Drive Westbound			Haven Avenue Northbound			Amber Lane Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	04:15 PM	0	0	0	0	04:15 PM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Amber Lane/College Drive



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Haven Avenue	East Leg Amber Lane	South Leg Haven Avenue	West Leg College Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	1	1
7:15 AM	0	0	0	2	2
7:30 AM	1	2	2	1	6
7:45 AM	0	0	0	0	0
8:00 AM	0	0	1	3	4
8:15 AM	0	0	0	0	0
8:30 AM	2	0	0	2	4
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	3	2	3	10	18

	North Leg Haven Avenue	East Leg Amber Lane	South Leg Haven Avenue	West Leg College Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	0	0	0	1	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1
5:00 PM	0	0	0	2	2
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	2	2
5:45 PM	1	2	0	0	3
TOTAL VOLUMES:	1	2	0	7	10

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Amber Lane/College Drive



Date: 6/2/2021
 Day: Wednesday

BICYCLES

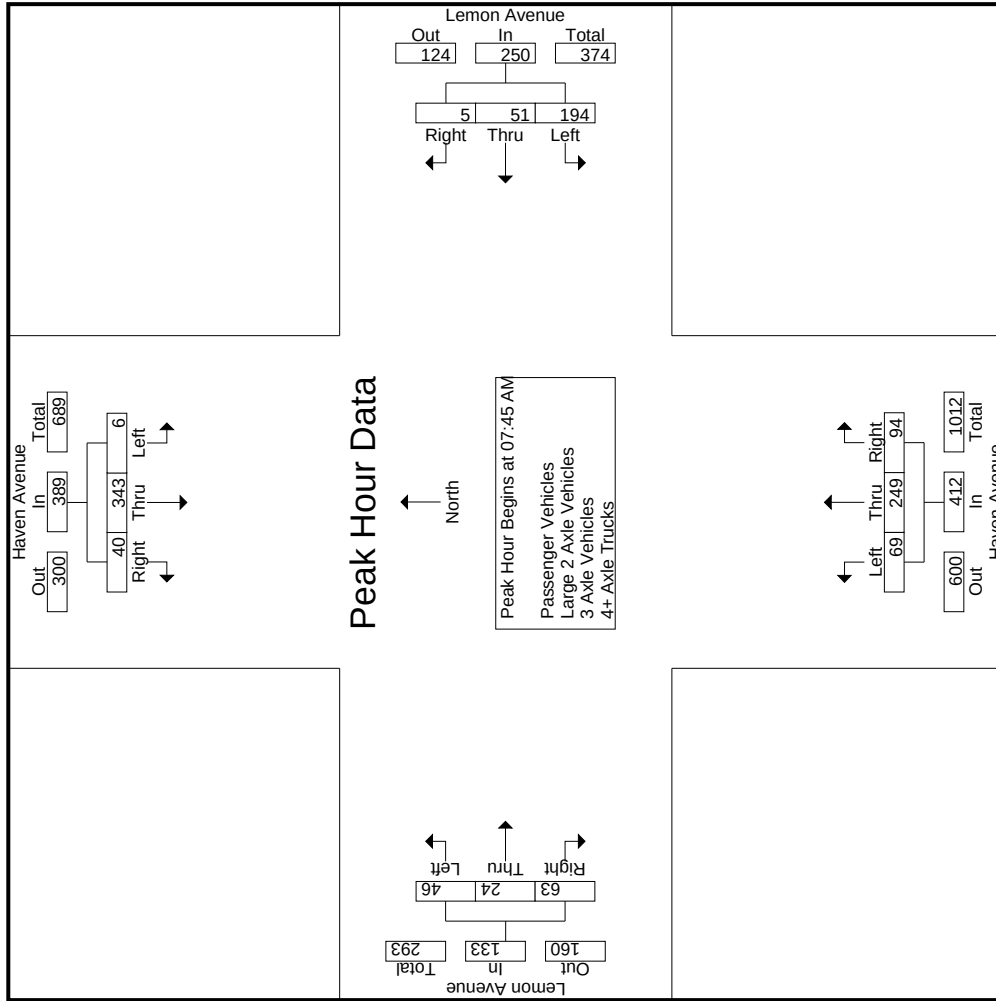
		Southbound Haven Avenue			Westbound Amber Lane			Northbound Haven Avenue			Eastbound College Drive			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

		Southbound Haven Avenue			Westbound Amber Lane			Northbound Haven Avenue			Eastbound College Drive			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	3	0	0	0	0	0	2	0	0	0	0	5
TOTAL VOLUMES:		0	3	0	0	0	0	0	4	0	0	0	0	7

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound							
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	67	2	0	69	46	2	0	0	48	22	38	8	1	68	3	4	10	4	17	5	202	207
07:15 AM	0	62	16	0	78	58	11	0	0	69	18	39	10	0	67	3	3	16	13	22	13	236	249
07:30 AM	0	74	10	0	84	59	14	1	1	74	12	48	22	2	82	11	3	15	12	29	15	269	284
07:45 AM	3	96	9	2	108	52	17	3	1	72	17	61	31	3	109	20	10	14	8	44	14	333	347
Total	3	299	37	2	339	215	44	4	2	263	69	186	71	6	326	37	20	55	37	112	47	1040	1087
08:00 AM	2	81	10	0	93	52	14	2	0	68	16	73	12	1	101	9	6	19	12	34	13	296	309
08:15 AM	1	86	9	0	96	36	8	0	0	44	13	67	24	1	104	6	2	15	10	23	11	267	278
08:30 AM	0	80	12	0	92	54	12	0	0	66	23	48	27	6	98	11	6	15	12	32	18	288	306
08:45 AM	1	94	8	1	103	38	13	0	0	51	31	69	21	1	121	10	8	25	11	43	13	318	331
Total	4	341	39	1	384	180	47	2	0	229	83	257	84	9	424	36	22	74	45	132	55	1169	1224
Grand Total	7	640	76	3	723	395	91	6	2	492	152	443	155	15	750	73	42	129	82	244	102	2209	2311
% Approach	1	88.5	10.5			80.3	18.5	1.2			20.3	59.1	20.7			29.9	17.2	52.9					
% Total	0.3	29	3.4		32.7	17.9	4.1	0.3		22.3	6.9	20.1	7		34	3.3	1.9	5.8		11	4.4	95.6	
Passenger Vehicles	7	626	76		712	389	82	6		479	146	416	149		725	71	40	129		322	0	0	2238
% Passenger Vehicles	100	97.8	100	100	98.1	98.5	90.1	100	100	100	97	96.1	96.1	93.3	94.8	97.3	95.2	100	100	98.8	0	0	96.8
Large 2 Axle Vehicles	0	12	0		12	4	7	0		11	4	22	5		32	2	2	0		4	0	0	59
% Large 2 Axle Vehicles	0	1.9	0	0	1.7	1	7.7	0	0	2.2	2.6	5	3.2	6.7	4.2	2.7	4.8	0	0	1.2	0	0	2.6
3 Axle Vehicles	0	1	0		1	0	2	0		2	1	3	0		4	0	0	0		0	0	0	7
% 3 Axle Vehicles	0	0.2	0	0	0.1	0	2.2	0	0	0.4	0.7	0.7	0	0	0.5	0	0	0	0	0	0	0	0.3
4+ Axle Trucks	0	1	0		1	2	0	0		2	1	2	1		4	0	0	0		0	0	0	7
% 4+ Axle Trucks	0	0.2	0	0	0.1	0.5	0	0	0	0.4	0.7	0.5	0.6	0	0.5	0	0	0	0	0	0	0	0.3

Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound				
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:45 AM																				
07:45 AM	3	96	9	108		52	17	3	72		17	61	31	109		20	10	14	44	333
08:00 AM	2	81	10	93		52	14	2	68		16	73	12	101		9	6	19	34	296
08:15 AM	1	86	9	96		36	8	0	44		13	67	24	104		6	2	15	23	267
08:30 AM	0	80	12	92		54	12	0	66		23	48	27	98		11	6	15	32	288
Total Volume	6	343	40	389		194	51	5	250		69	249	94	412		46	24	63	133	1184
% App. Total	1.5	88.2	10.3			77.6	20.4	2			16.7	60.4	22.8			34.6	18	47.4		
PHF	.500	.893	.833	.900		.898	.750	.417	.868		.750	.853	.758	.945		.575	.600	.829	.756	.889



City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Lemon Avenue
Weather: Clear

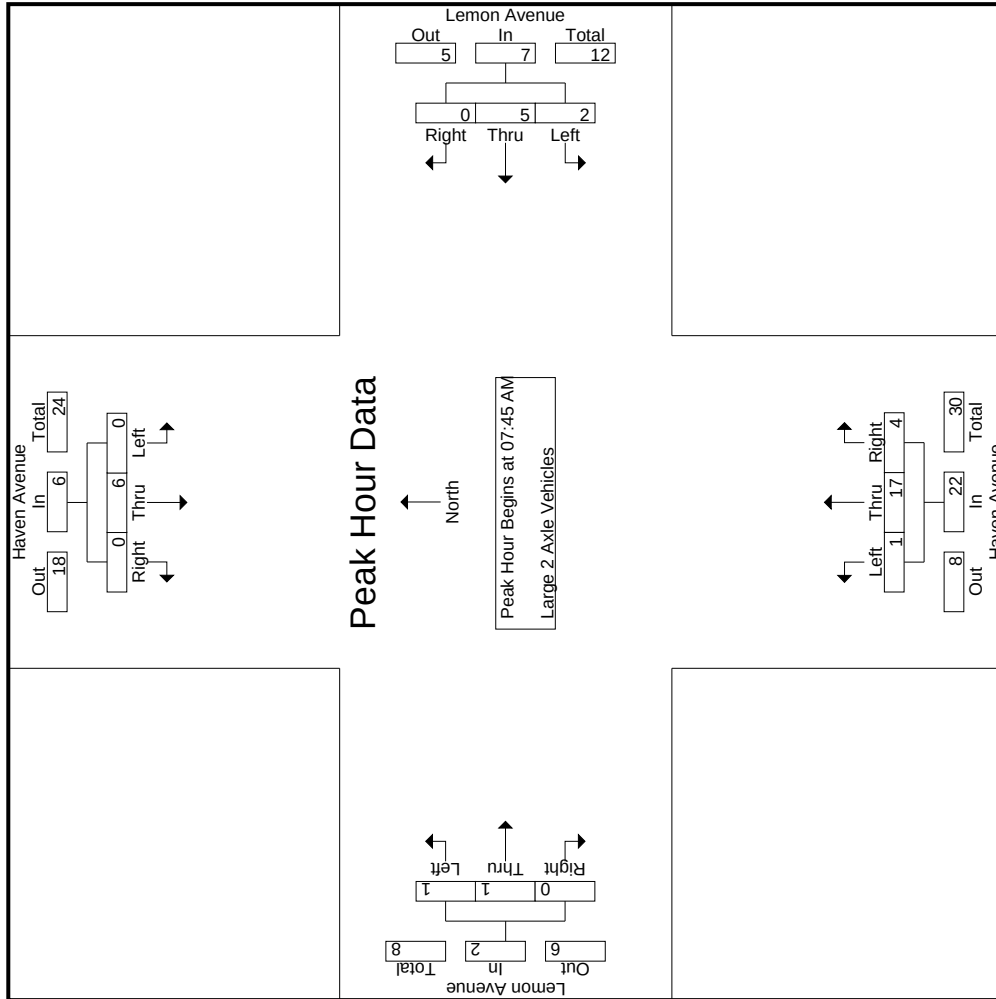
3.1-109

Start Time	Haven Avenue Southbound				Lemon Avenue Westbound				Haven Avenue Northbound				Lemon Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	07:45 AM				07:15 AM				08:00 AM				07:45 AM			
+0 mins.	3	96	9	108	58	11	0	69	16	73	12	101	20	10	14	44
+15 mins.	2	81	10	93	59	14	1	74	13	67	24	104	9	6	19	34
+30 mins.	1	86	9	96	52	17	3	72	23	48	27	98	6	2	15	23
+45 mins.	0	80	12	92	52	14	2	68	31	69	21	121	11	6	15	32
Total Volume	6	343	40	389	221	56	6	283	83	257	84	424	46	24	63	133
% App. Total	1.5	88.2	10.3		78.1	19.8	2.1		19.6	60.6	19.8		34.6	18	47.4	
PHE	.500	.893	.833	.900	.936	.824	.500	.956	.669	.880	.778	.876	.575	.600	.829	.756

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
07:00 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	4	4
07:15 AM	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	2	0	0	0	0	0	0	3	3
07:30 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	2	0	0	0	0	0	0	3	3
07:45 AM	0	1	0	0	1	0	2	0	0	2	0	5	1	0	6	0	1	0	0	1	0	0	10	10
Total	0	3	0	0	3	1	3	0	0	4	2	7	2	0	11	1	1	0	0	2	0	0	20	20
08:00 AM	0	1	0	0	1	0	3	0	0	3	1	6	1	0	8	0	0	0	0	0	0	0	12	12
08:15 AM	0	2	0	0	2	1	0	0	0	1	0	4	1	1	5	1	0	0	0	1	1	9	10	
08:30 AM	0	2	0	0	2	1	0	0	0	1	0	2	1	0	3	0	0	0	0	0	0	6	6	
08:45 AM	0	4	0	0	4	1	1	0	0	2	1	3	0	0	4	0	1	0	0	1	0	11	11	
Total	0	9	0	0	9	3	4	0	0	7	2	15	3	1	20	1	1	0	0	2	1	38	39	
Grand Total	0	12	0	0	12	4	7	0	0	11	4	22	5	1	31	2	2	0	0	4	1	58	59	
% Approach	0	100	0			36.4	63.6	0			12.9	71	16.1			50	50	0						
Total %	0	20.7	0		20.7	6.9	12.1	0		19	6.9	37.9	8.6		53.4	3.4	3.4	0		6.9	1.7	98.3		

	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:45 AM																				
07:45 AM	0	1	0	1		0	2	0	2		0	5	1	6		0	1	0	1	10
08:00 AM	0	1	0	1		0	3	0	3		1	6	1	8		0	0	0	0	12
08:15 AM	0	2	0	2		1	0	0	1		0	4	1	5		1	0	0	1	9
08:30 AM	0	2	0	2		1	0	0	1		0	2	1	3		0	0	0	0	6
Total Volume	0	6	0	6		2	5	0	7		1	17	4	22		1	1	0	2	37
% App. Total	0	100	0			28.6	71.4	0			4.5	77.3	18.2			50	50	0		
PHF	.000	.750	.000	.750		.500	.417	.000	.583		.250	.708	1.00	.688		.250	.250	.000	.500	.771



Start Time	Haven Avenue Southbound			Lemon Avenue Westbound			Haven Avenue Northbound			Lemon Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	1	0	1	07:45 AM	0	2	0	2	07:45 AM	0	6
+15 mins.	0	1	0	1	0	3	0	3	5	1	0	1
+30 mins.	0	2	0	2	1	0	0	1	6	1	0	8
+45 mins.	0	2	0	2	1	0	0	1	4	0	0	5
Total Volume	0	6	0	6	2	5	0	7	17	4	1	22
% App. Total	0	100	0		28.6	71.4	0		77.3	18.2	50	50
PHF	.000	.750	.000	.750	.500	.417	.000	.583	.250	.708	.250	.688
											.000	.500

City of Rancho Cucamonga
N/S: Haven Avenue
EW: Lemon Avenue
Weather: Clear

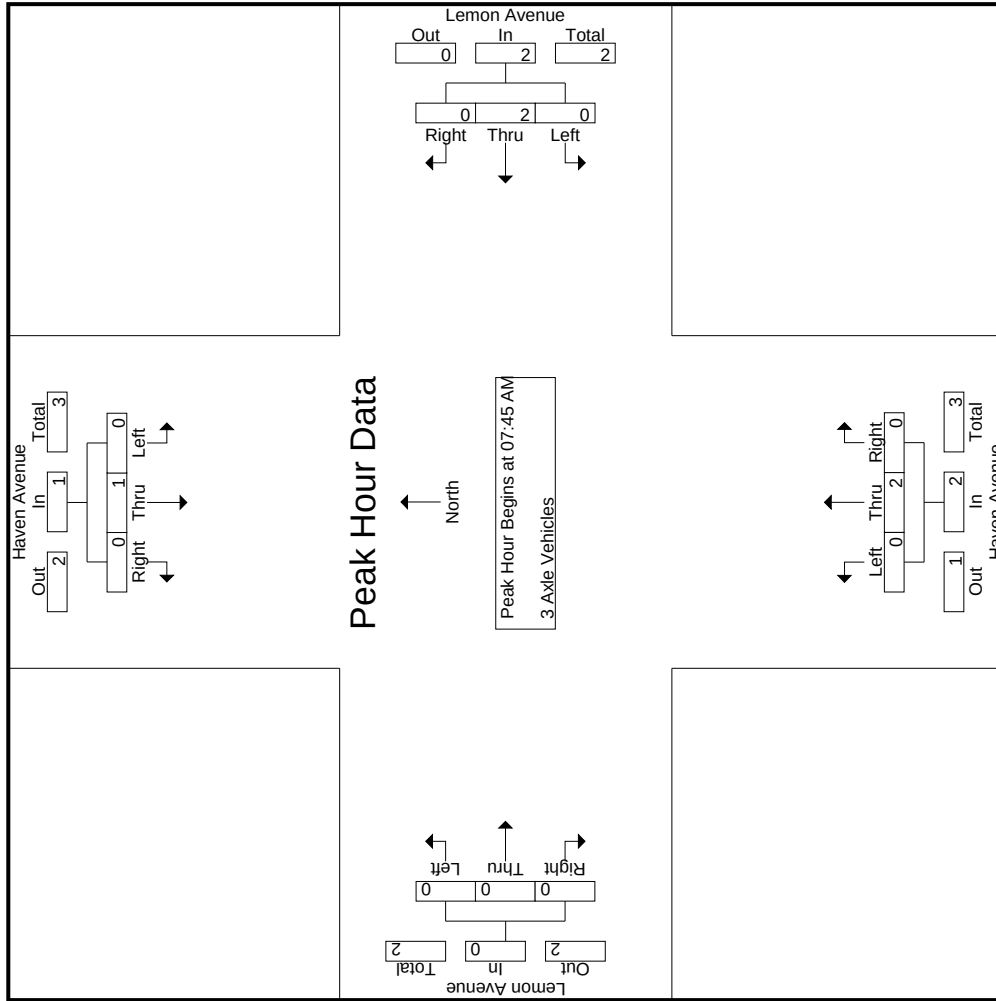
File Name : 06_RNC_Haven_Lemon AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1		
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1		
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	2	2		
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1		
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1		
08:30 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	2		
08:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1		
Total	0	1	0	0	1	0	1	0	0	1	1	2	0	0	0	0	5	5		
Grand Total	0	1	0	0	1	0	2	0	0	2	1	3	0	0	0	0	7	7		
% Approach	0	100	0	0	14.3	0	100	0	0	28.6	25	75	0	0	0	0	100			
Total %	0	14.3	0	0		0	28.6	0	0		14.3	42.9	0	0	0	0				

	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0		0	1	0	1		0	0	0	0		0	0	0	0		1
08:00 AM	0	0	0	0		0	0	0	0		0	1	0	1		0	0	0	0		1
08:15 AM	0	0	0	0		0	0	0	0		0	0	1	0		0	0	0	0		1
08:30 AM	0	1	0	1		0	1	0	1		0	0	0	0		0	0	0	0		2
Total Volume	0	1	0	1		0	2	0	2		0	2	0	2		0	0	0	0		5
% App. Total	0	100	0	100		0	100	0	100		0	100	0	100		0	0	0	0		
PHF	.000	.250	.000	.250		.000	.500	.000	.500		.000	.500	.000	.500		.000	.000	.000	.000		.625

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45 AM



Start Time	Haven Avenue Southbound			Lemon Avenue Westbound			Haven Avenue Northbound			Lemon Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	07:45 AM	0	1	0	1	07:45 AM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	0
+45 mins.	0	1	0	1	0	1	0	1	0	0	0	0
Total Volume	0	1	0	1	0	2	0	2	0	0	0	0
% App. Total	0	100	0		0	100	0	100	0	0	0	0
PHF	.000	.250	.000	.250	.000	.500	.000	.500	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
EW: Lemon Avenue
Weather: Clear

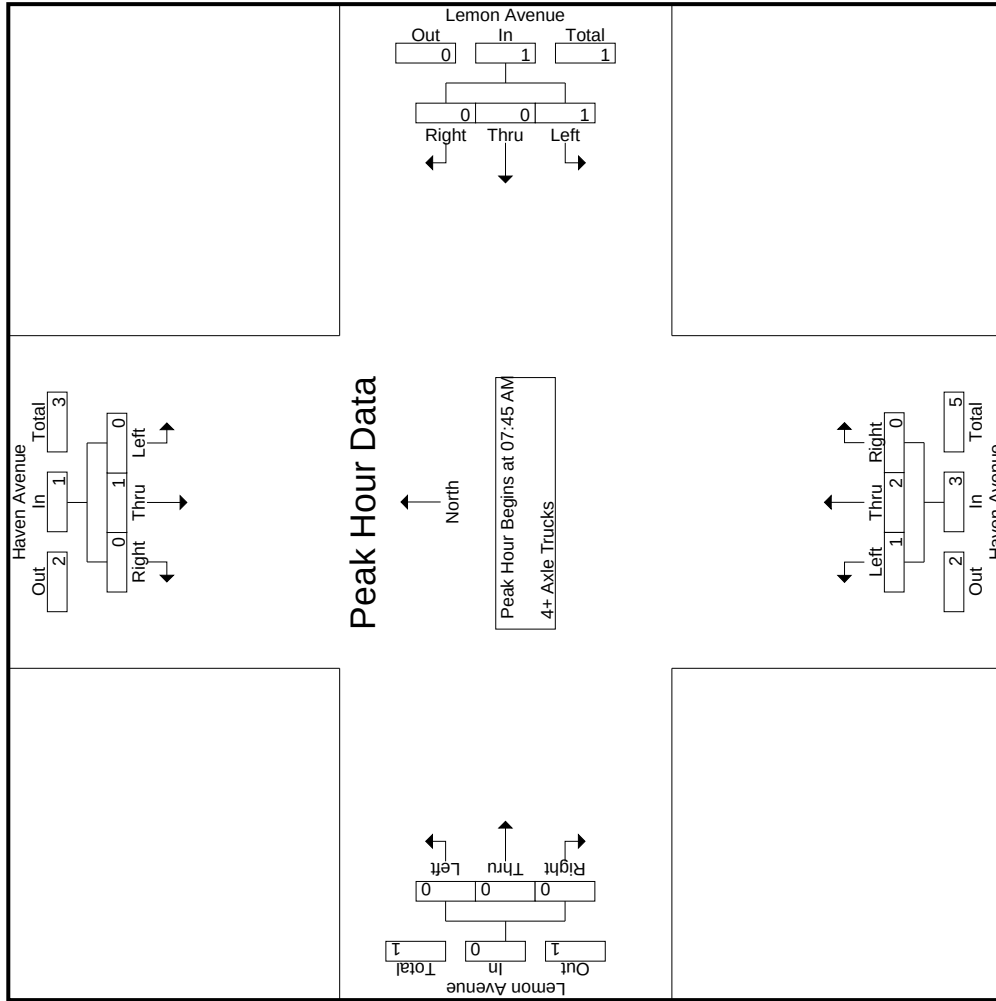
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Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1		
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1		
Total	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2		
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1		
08:30 AM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	3		
08:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1		
Total	0	1	0	0	1	2	0	0	0	2	1	1	1	0	2	0	0	5		
Grand Total	0	1	0	0	1	2	0	0	0	2	1	2	1	0	4	0	0	7		
% Approach	0	100	0			100	0	0			25	50	25							
Total %	0	14.3	0		14.3	28.6	0	0		28.6	14.3	28.6	14.3		57.1	0	0	100		

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Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0		0	0	0	0		0	1	0	1		0	0	0	0		1
08:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
08:15 AM	0	0	0	0		1	0	0	1		0	0	0	0		0	0	0	0		1
08:30 AM	0	1	0	1		0	0	0	0		1	1	0	2		0	0	0	0		3
Total Volume	0	1	0	1		1	0	0	1		1	2	0	3		0	0	0	0		5
% App. Total	0	100	0			100	0	0			33.3	66.7	0			0	0	0			
PHF	.000	.250	.000	.250		.250	.000	.000	.250		.250	.500	.000	.375		.000	.000	.000	.000		.417



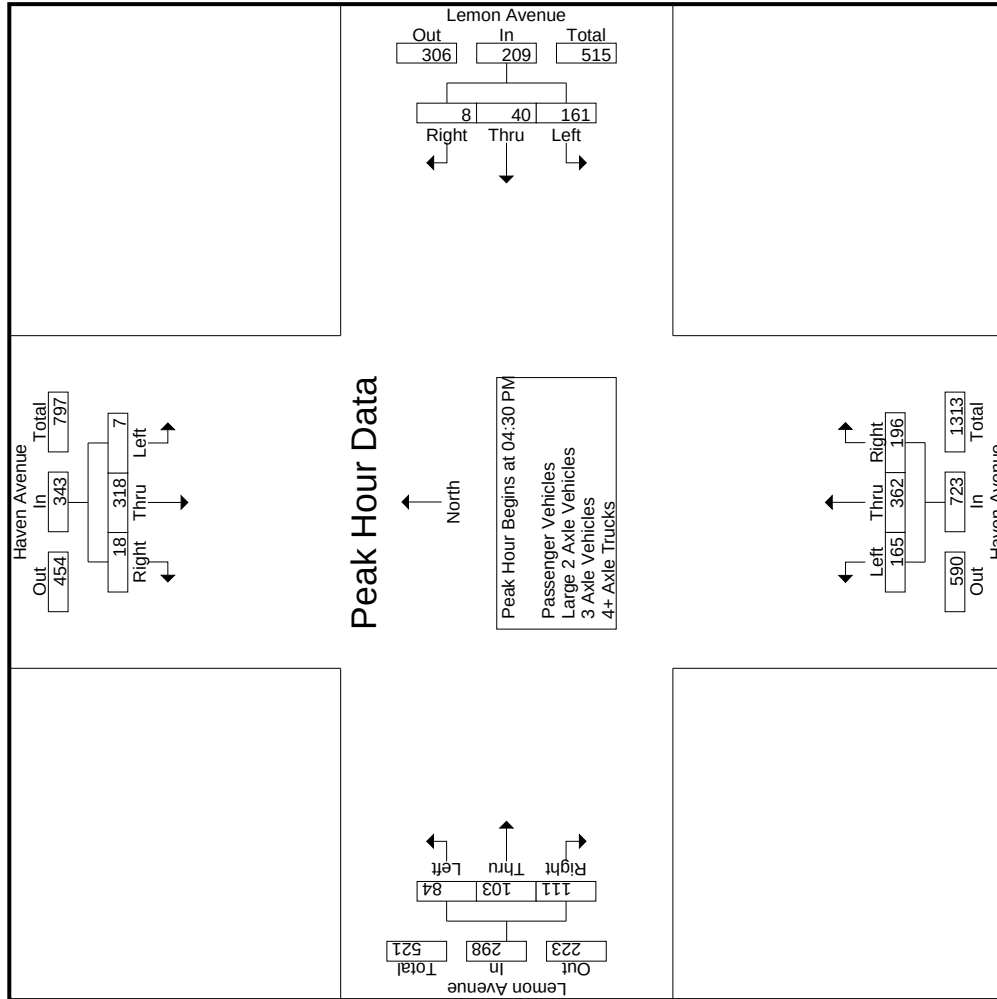
Start Time	Haven Avenue Southbound			Lemon Avenue Westbound			Haven Avenue Northbound			Lemon Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	07:45 AM	0	0	0	0	07:45 AM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	1	0	0	1	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	1	0	0	0
Total Volume	0	1	0	1	1	0	0	1	1	2	0	3
% App. Total	0	100	0	0	100	0	0	0	33.3	66.7	0	0
PHF	.000	.250	.000	.250	.250	.000	.000	.250	.250	.500	.000	.375
									.000	.000	.000	.000

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Haven Avenue Southbound					Haven Avenue Northbound					Lemon Avenue Eastbound					Lemon Avenue Westbound					Exclu. Total				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	73	5	0	78	36	5	1	1	42	32	79	34	3	145	12	19	14	5	45	9	310	319		
04:15 PM	0	97	6	0	103	34	10	2	0	46	43	95	49	5	187	10	11	18	10	39	15	375	390		
04:30 PM	1	85	4	0	90	42	9	4	1	55	40	80	36	6	156	21	30	28	7	79	14	380	394		
04:45 PM	2	98	4	0	104	40	11	0	0	51	37	89	45	1	171	15	26	26	9	67	10	393	403		
Total	3	353	19	0	375	152	35	7	2	194	152	343	164	15	659	58	86	86	31	230	48	1458	1506		
05:00 PM	2	61	6	0	69	49	13	2	0	64	36	96	54	10	186	26	21	24	10	71	20	390	410		
05:15 PM	2	74	4	0	80	30	7	2	1	39	52	97	61	5	210	22	26	33	10	81	16	410	426		
05:30 PM	2	66	3	0	71	31	7	2	0	40	28	98	64	4	190	29	11	24	10	64	14	365	379		
05:45 PM	2	65	6	1	73	36	8	1	0	45	33	112	43	4	188	15	21	28	8	64	13	370	383		
Total	8	266	19	1	293	146	35	7	1	188	149	403	222	23	774	92	79	109	38	280	63	1535	1598		
Grand Total	11	619	38	1	668	298	70	14	3	382	301	746	386	38	1433	150	165	195	69	510	111	2993	3104		
Approch %	1.6	92.7	5.7			78	18.3	3.7			21	52.1	26.9			29.4	32.4	38.2							
Total %	0.4	20.7	1.3			10	2.3	0.5			12.8	10.1	12.9			5	5.5	6.5			3.6	96.4			
Passenger Vehicles	10	605	38		654	296	69	13		381	299	736	381		1453	147	165	189		567	0	0	3055		
% Passenger Vehicles	90.9	97.7	100	100	97.8	99.3	98.6	92.9	100	99	99.3	98.7	98.7	97.4	98.8	98	100	96.9	95.7	97.9	0	0	98.4		
Large 2 Axle Vehicles	1	14	0		15	2	1	1	0	4	1	9	4		15	3	0	6		12	0	0	46		
% Large 2 Axle Vehicles	9.1	2.3	0	0	2.2	0.7	1.4	7.1	0	1	0.3	1.2	1	2.6	1	2	0	3.1	4.3	2.1	0	0	1.5		
3 Axle Vehicles	0	0	0		0	0	0	0	0	0	0	1	0		1	0	0	0		0	0	0	1		
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0		
4+ Axle Trucks	0	0	0		0	0	0	0	0	0	1	0	1		2	0	0	0		0	0	0	2		
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0.3	0	0.3	0	0.1	0	0	0	0	0	0	0	0.1		

Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound					Exclu. Total				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:30 PM	1	85	4		90	42	9	4		55	40	80	36		156	21	30	28		79					
04:45 PM	2	98	4		104	40	11	0		51	37	89	45		171	15	26	26		67					
05:00 PM	2	61	6		69	49	13	2		64	36	96	54		186	26	21	24		71					
05:15 PM	2	74	4		80	30	7	2		39	52	97	61		210	22	26	33		81					
Total Volume	7	318	18		343	161	40	8		209	165	362	196		723	84	103	111		298					
% App. Total	2	92.7	5.2			77	19.1	3.8			22.8	50.1	27.1			28.2	34.6	37.2							
PHF	.875	.811	.750		.825	.821	.769	.500		.816	.793	.933	.803		.861	.808	.858	.841		.920					

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM



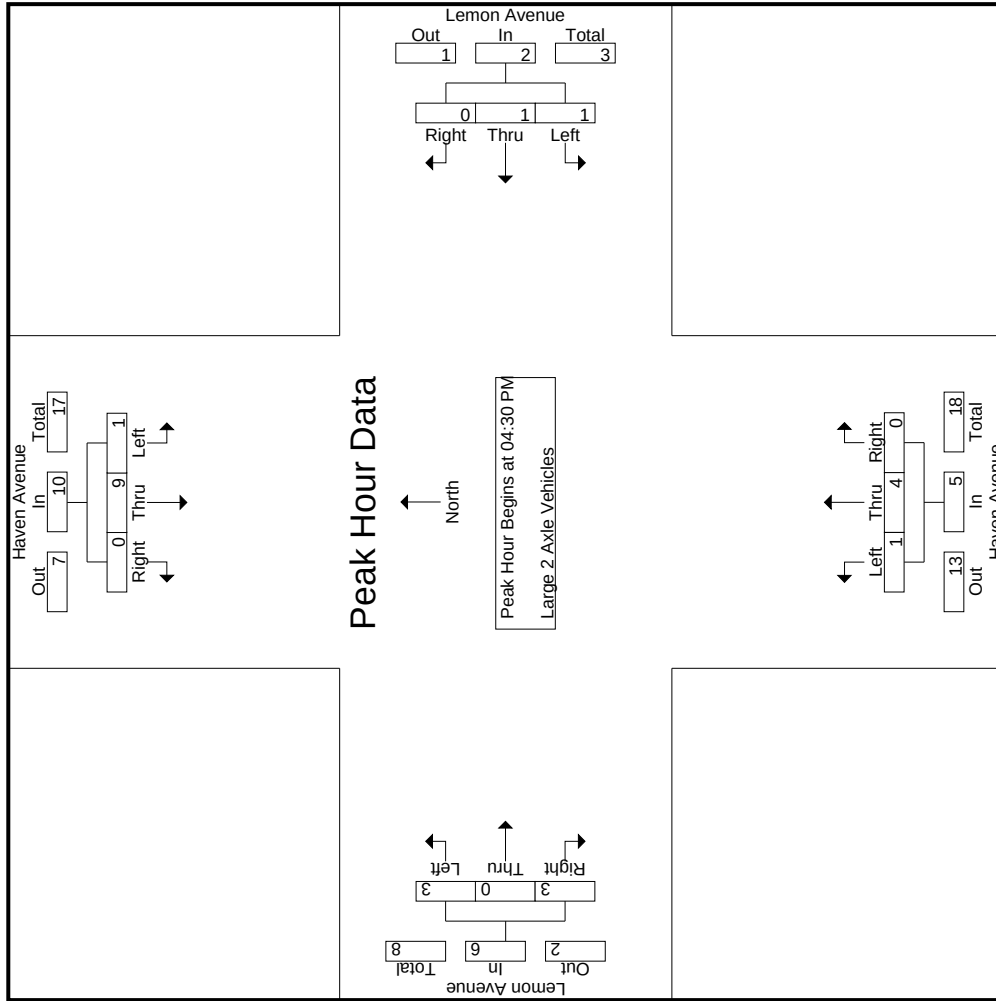
City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Lemon Avenue
Weather: Clear

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: Lemon Avenue
Weather: Clear

G-209

G-210

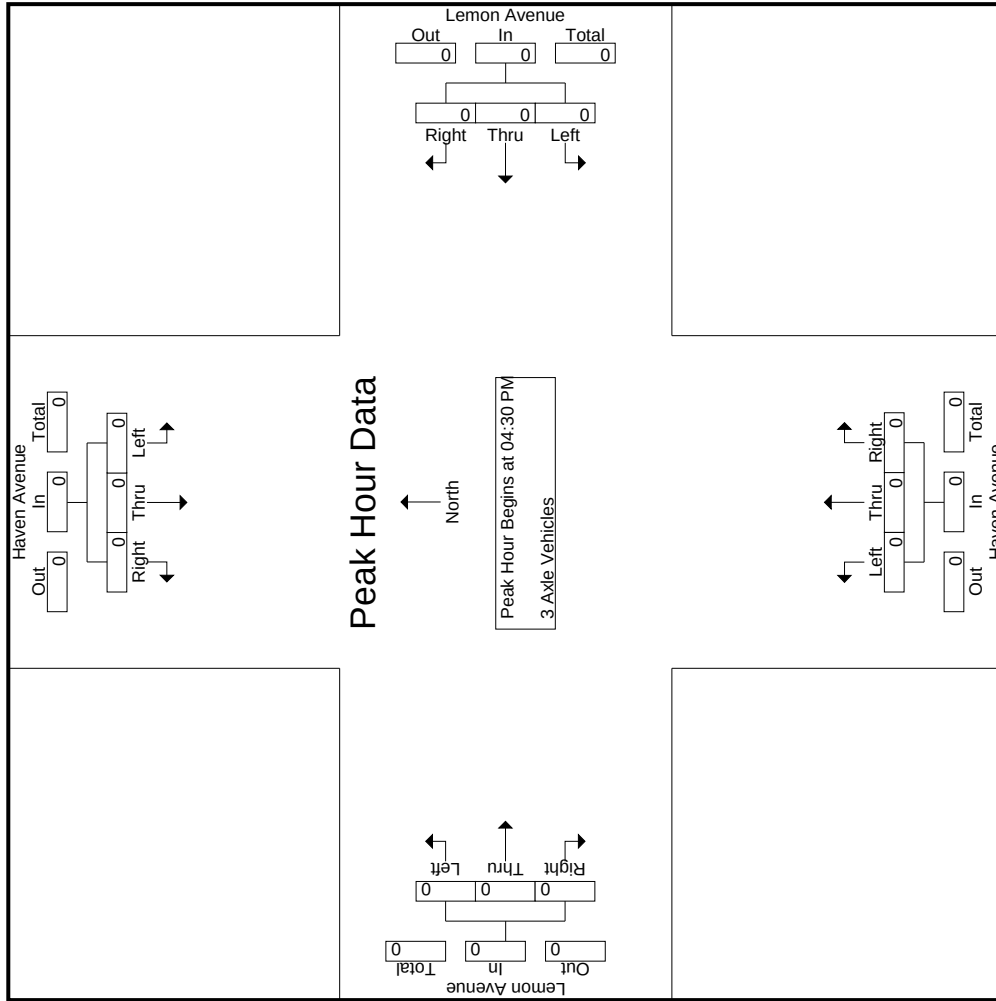
Start Time	Haven Avenue Southbound				Lemon Avenue Westbound				Haven Avenue Northbound				Lemon Avenue Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:30 PM																		
04:30 PM	0	3	0	3	0	0	0	0	1	1	0	0	2	2	0	0	2	7
04:45 PM	0	1	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	2
05:00 PM	0	3	0	3	1	0	0	1	0	2	0	0	2	1	0	1	2	8
05:15 PM	1	2	0	3	0	1	0	1	0	0	0	0	0	0	0	2	2	6
Total Volume	1	9	0	10	1	1	0	2	1	4	0	0	5	3	0	3	6	23
% App. Total	10	90	0		50	50	0		20	80	0			50	0	50		
PHE	.250	.750	.000	.833	.250	.250	.000	.500	.250	.500	.000	.625	.375	.000	.375	.750		.719



	Haven Avenue Southbound				Lemon Avenue Westbound				Haven Avenue Northbound				Lemon Avenue Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	3	0	3	0	0	0	0	1	1	0	2	2	0	0	2
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	3	0	3	1	0	0	1	0	2	0	2	1	0	1	2
+45 mins.	1	2	0	3	0	1	0	1	0	0	0	0	0	0	2	2
Total Volume	1	9	0	10	1	1	0	2	1	4	0	5	3	0	3	6
% App. Total	10	90	0		50	50	0		20	80	0		50	0	50	
PHF	.250	.750	.000	.833	.250	.250	.000	.500	.250	.500	.000	.625	.375	.000	.375	.750

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Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
04:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
% App. Total	0	0	0			0	0	0			0	0	0			0	0	0			0
PHE	.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000



	Haven Avenue Southbound				Lemon Avenue Westbound				Haven Avenue Northbound				Lemon Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Haven Avenue
EW: Lemon Avenue
Weather: Clear

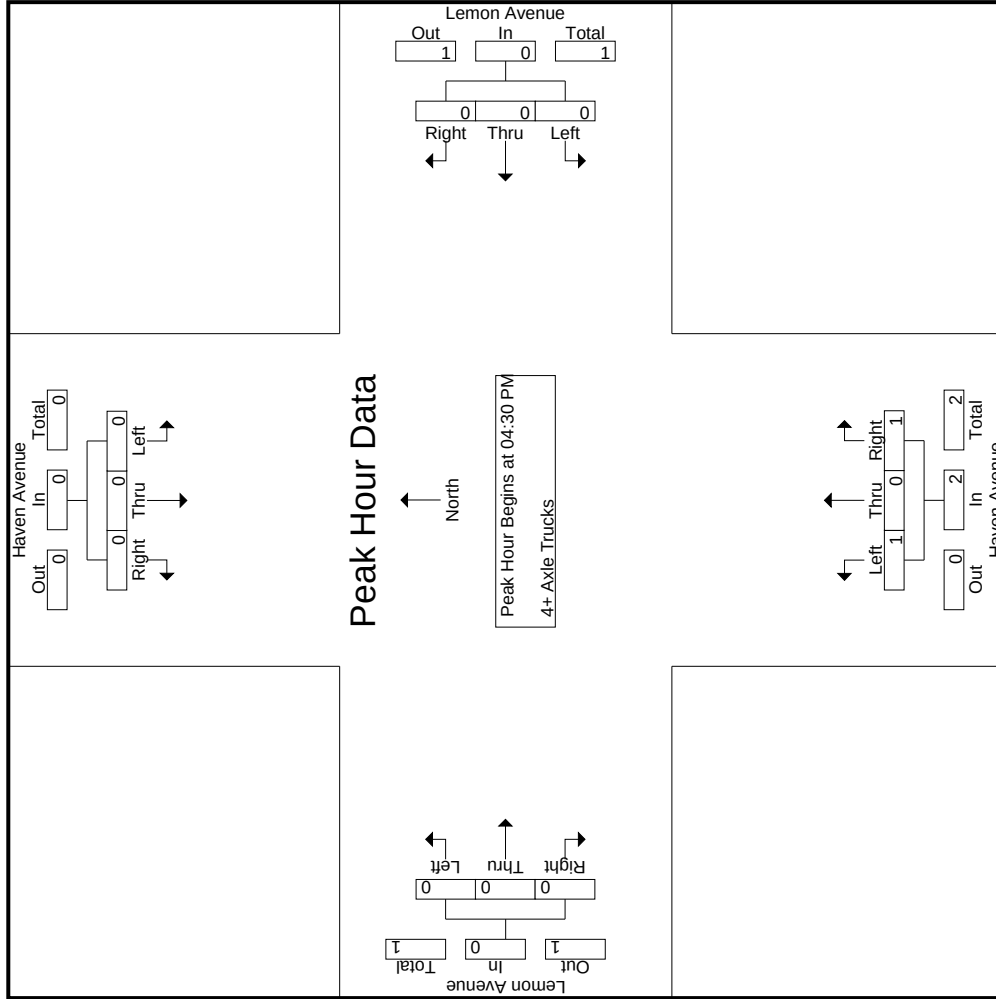
File Name : 06_RNC_Haven_Lemon PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1		
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1		
Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	2		
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Grand Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	2		
% Approach	0	0	0			0	0	0			50	0	50			0	100			
Total %	0	0	0			0	0	0			50	0	50			0	100			

Start Time	Haven Avenue Southbound					Lemon Avenue Westbound					Haven Avenue Northbound					Lemon Avenue Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0		1
04:45 PM	0	0	0	0		0	0	0	0		1	0	0	1		0	0	0	0		1
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	0	0		0	0	0	0		1	0	1	2		0	0	0	0		2
% App. Total	0	0	0			0	0	0			50	0	50			0	0	0			
PHF	.000	.000	.000	.000		.000	.000	.000	.000		.250	.000	.250	.500		.000	.000	.000	.000		.500

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM



Start Time	Haven Avenue Southbound			Lemon Avenue Westbound			Haven Avenue Northbound			Lemon Avenue Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	04:30 PM	0	0	0	0	04:30 PM	0	0
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	1	0	0	0
% App. Total	0	0	0	0	0	0	0	0	50	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Lemon Avenue



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

		North Leg Haven Avenue	East Leg Lemon Avenue	South Leg Haven Avenue	West Leg Lemon Avenue	
		Pedestrians	Pedestrians	Pedestrians	Pedestrians	
	7:00 AM	0	0	4	3	7
	7:15 AM	0	0	1	1	2
	7:30 AM	0	2	2	0	4
	7:45 AM	0	0	1	1	2
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	0	0	0
	8:30 AM	1	0	0	0	1
	8:45 AM	3	3	3	1	10
	TOTAL VOLUMES:	4	5	11	6	26

		North Leg Haven Avenue	East Leg Lemon Avenue	South Leg Haven Avenue	West Leg Lemon Avenue	
		Pedestrians	Pedestrians	Pedestrians	Pedestrians	
	4:00 PM	0	0	0	0	0
	4:15 PM	0	0	1	0	1
	4:30 PM	0	3	3	2	8
	4:45 PM	0	2	2	1	5
	5:00 PM	0	0	1	0	1
	5:15 PM	0	3	3	0	6
	5:30 PM	2	1	1	0	4
	5:45 PM	0	2	3	0	5
	TOTAL VOLUMES:	2	11	14	3	30

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: Lemon Avenue



Date: 6/2/2021
 Day: Wednesday

BICYCLES

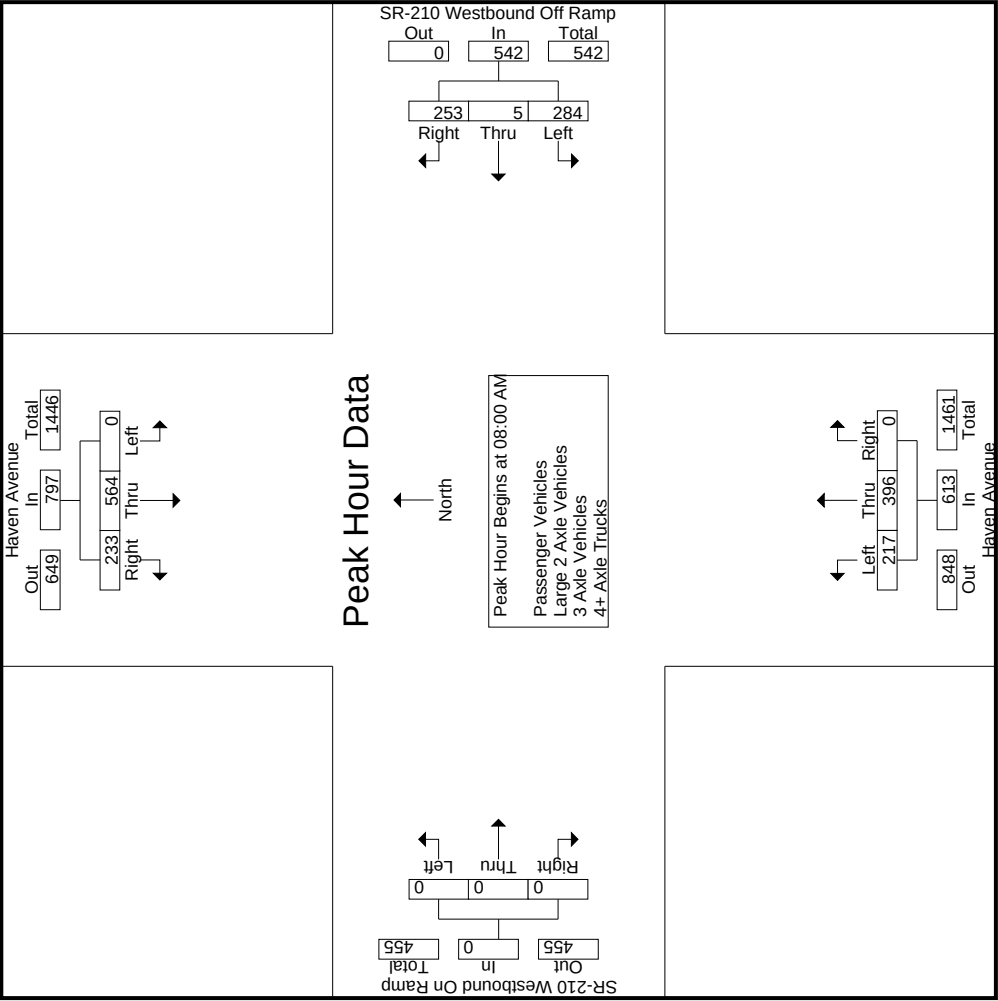
		Southbound Haven Avenue			Westbound Lemon Avenue			Northbound Haven Avenue			Eastbound Lemon Avenue			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	1	0	0	1	0	0	0	0	0	0	0	2

		Southbound Haven Avenue			Westbound Lemon Avenue			Northbound Haven Avenue			Eastbound Lemon Avenue			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:		0	0	0	0	0	0	0	3	0	0	0	1	4

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	106	54	20	160	68	3	53	38	124	61	52	0	0	113	0	0	0	0	0	58	397	455
07:15 AM	0	115	72	34	187	33	1	42	29	76	63	73	0	0	136	0	0	0	0	0	63	399	462
07:30 AM	0	121	58	30	179	65	0	43	31	108	64	80	0	0	144	0	0	0	0	0	61	431	492
07:45 AM	0	150	54	20	204	60	1	48	36	109	57	111	0	0	168	0	0	0	0	0	56	481	537
Total	0	492	238	104	730	226	5	186	134	417	245	316	0	0	561	0	0	0	0	0	238	1708	1946
08:00 AM	0	150	59	18	209	73	1	61	46	135	55	106	0	0	161	0	0	0	0	0	64	505	569
08:15 AM	0	115	66	18	181	63	1	55	35	119	62	117	0	0	179	0	0	0	0	0	53	479	532
08:30 AM	0	128	51	17	179	71	1	46	35	118	41	79	0	0	120	0	0	0	0	0	52	417	469
08:45 AM	0	171	57	15	228	77	2	91	56	170	59	94	0	0	153	0	0	0	0	0	71	551	622
Total	0	564	233	68	797	284	5	253	172	542	217	396	0	0	613	0	0	0	0	0	240	1952	2192
Grand Total	0	1056	471	172	1527	510	10	439	306	959	462	712	0	0	1174	0	0	0	0	0	478	3660	4138
Approch %	0	69.2	30.8			53.2	1	45.8			39.4	60.6	0			0	0	0					
Total %	0	28.9	12.9		41.7	13.9	0.3	12		26.2	12.6	19.5	0		32.1	0	0	0			11.6	88.4	
Passenger Vehicles	0	1034	469		1674	503	7	424		1233	447	684	0		1131	0	0	0			0	0	4038
% Passenger Vehicles	0	97.9	99.6	99.4	98.5	98.6	70	96.6	97.7	97.5	96.8	96.1	0	0	96.3	0	0	0	0	0	0	0	97.6
Large 2 Axle Vehicles	0	15	1		17	5	2	9		21	9	24	0		33	0	0	0			0	0	71
% Large 2 Axle Vehicles	0	1.4	0.2	0.6	1	1	20	2.1	1.6	1.7	1.9	3.4	0	0	2.8	0	0	0	0	0	0	0	1.7
3 Axle Vehicles	0	2	0		2	0	0	4		5	4	0	0		4	0	0	0			0	0	11
% 3 Axle Vehicles	0	0.2	0	0	0.1	0	0	0.9	0.3	0.4	0.9	0	0	0	0.3	0	0	0	0	0	0	0	0.3
4+ Axle Trucks	0	5	1		6	2	1	2		6	2	4	0		6	0	0	0			0	0	18
% 4+ Axle Trucks	0	0.5	0.2	0	0.4	0.4	10	0.5	0.3	0.5	0.4	0.6	0	0	0.5	0	0	0	0	0	0	0	0.4

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	150	59	209		73	1	61	135		55	106	0	161		0	0	0	0		505
08:15 AM	0	115	66	181		63	1	55	119		62	117	0	179		0	0	0	0		479
08:30 AM	0	128	51	179		71	1	46	118		41	79	0	120		0	0	0	0		417
08:45 AM	0	171	57	228		77	2	91	170		59	94	0	153		0	0	0	0		551
Total Volume	0	564	233	797		284	5	253	542		217	396	0	613		0	0	0	0		1952
% App. Total	0	70.8	29.2			52.4	0.9	46.7			35.4	64.6	0			0	0	0			
PHF	.000	.825	.883	.874		.922	.625	.695	.797		.875	.846	.000	.856		.000	.000	.000	.000		.886



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
EW: SR-210 Westbound Ramps
Weather: Clear

File Name : 07_RNC_Haven_210W AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

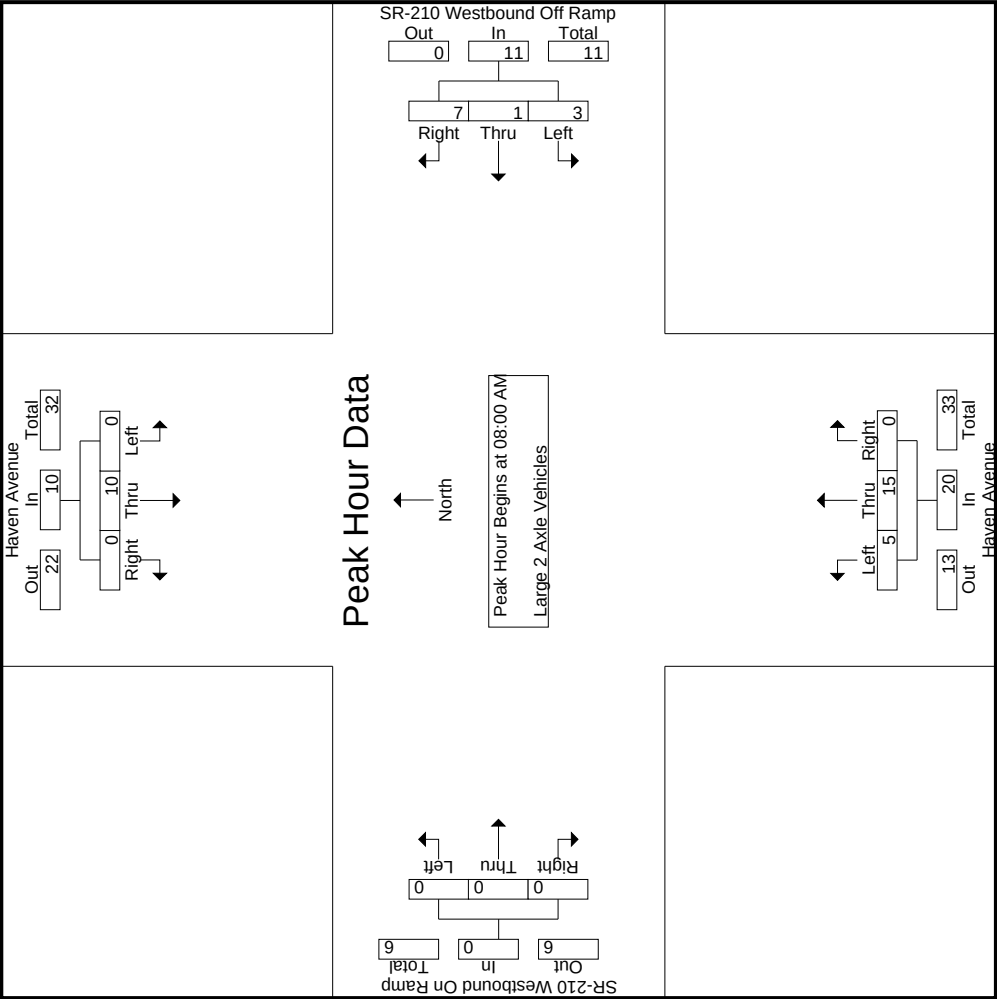
Start Time	Haven Avenue Southbound				SR-210 Westbound Off Ramp Westbound				Haven Avenue Northbound				SR-210 Westbound On Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	08:00 AM				08:00 AM				07:30 AM				07:00 AM			
+0 mins.	0	150	59	209	73	1	61	135	64	80	0	144	0	0	0	0
+15 mins.	0	115	66	181	63	1	55	119	57	111	0	168	0	0	0	0
+30 mins.	0	128	51	179	71	1	46	118	55	106	0	161	0	0	0	0
+45 mins.	0	171	57	228	77	2	91	170	62	117	0	179	0	0	0	0
Total Volume	0	564	233	797	284	5	253	542	238	414	0	652	0	0	0	0
% App. Total	0	70.8	29.2		52.4	0.9	46.7		36.5	63.5	0		0	0	0	
PHF	.000	.825	.883	.874	.922	.625	.695	.797	.930	.885	.000	.911	.000	.000	.000	.000

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					SR-210 Westbound Off Ramp Westbound					Haven Avenue Northbound					SR-210 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	3	0	0	3	0	0	1	1	1	0	2	0	0	2	0	0	0	0	0	1	6	7
07:15 AM	0	2	1	1	3	2	1	1	0	4	3	0	0	0	3	0	0	0	0	0	1	10	11
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	5	5
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	3
Total	0	5	1	1	6	2	1	2	1	5	4	9	0	0	13	0	0	0	0	0	2	24	26
08:00 AM	0	1	0	0	1	0	0	3	3	3	2	4	0	0	6	0	0	0	0	0	3	10	13
08:15 AM	0	3	0	0	3	2	0	1	0	3	0	6	0	0	6	0	0	0	0	0	0	12	12
08:30 AM	0	2	0	0	2	1	1	2	1	4	0	5	0	0	5	0	0	0	0	0	1	11	12
08:45 AM	0	4	0	0	4	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	0	8	8
Total	0	10	0	0	10	3	1	7	4	11	5	15	0	0	20	0	0	0	0	0	4	41	45
Grand Total	0	15	1	1	16	5	2	9	5	16	9	24	0	0	33	0	0	0	0	0	6	65	71
% Approach	0	93.8	6.2		24.6	31.2	12.5	56.2		27.3	72.7	0			50.8	0	0	0			8.5	91.5	
Total %	0	23.1	1.5			7.7	3.1	13.8		24.6	13.8	36.9	0			0	0	0					

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	1	0	1		0	0	3	3		2	4	0	6		0	0	0	0		10
08:15 AM	0	3	0	3		2	0	1	3		0	6	0	6		0	0	0	0		12
08:30 AM	0	2	0	2		1	1	2	4		0	5	0	5		0	0	0	0		11
08:45 AM	0	4	0	4		0	0	1	1		3	0	0	3		0	0	0	0		8
Total Volume	0	10	0	10		3	1	7	11		5	15	0	20		0	0	0	0		41
% App. Total	0	100	0			27.3	9.1	63.6			25	75	0			0	0	0			
PHF	.000	.625	.000	.625		.375	.250	.583	.688		.417	.625	.000	.833		.000	.000	.000	.000		.854

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM



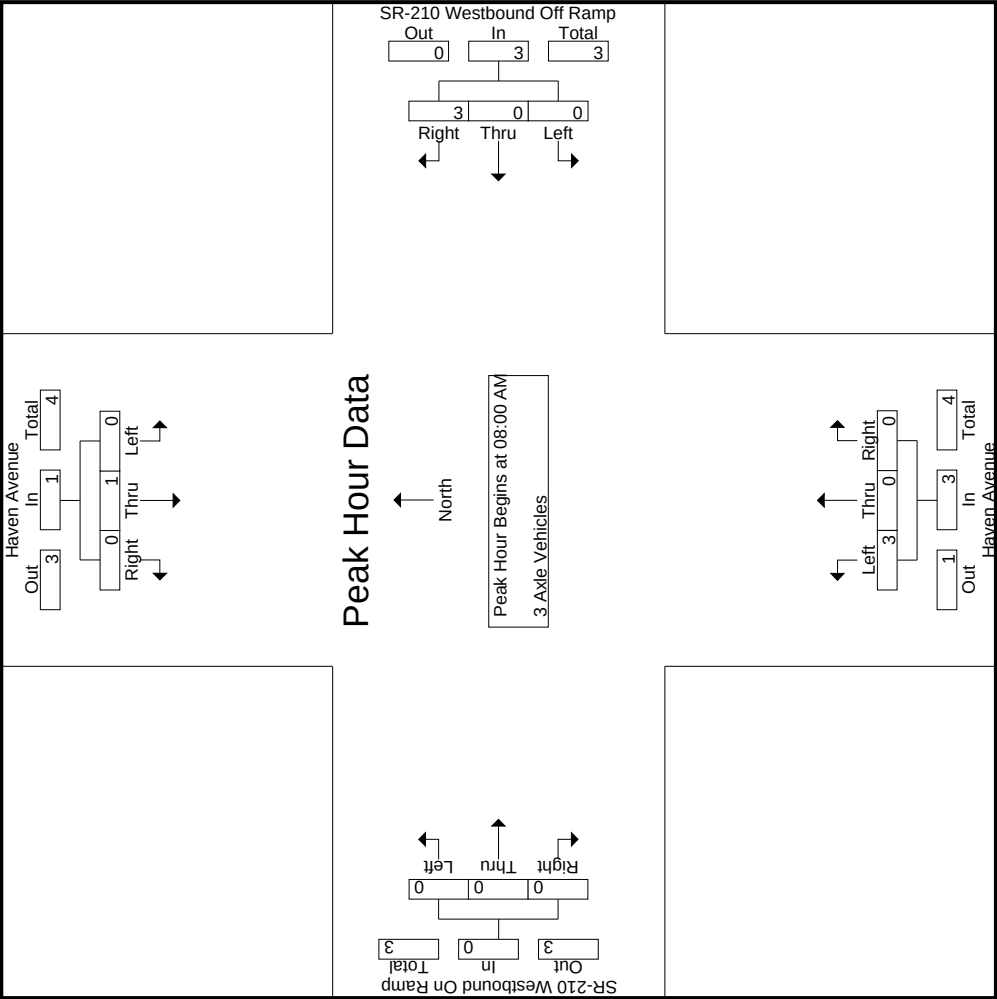
Start Time	Haven Avenue Southbound				SR-210 Westbound Off Ramp Westbound				Haven Avenue Northbound				SR-210 Westbound On Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	1	0	1	08:00 AM				08:00 AM				08:00 AM			
+15 mins.	0	3	0	3	0	0	0	3	2	4	0	6	0	0	0	0
+30 mins.	0	2	0	2	2	0	1	3	0	6	0	6	0	0	0	0
+45 mins.	0	4	0	4	1	1	2	4	0	5	0	5	0	0	0	0
Total Volume	0	10	0	10	3	1	7	11	5	15	0	20	0	0	0	0
% App. Total	0	100	0		27.3	9.1	63.6		25	75	0		0	0	0	
PHF	.000	.625	.000	.625	.375	.250	.583	.688	.417	.625	.000	.833	.000	.000	.000	.000

Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp							
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
Start Time																							
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	3	3
08:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	2
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
08:45 AM	0	1	0	0	1	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	1	3	4
Total	0	1	0	0	1	0	0	0	3	1	3	0	0	0	0	3	0	0	0	0	1	7	8
Grand Total	0	2	0	0	2	0	0	0	4	1	4	0	0	0	0	4	0	0	0	0	1	10	11
% Approach	0	100	0	0	20	0	0	0	100	0	40	100	0	0	0	40	0	0	0	0	9.1	90.9	
Total %	0	20	0	0	20	0	0	0	40	0	40	40	0	0	0	40	0	0	0	0			

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0		0	0	0	1		1	0	0	0		0	0	0	0		2
08:15 AM	0	0	0	0		0	0	0	1		1	0	0	0		0	0	0	0		1
08:30 AM	0	0	0	0		0	0	0	0		1	0	0	0		0	0	0	0		1
08:45 AM	0	1	0	1		0	0	1	1		1	0	0	0		0	0	0	0		3
Total Volume	0	1	0	1		0	0	3	3		3	0	0	0		0	0	0	0		7
% App. Total	0	100	0	250		0	0	100	750		100	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.250		.000	.000	.750	.750		.750	.000	.000	.000		.000	.000	.000	.000		.583

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM



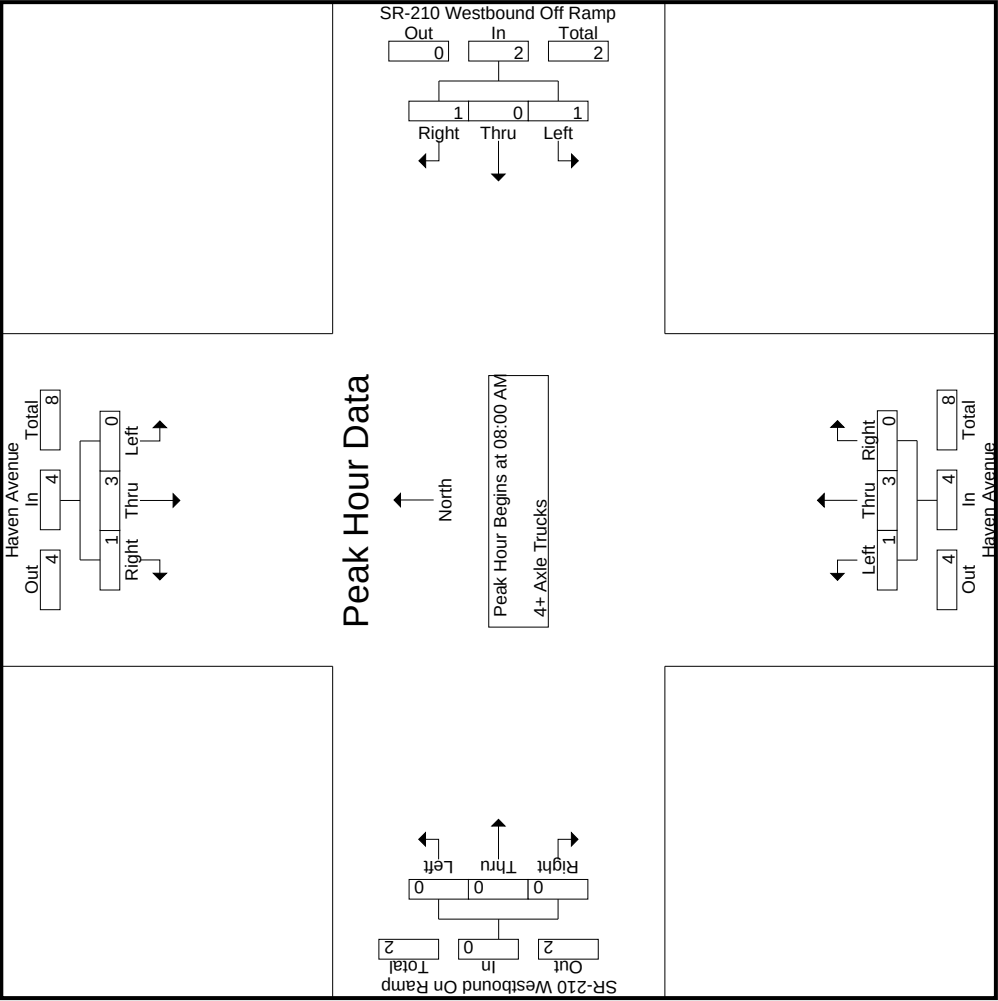
Start Time	Haven Avenue Southbound			SR-210 Westbound Off Ramp Westbound			Haven Avenue Northbound			SR-210 Westbound On Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	0	0	0	1	1	0	0	0
+15 mins.	0	0	0	0	0	0	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	0
+45 mins.	0	1	0	1	0	0	1	1	1	0	0	0
Total Volume	0	1	0	1	0	0	3	3	3	0	0	0
% App. Total	0	100	0		0	0	100		100	0	0	0
PHF	.000	.250	.000	.250	.000	.000	.750	.750	.750	.000	.000	.000

Groups Printed- 4+ Axle Trucks

Start Time	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp							
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
07:15 AM	0	1	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	2	3
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	2
Total	0	2	0	0	2	1	1	1	1	3	1	1	0	0	2	0	0	0	0	0	1	7	8
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
08:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	1	0	0	1	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	0	4	4
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
Total	0	3	1	0	4	1	0	1	0	2	1	3	0	0	4	0	0	0	0	0	0	10	10
Grand Total	0	5	1	0	6	2	1	2	1	5	2	4	0	0	6	0	0	0	0	0	1	17	18
% Approach	0	83.3	16.7		35.3	40	20	40		33.3	66.7	0			35.3	0	0	0			5.6	94.4	
Total %	0	29.4	5.9			11.8	5.9	11.8		29.4	11.8	23.5	0			0	0	0					

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	1	0	1		0	0	0	0		0	2	0	2		0	0	0	0		3
08:15 AM	0	0	1	1		0	0	0	0		0	0	0	0		0	0	0	0		1
08:30 AM	0	1	0	1		1	0	1	2		1	0	0	1		0	0	0	0		4
08:45 AM	0	1	0	1		0	0	0	0		0	1	0	1		0	0	0	0		2
Total Volume	0	3	1	4		1	0	1	2		1	3	0	4		0	0	0	0		10
% App. Total	0	.75	.25			.50	.0	.50			.25	.75	.0			.000	.000	.000	.000		.625
PHF	.000	.750	.250	1.00		.250	.000	.250	.250		.250	.375	.000	.500		.000	.000	.000	.000		.625

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

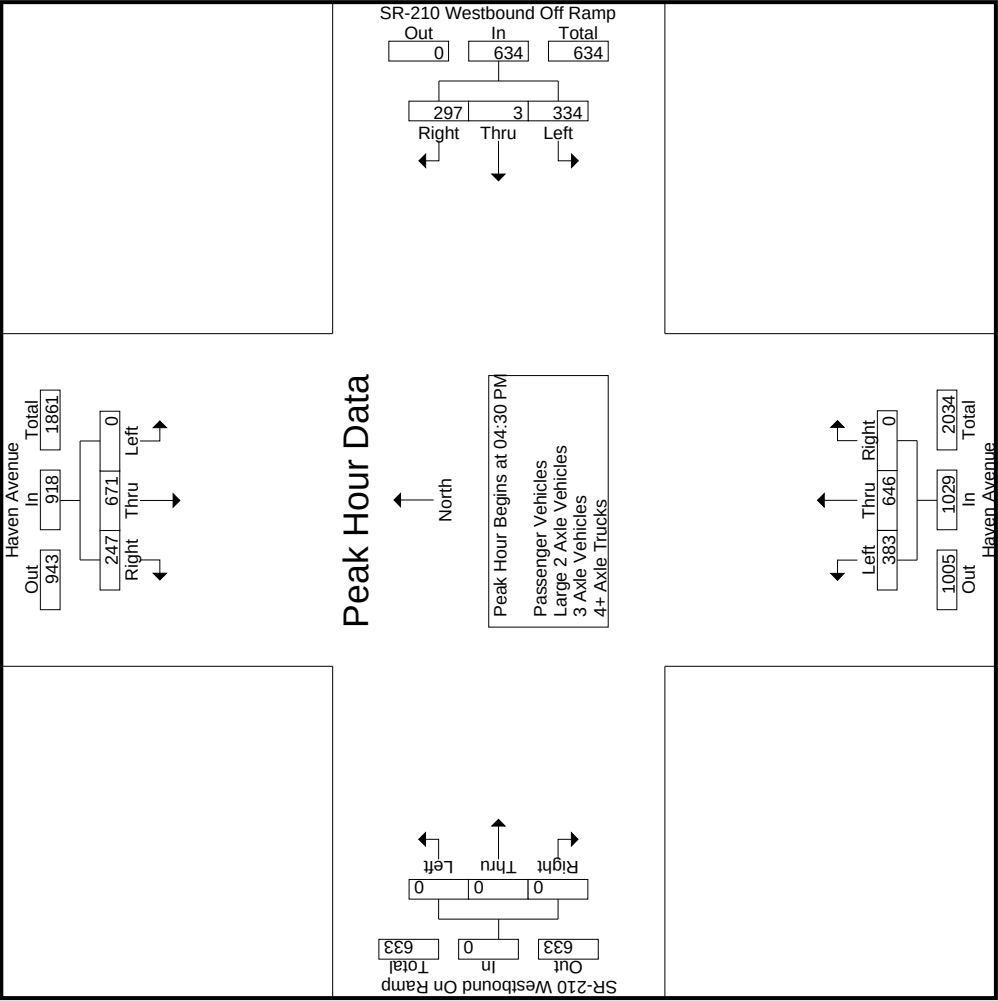


Start Time	Haven Avenue Southbound				SR-210 Westbound Off Ramp Westbound				Haven Avenue Northbound				SR-210 Westbound On Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	1	0	1	08:00 AM	0	0	0	0	08:00 AM	2	0	0	0	0	0
+15 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	1	1	0	1	2	1	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0
Total Volume	0	3	1	4	1	0	1	2	3	0	0	4	0	0	0	0
% App. Total	0	.75	.25	1.000	.250	.000	.250	.250	.75	.000	.000	.500	.000	.000	.000	.000
PHF	.000	.750	.250	1.000	.250	.000	.250	.250	.375	.000	.000	.500	.000	.000	.000	.000

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp								
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
Start Time																								
04:00 PM	0	156	46	16	202	66	0	71	49	137	79	132	0	0	211	0	0	0	0	0	65	550	615	
04:15 PM	0	156	60	22	216	94	0	90	56	184	78	156	0	0	234	0	0	0	0	0	78	634	712	
04:30 PM	0	187	55	26	242	79	1	73	42	153	80	152	0	0	232	0	0	0	0	0	68	627	695	
04:45 PM	0	170	74	29	244	85	2	53	32	140	84	164	0	0	248	0	0	0	0	0	61	632	693	
Total	0	669	235	93	904	324	3	287	179	614	321	604	0	0	925	0	0	0	0	0	272	2443	2715	
05:00 PM	0	161	57	19	218	78	0	82	41	160	108	148	0	0	256	0	0	0	0	0	60	634	694	
05:15 PM	0	153	61	16	214	92	0	89	48	181	111	182	0	0	293	0	0	0	0	0	64	688	752	
05:30 PM	0	155	52	26	207	85	0	76	39	161	95	155	0	0	250	0	0	0	0	0	65	618	683	
05:45 PM	0	156	43	16	199	79	1	69	40	149	79	171	0	0	250	0	0	0	0	0	56	598	654	
Total	0	625	213	77	838	334	1	316	168	651	393	656	0	0	1049	0	0	0	0	0	245	2538	2783	
Grand Total	0	1294	448	170	1742	658	4	603	347	1265	714	1260	0	0	1974	0	0	0	0	0	517	4981	5498	
% Approach	0	74.3	25.7			52	0.3	47.7			36.2	63.8	0			0	0	0						
% Total	0	26	9		35	13.2	0.1	12.1		25.4	14.3	25.3	0		39.6	0	0	0			9.4	90.6		
Passenger Vehicles	0	1274	439		1881	651	3	592		1589	706	1249	0		1955	0	0	0			0	0	5425	
% Passenger Vehicles	0	98.5	98	98.8	98.4	98.9	75	98.2	98.8	98.6	98.9	99.1	0	0	99	0	0	0	0	0	0	0	98.7	
Large 2 Axle Vehicles	0	19	5		25	6	1	8		19	3	11	0		14	0	0	0			0	0	58	
% Large 2 Axle Vehicles	0	1.5	1.1	0.6	1.3	0.9	25	1.3	1.2	1.2	0.4	0.9	0	0	0.7	0	0	0	0	0	0	0	1.1	
3 Axle Vehicles	0	0	1		1	0	0	1		1	0	0	0		0	0	0	0			0	0	2	
% 3 Axle Vehicles	0	0	0.2	0	0.1	0	0	0.2	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	
4+ Axle Trucks	0	1	3		5	1	0	2		3	5	0	0		5	0	0	0			0	0	13	
% 4+ Axle Trucks	0	0.1	0.7	0.6	0.3	0.2	0	0.3	0	0.2	0.7	0	0	0	0.3	0	0	0	0	0	0	0	0.2	

	Haven Avenue Southbound					SR-210 Westbound Off Ramp Westbound					Haven Avenue Northbound					SR-210 Westbound On Ramp Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	187	55	242		79	1	73	153		80	152	0	232		0	0	0	0		627
04:45 PM	0	170	74	244		85	2	53	140		84	164	0	248		0	0	0	0		632
05:00 PM	0	161	57	218		78	0	82	160		108	148	0	256		0	0	0	0		634
05:15 PM	0	153	61	214		92	0	89	181		111	182	0	293		0	0	0	0		688
Total Volume	0	671	247	918		334	3	297	634		383	646	0	1029		0	0	0	0		2581
% App. Total	0	73.1	26.9			52.7	0.5	46.8			37.2	62.8	0			0	0	0			
PHF	.000	.897	.834	.941		.908	.375	.834	.876		.863	.887	.000	.878		.000	.000	.000	.000		.938



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Westbound Ramps
Weather: Clear

File Name : 07_RNC_Haven_210W PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

Start Time	Haven Avenue Southbound				SR-210 Westbound Off Ramp Westbound				Haven Avenue Northbound				SR-210 Westbound On Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:15 PM				05:00 PM				05:00 PM				04:00 PM			
+0 mins.	0	156	60	216	78	0	82	160	108	148	0	256	0	0	0	0
+15 mins.	0	187	55	242	92	0	89	181	111	182	0	293	0	0	0	0
+30 mins.	0	170	74	244	85	0	76	161	95	155	0	250	0	0	0	0
+45 mins.	0	161	57	218	79	1	69	149	79	171	0	250	0	0	0	0
Total Volume	0	674	246	920	334	1	316	651	393	656	0	1049	0	0	0	0
% App. Total	0	73.3	26.7		51.3	0.2	48.5		37.5	62.5	0		0	0	0	
PHF	.000	.901	.831	.943	.908	.250	.888	.899	.885	.901	.000	.895	.000	.000	.000	.000

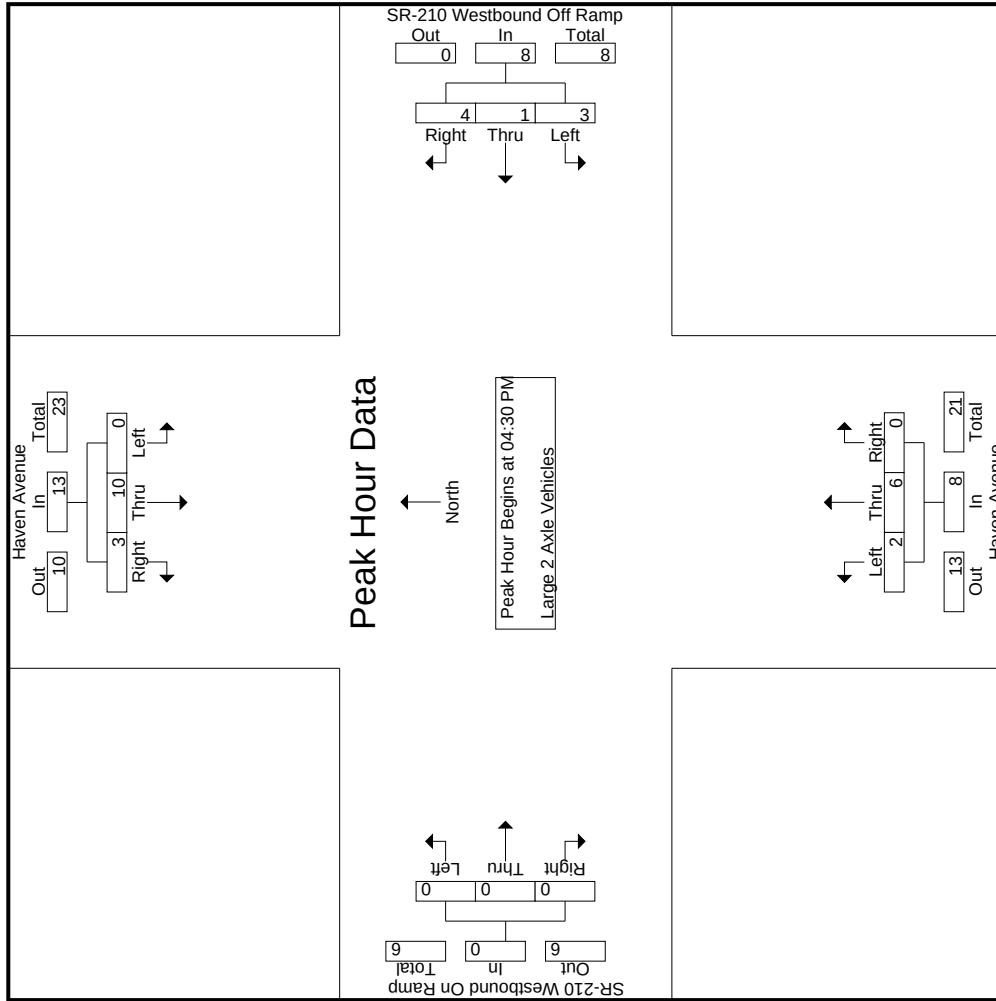
Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					SR-210 Westbound Off Ramp Westbound					Haven Avenue Northbound					SR-210 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	2
04:15 PM	0	2	0	0	2	1	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	5
04:30 PM	0	2	1	1	3	2	0	1	1	3	1	3	0	0	4	0	0	0	0	0	0	2	10
04:45 PM	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	0	0	3
Total	0	4	1	1	5	4	1	3	2	8	2	5	0	0	7	0	0	0	0	0	3	20	23
05:00 PM	0	4	2	0	6	0	0	1	1	1	0	1	0	0	0	1	0	0	0	0	0	1	8
05:15 PM	0	4	0	0	4	1	0	2	0	3	0	1	0	0	0	1	0	0	0	0	0	0	8
05:30 PM	0	3	2	0	5	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	1	7
05:45 PM	0	4	0	0	4	1	0	1	0	2	1	3	0	0	4	0	0	0	0	0	0	0	10
Total	0	15	4	0	19	2	0	5	2	7	1	6	0	0	7	0	0	0	0	0	2	33	35
Grand Total	0	19	5	1	24	6	1	8	4	15	3	11	0	0	14	0	0	0	0	0	5	53	58
% Approach	0	79.2	20.8		45.3	40	6.7	53.3		21.4	78.6	0			26.4	0	0	0			8.6	91.4	
Total %	0	35.8	9.4			11.3	1.9	15.1		28.3	5.7	20.8	0			0	0	0					

G-236

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	2	1	3		2	0	1	3		1	3	0	4		0	0	0	0		10
04:45 PM	0	0	0	0		0	1	0	1		1	1	0	2		0	0	0	0		3
05:00 PM	0	4	2	6		0	0	1	1		0	1	0	1		0	0	0	0		8
05:15 PM	0	4	0	4		1	0	2	3		0	1	0	1		0	0	0	0		8
Total Volume	0	10	3	13		3	1	4	8		2	6	0	8		0	0	0	0		29
% App. Total	0	76.9	23.1			37.5	12.5	50			25	75	0			0	0	0			
PHF	.000	.625	.375	.542		.375	.250	.500	.667		.500	.500	.000	.500		.000	.000	.000	.000		.725

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM



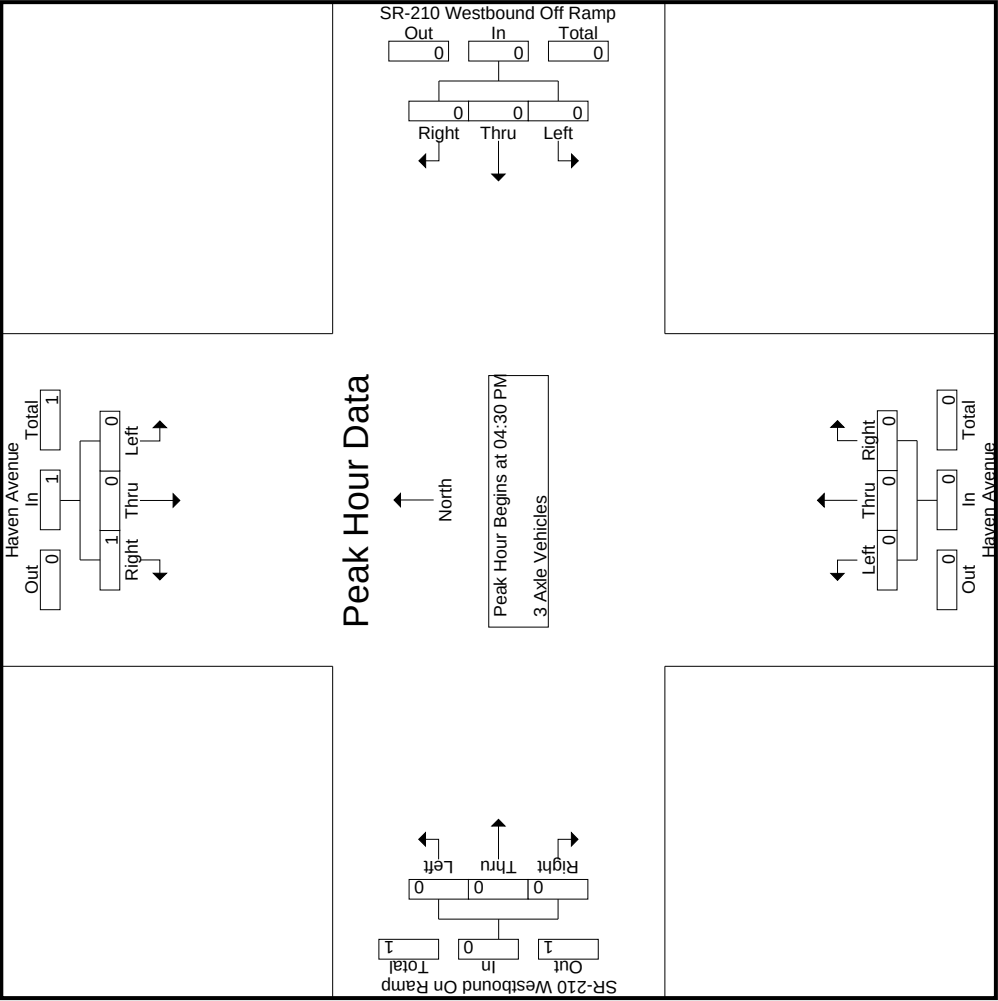
Start Time	Haven Avenue Southbound				SR-210 Westbound Off Ramp Westbound				Haven Avenue Northbound				SR-210 Westbound On Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	2	1	3	04:30 PM				04:30 PM				04:30 PM			
+15 mins.	0	0	0	0	2	0	1	3	1	3	0	4	0	0	0	0
+30 mins.	0	4	2	6	0	1	0	1	1	1	0	2	0	0	0	0
+45 mins.	0	4	0	4	1	0	2	3	0	1	0	1	0	0	0	0
Total Volume	0	10	3	13	3	1	4	8	2	6	0	8	0	0	0	0
% App. Total	0	76.9	23.1		37.5	12.5	50		25	75	0		0	0	0	
PHF	.000	.625	.375	.542	.375	.250	.500	.667	.500	.500	.000	.500	.000	.000	.000	.000

Groups Printed- 3 Axle Vehicles

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
Approch %	0	0	100		50	0	0	100		50	0	0	0		50	0	0	0		0	0	100	
Total %	0	0	50		50	0	0	50		50	0	0	0		50	0	0	0		0	0	100	

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	1	1		0	0	0	0		0	0	0	0		0	0	0	0		1
04:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	1	1		0	0	0	0		0	0	0	0		0	0	0	0		1
% App. Total	0	0	100			0	0	0			0	0	0			0	0	0			
PHF	.000	.000	.250	.250		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.250

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM



Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Rancho Cucamonga
 N/S: Haven Avenue
 E/W: SR-210 Westbound Ramps
 Weather: Clear

File Name : 07_RNC_Haven_210W PM
 Site Code : 05121260
 Start Date : 6/2/2021
 Page No : 3

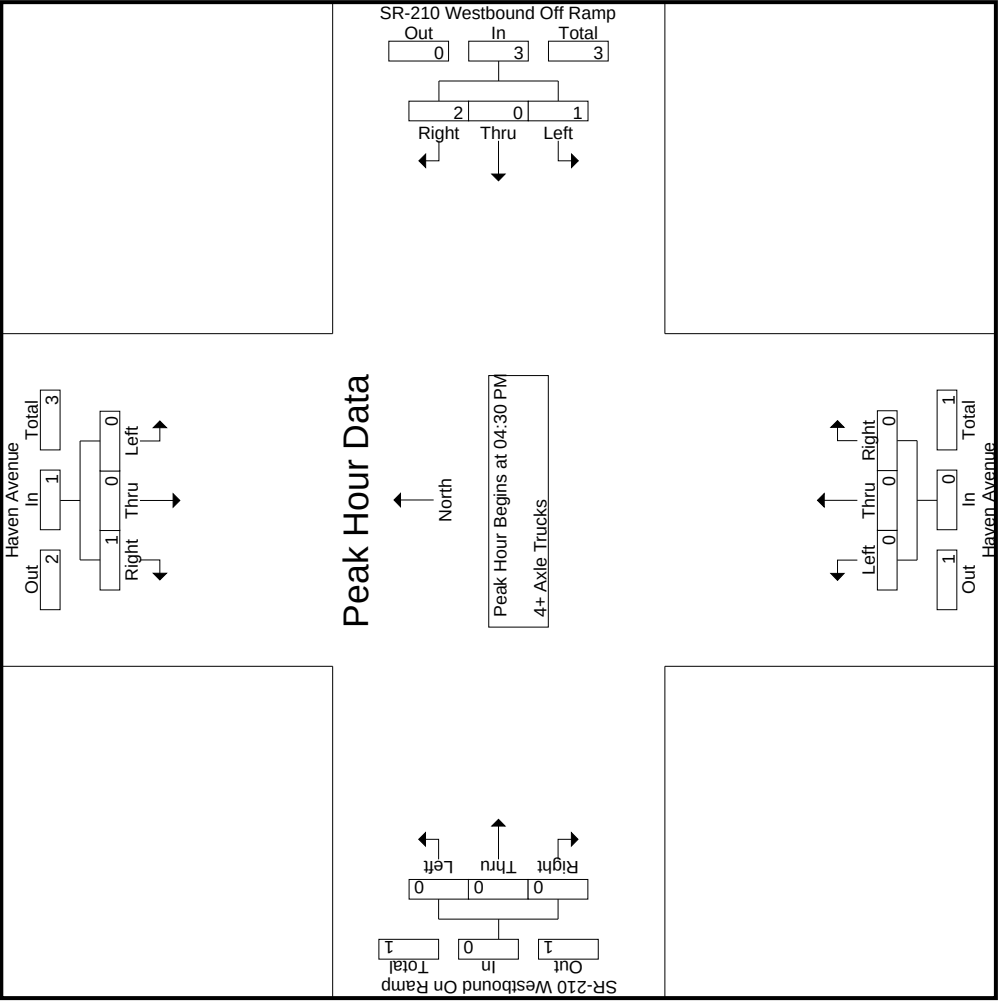
Start Time	Haven Avenue Southbound			SR-210 Westbound Off Ramp Westbound			Haven Avenue Northbound			SR-210 Westbound On Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
	04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	1		0	0	0		0	0	0	
+15 mins.	0	0	0		0	0	0		0	0	0	
+30 mins.	0	0	0		0	0	0		0	0	0	
+45 mins.	0	0	0		0	0	0		0	0	0	
Total Volume	0	0	1		0	0	0		0	0	0	
% App. Total	0	0	100		0	0	0		0	0	0	
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp				
						Westbound					Eastbound									
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
04:00 PM	0	1	1	1	2	0	0	0	0	0	2	0	0	0	0	1	4	5		
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1		
04:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1		
04:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1		
Total	0	1	1	1	2	0	0	2	0	2	3	0	0	0	0	1	7	8		
05:00 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2		
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	2		
05:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1		
Total	0	0	2	0	2	1	0	0	0	1	2	0	0	0	2	0	5	5		
Grand Total	0	1	3	1	4	1	0	2	0	3	5	0	0	0	5	1	12	13		
% Approach	0	25	75		33.3	33.3	0	66.7		25	100	0	0		41.7	7.7	92.3			
Total %	0	8.3	25		33.3	8.3	0	16.7		25	41.7	0	0		41.7	0	92.3	0		

	Haven Avenue Southbound					SR-210 Westbound Off Ramp					Haven Avenue Northbound					SR-210 Westbound On Ramp					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0		0	0	0	1		0	0	0	0		0	0	0	0		1
04:45 PM	0	0	0	0		0	0	0	1		0	0	0	0		0	0	0	0		1
05:00 PM	0	0	1	1		1	0	0	1		0	0	0	0		0	0	0	0		2
05:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total Volume	0	0	1	1		1	0	2	3		0	0	0	0		0	0	0	0		4
% App. Total	0	0	100			33.3	0	66.7			0	0	0	0		0	0	0	0		
PHF	.000	.000	.250	.250		.250	.000	.500	.750		.000	.000	.000	.000		.000	.000	.000	.000		.500

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM



Start Time	Haven Avenue Southbound			SR-210 Westbound Off Ramp Westbound			Haven Avenue Northbound			SR-210 Westbound On Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	04:30 PM	0	0	1	04:30 PM	0	0	0
+15 mins.	0	0	0	0	0	0	1	1	0	0	0	0
+30 mins.	0	0	1	1	1	0	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	1	0	2	3	0	0	0	0
% App. Total	0	0	100		33.3	0	66.7		0	0	0	
PHF	.000	.000	.250	.250	.250	.000	.500	.750	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: SR-210 Westbound Ramps



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Haven Avenue	East Leg SR-210 Westbound Ramps	South Leg Haven Avenue	West Leg SR-210 Westbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	3	0	1	4
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	1	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	2	5

	North Leg Haven Avenue	East Leg SR-210 Westbound Ramps	South Leg Haven Avenue	West Leg SR-210 Westbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	1	1
4:45 PM	0	2	0	0	2
5:00 PM	0	1	0	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	2	3
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	4	0	3	7

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: SR-210 Westbound Ramps



Date: 6/2/2021
 Day: Wednesday

BICYCLES

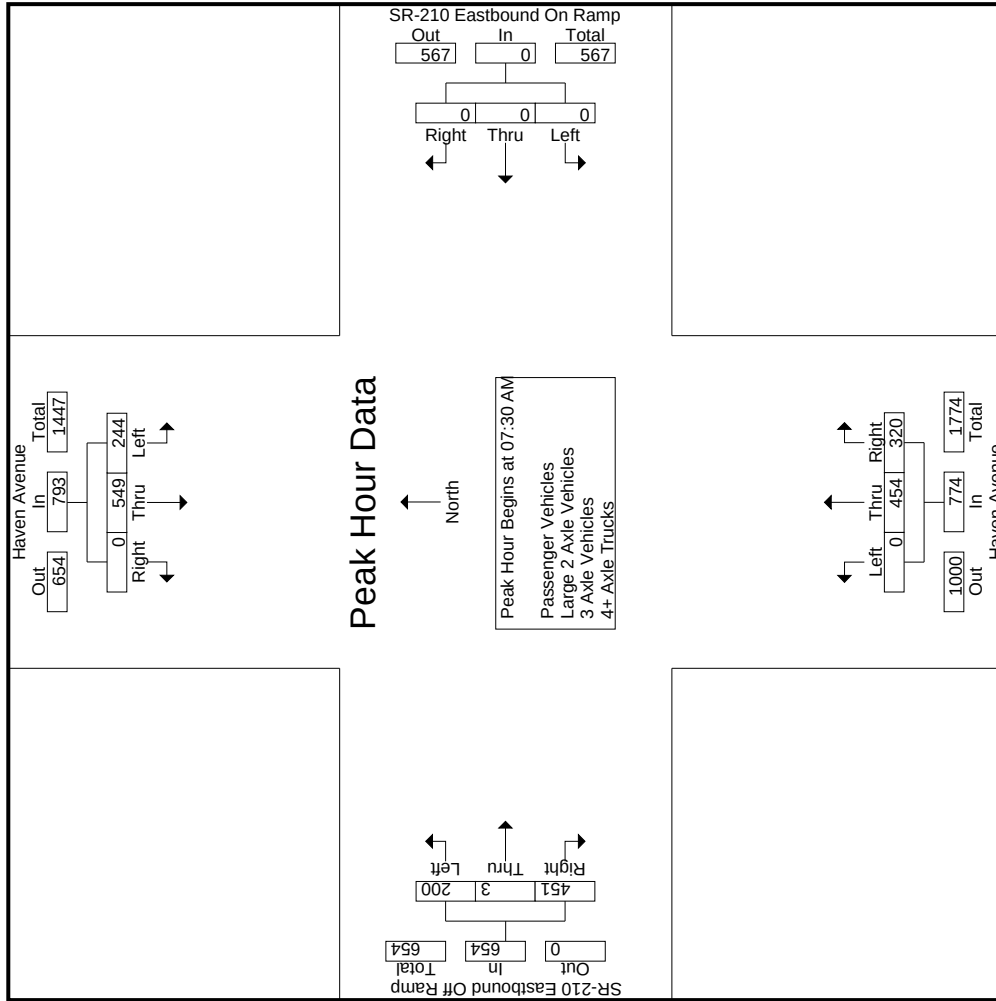
		Southbound Haven Avenue			Westbound SR-210 Westbound Ramps			Northbound Haven Avenue			Eastbound SR-210 Westbound Ramps			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

		Southbound Haven Avenue			Westbound SR-210 Westbound Ramps			Northbound Haven Avenue			Eastbound SR-210 Westbound Ramps			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
	5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:		0	1	0	0	0	0	0	3	0	1	0	0	5

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

		Haven Avenue Southbound						SR-210 Eastbound On Ramp Westbound						Haven Avenue Northbound						SR-210 Eastbound Off Ramp Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
07:00 AM	61	117	0	0	178	0	0	0	0	0	0	99	75	9	174	17	0	63	53	80	62	432	494		
07:15 AM	57	86	0	0	143	0	0	0	0	0	0	97	83	16	180	33	0	70	50	103	66	426	492		
07:30 AM	55	126	0	0	181	0	0	0	0	0	0	106	91	7	197	44	0	81	63	125	70	503	573		
07:45 AM	72	141	0	0	213	0	0	0	0	0	0	116	97	14	213	50	0	117	82	167	96	593	689		
Total	245	470	0	0	715	0	0	0	0	0	0	418	346	46	764	144	0	331	248	475	294	1954	2248		
08:00 AM	67	150	0	0	217	0	0	0	0	0	0	110	69	14	179	53	1	104	68	158	82	554	636		
08:15 AM	50	132	0	0	182	0	0	0	0	0	0	122	63	11	185	53	2	149	88	204	99	571	670		
08:30 AM	59	133	0	0	192	0	0	0	0	0	0	97	45	8	142	33	0	129	109	162	117	496	613		
08:45 AM	82	163	0	0	245	0	0	0	0	0	0	105	67	9	172	39	0	114	93	153	102	570	672		
Total	258	578	0	0	836	0	0	0	0	0	0	434	244	42	678	178	3	496	358	677	400	2191	2591		
Grand Total	503	1048	0	0	1551	0	0	0	0	0	0	852	590	88	1442	322	3	827	606	1152	694	4145	4839		
Approach %	32.4	67.6	0			0	0	0				59.1	40.9			28	0.3	71.8							
Total %	12.1	25.3	0		37.4	0	0	0				20.6	14.2		34.8	7.8	0.1	20		27.8	14.3	85.7			
Passenger Vehicles	489	1031	0	0	1520	0	0	0	0	0	0	823	575	96.6	1483	307	2	801	97.9	1703	0	0	4706		
% Passenger Vehicles	97.2	98.4	0	0	98	0	0	0	0	0	0	96.6	97.5	96.6	96.9	95.3	66.7	96.9	97.9	96.9	0	0	97.3		
Large 2 Axle Vehicles	9	13	0	0	22	0	0	0	0	0	0	21	9	31	31	12	1	12	32	0	0	0	85		
% Large 2 Axle Vehicles	1.8	1.2	0	0	1.4	0	0	0	0	0	0	2.5	1.5	1.1	2	3.7	33.3	1.5	1.2	1.8	0	0	1.8		
3 Axle Vehicles	1	1	0	0	2	0	0	0	0	0	0	5	2	7	7	0	0	6	11	0	0	0	20		
% 3 Axle Vehicles	0.2	0.1	0	0	0.1	0	0	0	0	0	0	0.6	0.3	0	0.5	0	0	0.7	0.8	0.6	0	0	0.4		
4+ Axle Trucks	4	3	0	0	7	0	0	0	0	0	0	3	4	9	9	3	0	8	12	0	0	0	28		
% 4+ Axle Trucks	0.8	0.3	0	0	0.5	0	0	0	0	0	0	0.4	0.7	2.3	0.6	0.9	0	1	0.2	0.7	0	0	0.6		

	Haven Avenue Southbound						SR-210 Eastbound On Ramp						Haven Avenue Northbound						SR-210 Eastbound Off Ramp					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:30 AM																								
07:30 AM	55	126	0	181	0	0	0	0	0	106	91	197	44	0	81	125					503			
07:45 AM	72	141	0	213	0	0	0	0	0	116	97	213	50	0	117	167					593			
08:00 AM	67	150	0	217	0	0	0	0	0	110	69	179	53	1	104	158					554			
08:15 AM	50	132	0	182	0	0	0	0	0	122	63	185	53	2	149	204					571			
Total Volume	244	549	0	793	0	0	0	0	0	454	320	774	200	3	451	654					2221			
% App. Total	30.8	69.2	0		0	0	0	0	0	58.7	41.3		30.6	0.5	69									
PHF	.847	.915	.000	.914	.000	.000	.000	.000	.000	.930	.825	.908	.943	.375	.757	.801					.936			



File Name : 08_RNC_Haven_210E AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

File Name : 08_RNC_Haven_210E AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

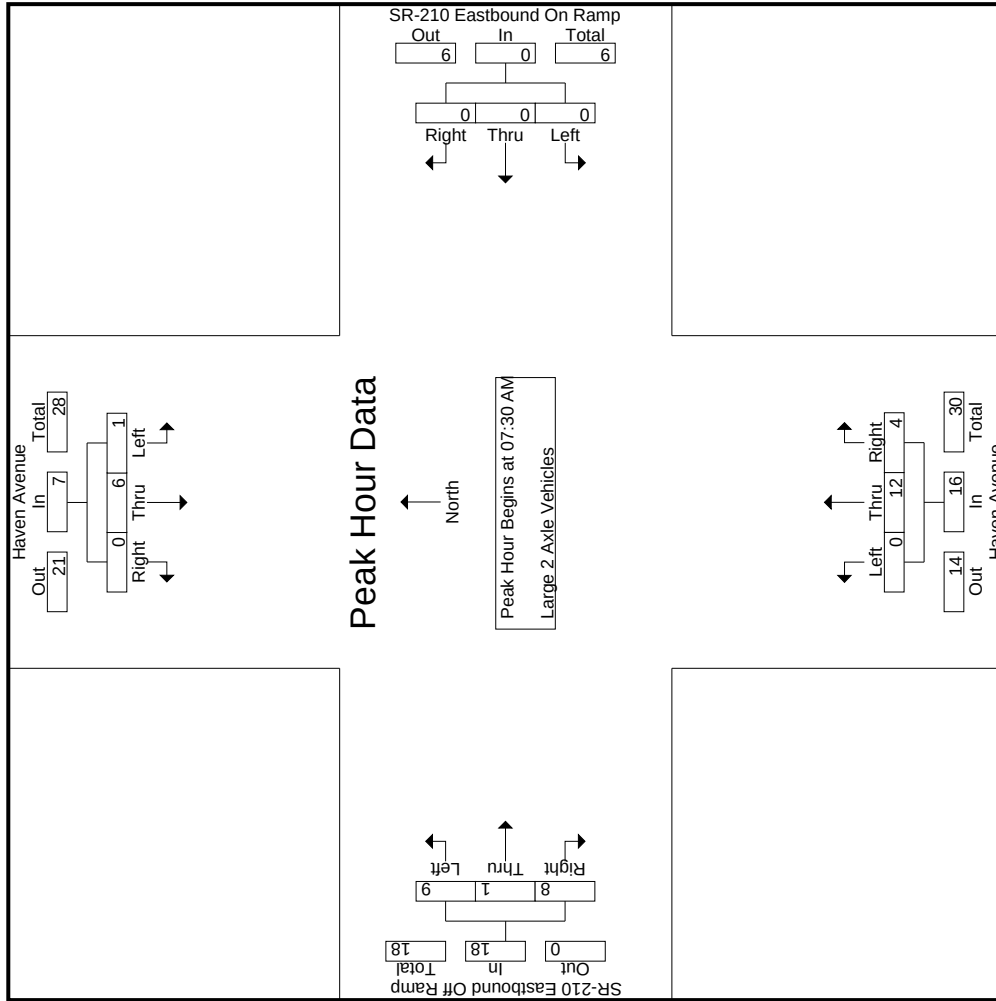
Start Time	Haven Avenue Southbound				SR-210 Eastbound On Ramp Westbound				Haven Avenue Northbound				SR-210 Eastbound Off Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins. Total Volume % App. Total PHE	08:00 AM				07:00 AM				07:30 AM				07:45 AM			
	67	150	0	217	0	0	0	0	106	91	0	197	50	0	117	167
	50	132	0	182	0	0	0	0	116	97	0	213	53	1	104	158
	59	133	0	192	0	0	0	0	110	69	0	179	53	2	149	204
	82	163	0	245	0	0	0	0	122	63	0	185	33	0	129	162
				258	578	0	836	0	0	0	0	454	320	3	499	691
				30.9	69.1	0		0	0	0	0	58.7	41.3	27.4	0.4	72.2
				.787	.887	.000	.853	.000	.000	.000	.000	.908	.892	.375	.837	.847

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
Start Time																				
07:00 AM	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	1	0	2	3	9
07:15 AM	1	3	0	0	4	0	0	0	0	0	0	5	2	0	5	0	2	1	2	12
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	1	0	2	3	10
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	0	1	0	6
Total	3	4	0	0	7	0	0	0	0	0	0	10	3	1	13	4	0	7	5	37
08:00 AM	0	2	0	0	2	0	0	0	0	0	0	4	1	0	5	2	1	1	0	11
08:15 AM	1	4	0	0	5	0	0	0	0	0	0	2	2	0	4	4	0	4	2	17
08:30 AM	2	1	0	0	3	0	0	0	0	0	0	4	0	0	4	1	0	0	0	8
08:45 AM	3	2	0	0	5	0	0	0	0	0	0	1	3	0	4	1	0	0	0	10
Total	6	9	0	0	15	0	0	0	0	0	0	11	6	0	17	8	1	5	2	48
Grand Total	9	13	0	0	22	0	0	0	0	0	0	21	9	1	30	12	1	12	7	85
% Approach	40.9	59.1	0	0		0	0	0	0		0	70	30			48	4	48		
Total %	11.7	16.9	0	0	28.6	0	0	0	0	0	0	27.3	11.7		39	15.6	1.3	15.6		32.5

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0		0	0	0	0		0	5	0	5		1	0	2	3		8
07:45 AM	0	0	0	0		0	0	0	0		0	1	1	2		2	0	1	3		5
08:00 AM	0	2	0	2		0	0	0	0		0	4	1	5		2	1	1	4		11
08:15 AM	1	4	0	5		0	0	0	0		0	2	2	4		4	0	4	8		17
Total Volume	1	6	0	7		0	0	0	0		0	12	4	16		9	1	8	18		41
% App. Total	14.3	85.7	0			0	0	0			0	75	25			50	5.6	44.4			
PHF	.250	.375	.000	.350		.000	.000	.000	.000		.000	.600	.500	.800		.563	.250	.500	.563		.603

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Eastbound Ramps
Weather: Clear

File Name : 08_RNC_Haven_210E AM
Site Code : 05I21260
Start Date : 6/2/2021
Page No : 3

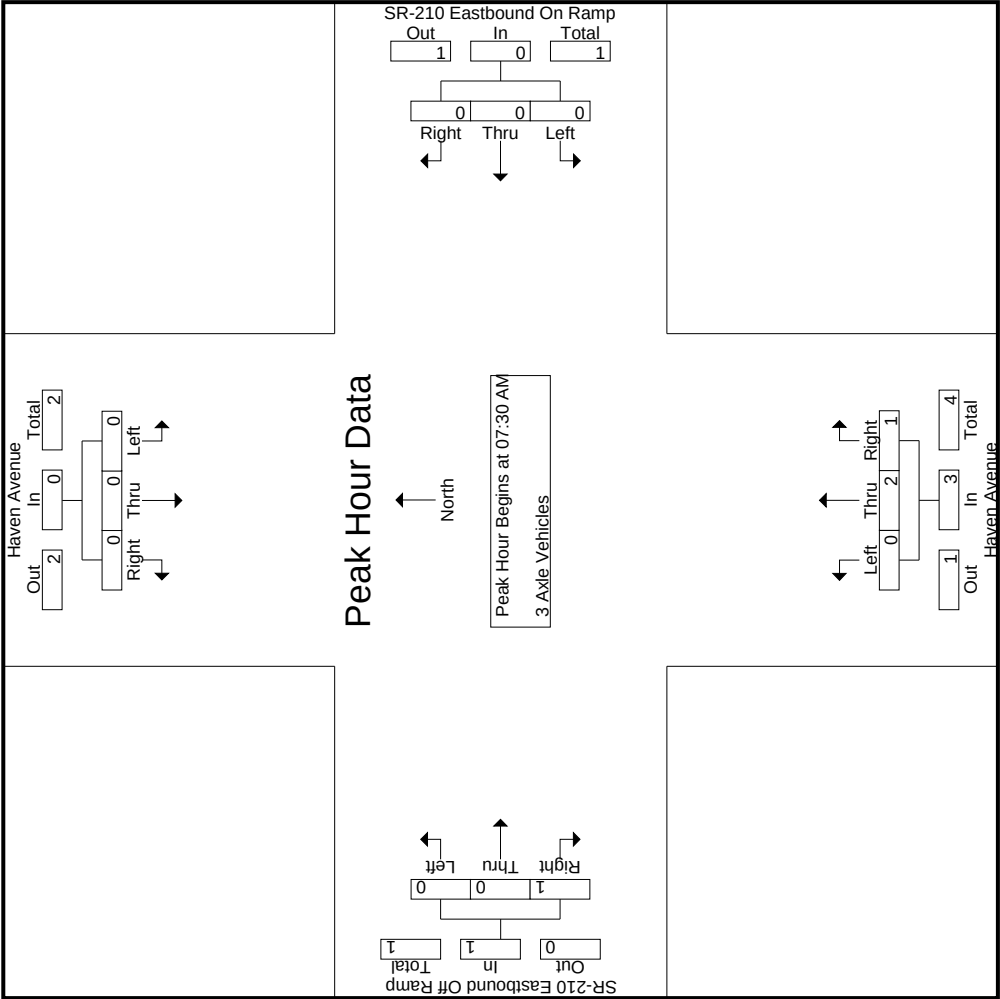
Start Time	Haven Avenue Southbound			SR-210 Eastbound On Ramp Westbound			Haven Avenue Northbound			SR-210 Eastbound Off Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	07:30 AM			0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	2	0	2	0	0	0	0	0	0	1	1
+45 mins.	1	4	0	5	0	0	0	0	0	0	4	4
Total Volume	1	6	0	7	0	0	0	0	0	9	1	8
% App. Total	14.3	85.7	0		0	0	0		0	50	5.6	44.4
PHF	.250	.375	.000	.350	.000	.000	.000	.000	.000	.563	.250	.500
								.800				.563

Groups Printed- 3 Axle Vehicles

Start Time	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	3	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	2	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	1	1	1	1	3	4
08:45 AM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	3	2	3	2	6	8
Total	1	0	0	0	1	0	0	0	0	0	0	4	2	0	6	0	0	5	4	5	4	12	16
Grand Total	1	1	0	0	2	0	0	0	0	0	0	5	2	0	7	0	0	6	5	6	5	15	20
% Apprch %	50	50	0	0	13.3	0	0	0	0	0	0	71.4	28.6	0	46.7	0	0	100	40	40	25	75	
Total %	6.7	6.7	0	0		0	0	0	0	0	0	33.3	13.3			0	0	40					

Start Time	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound					App. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total		
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	1	1	1	4
% App. Total	0	0	0	0	0	0	0	0	0	0	66.7	33.3				0	0	100				
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.250	.750	.000	.000	.250	.250	.250	.250	.500

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Eastbound Ramps
Weather: Clear

File Name : 08_RNC_Haven_210E AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

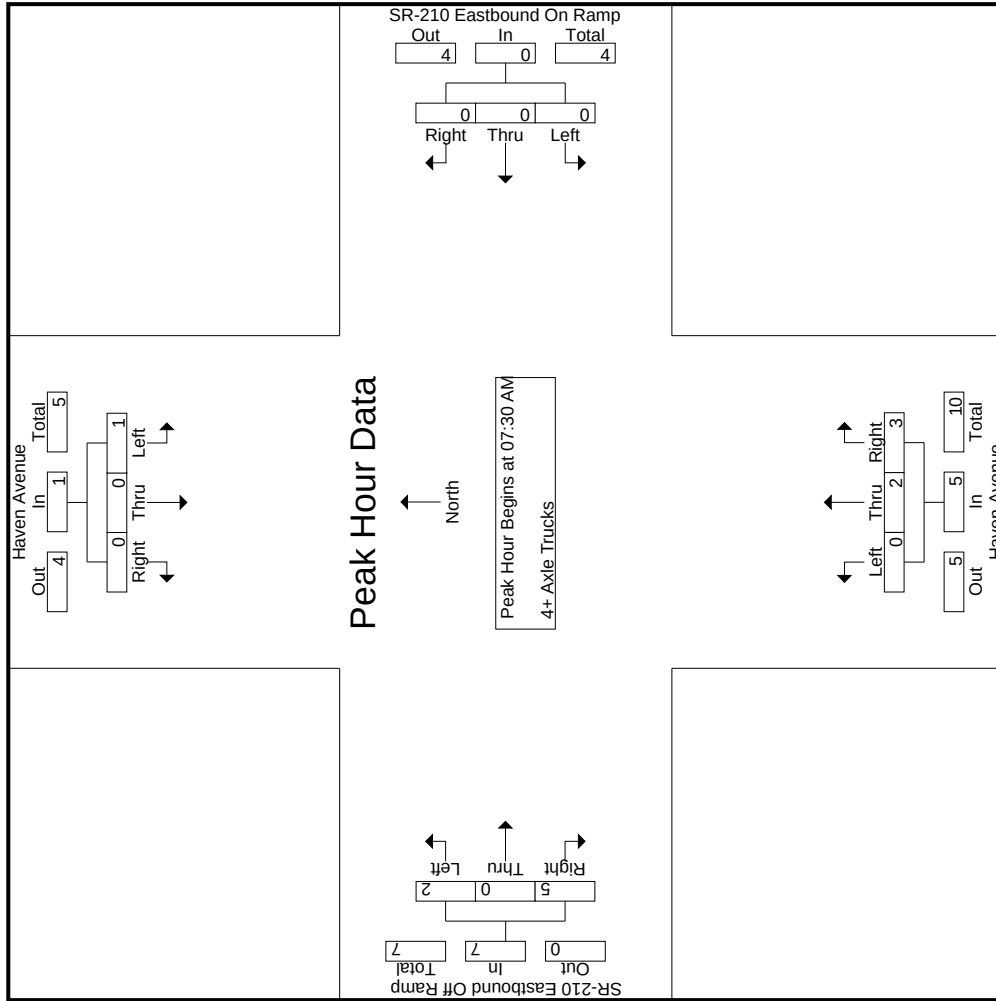
Start Time	Haven Avenue Southbound			SR-210 Eastbound On Ramp Westbound			Haven Avenue Northbound			SR-210 Eastbound Off Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	07:30 AM	0	0	0	0	07:30 AM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0	0	66.7	33.3	1	0	0	100	1
PHF	.000	.000	.000	.000	.000	.000	.250	.750	.000	.000	.250	.250

Groups Printed- 4+ Axle Trucks

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total		
07:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2	2		
07:15 AM	1	1	0	0	2	0	0	0	0	0	0	0	2	0	2	0	4	4		
07:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	3		
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2		
Total	2	2	0	0	4	0	0	0	0	0	3	1	0	3	0	4	11	11		
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	3	4		
08:15 AM	0	0	0	0	0	0	0	0	1	1	1	0	0	4	0	4	1	5		
08:30 AM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3	3		
08:45 AM	1	0	0	0	1	0	0	0	1	1	1	1	0	0	1	1	3	4		
Total	2	1	0	0	3	0	0	0	2	2	4	2	0	5	1	7	14	17		
Grand Total	4	3	0	0	7	0	0	0	0	0	7	3	0	8	1	11	3	25		
% Approach	57.1	42.9	0	0	0	0	0	0	0	0	27.3	0	72.7	0	44	10.7	89.3	28		
Total %	16	12	0	0	28	0	0	0	16	16	28	12	0	32	0	44	10.7	89.3		

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	0	0	1		0	0	0	0		0	0	2	2		0	0	0	0		3
07:45 AM	0	0	0	0		0	0	0	0		0	1	0	1		1	0	0	1		2
08:00 AM	0	0	0	0		0	0	0	0		0	1	0	1		1	0	1	2		3
08:15 AM	0	0	0	0		0	0	0	0		0	0	1	1		0	0	4	4		5
Total Volume	1	0	0	1		0	0	0	0		0	2	3	5		2	0	5	7		13
% App. Total	100	0	0	0		0	0	0	0		0	40	60		28.6	0	71.4				
PHF	.250	.000	.000	.250		.000	.000	.000	.000		.000	.500	.375	.625		.500	.000	.313	.438		.650

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Eastbound Ramps
Weather: Clear

File Name : 08_RNC_Haven_210E AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

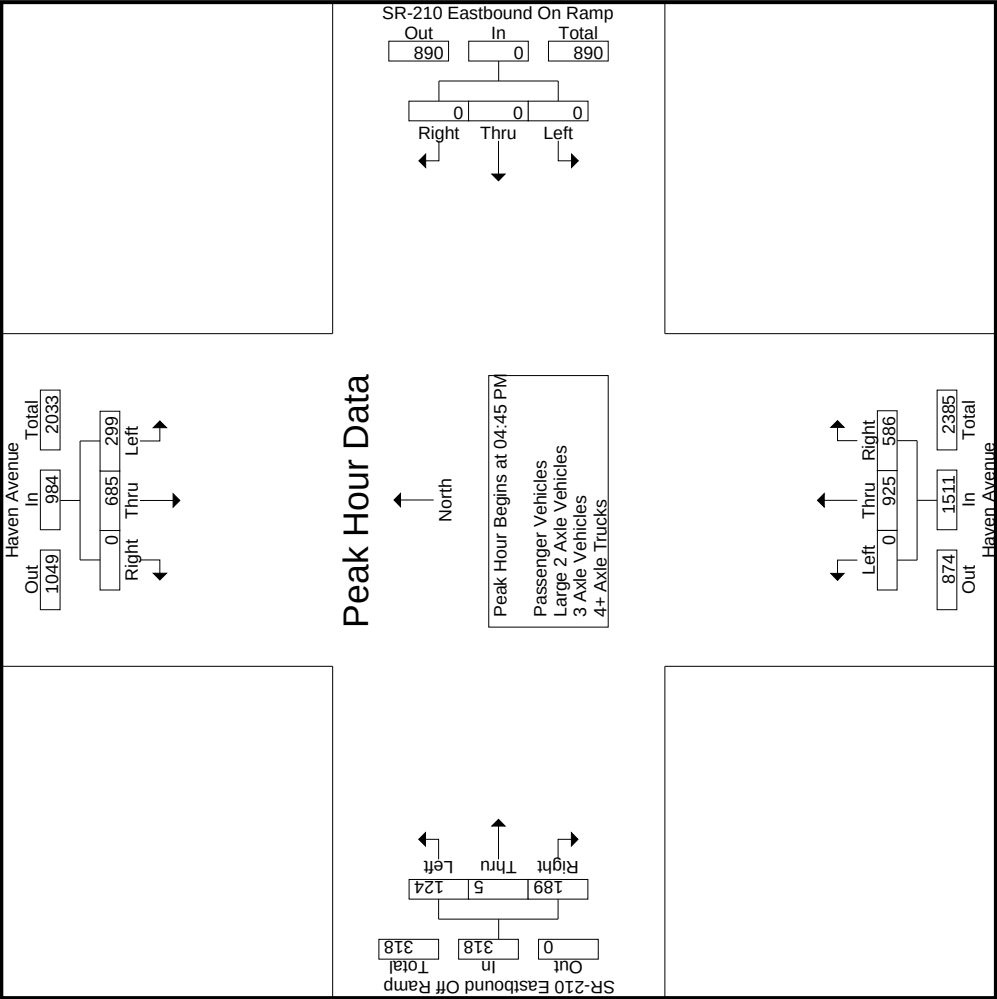
Start Time	Haven Avenue Southbound			SR-210 Eastbound On Ramp Westbound			Haven Avenue Northbound			SR-210 Eastbound Off Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	1	0	0	1	07:30 AM	0	0	0	0	07:30 AM	0	0
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	1
+45 mins.	0	0	0	0	0	0	0	0	1	0	0	1
Total Volume	1	0	0	1	0	0	0	0	2	0	0	2
% App. Total	100	0	0	100	0	0	0	0	40	0	0	40
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.500	.000	.313	.438

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Haven Avenue Southbound					SR-210 Eastbound On Ramp					Haven Avenue Northbound					SR-210 Eastbound Off Ramp					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	68	154	0	0	222	0	0	0	0	0	0	176	128	40	304	35	0	46	33	81	73	607	680
04:15 PM	84	165	0	0	249	0	0	0	0	0	0	207	118	34	325	32	0	48	34	80	68	654	722
04:30 PM	79	182	0	0	261	0	0	0	0	0	0	181	131	43	312	44	0	38	30	82	73	655	728
04:45 PM	78	186	0	0	264	0	0	0	0	0	0	225	156	44	381	29	0	45	38	74	82	719	801
Total	309	687	0	0	996	0	0	0	0	0	0	789	533	161	1322	140	0	177	135	317	296	2635	2931
05:00 PM	76	167	0	0	243	0	0	0	0	0	0	213	143	47	356	35	1	45	33	81	80	680	760
05:15 PM	75	170	0	0	245	0	0	0	0	0	0	272	153	27	425	27	1	52	40	80	67	750	817
05:30 PM	70	162	0	0	232	0	0	0	0	0	0	215	134	52	349	33	3	47	32	83	84	664	748
05:45 PM	66	176	0	0	242	0	0	0	0	0	0	210	115	34	325	33	1	55	46	89	80	656	736
Total	287	675	0	0	962	0	0	0	0	0	0	910	545	160	1455	128	6	199	151	333	311	2750	3061
Grand Total	596	1362	0	0	1958	0	0	0	0	0	0	1699	1078	321	2777	268	6	376	286	650	607	5385	5992
% Approach %	30.4	69.6	0			0	0	0			41.2	0.9	57.8			5	0.1	7		12.1	10.1	89.9	
% Total %	11.1	25.3	0		36.4	0	0	0			0	31.6	20		51.6	266	6	363		912	0	0	5909
Passenger Vehicles	586	1344	0		1930	0	0	0			0	1683	1065		3067	99.3	100	96.5	96.9	97.4	0	0	98.6
% Passenger Vehicles	98.3	98.7	0	0	98.6	0	0	0	0	0	0	99.1	98.8	99.4	99	2	0	3		8	0	0	55
Large 2 Axle Vehicles	9	15	0	0	24	0	0	0	0	0	0	12	9		23	0.7	0	0.8	1	0.9	0	0	0.9
% Large 2 Axle Vehicles	1.5	1.1	0	0	1.2	0	0	0	0	0	0	0.7	0.8	0.6	0.7	0.7	0	0			0	0	
3 Axle Vehicles	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	1	2	0	0	3	0	0	0	0	0	0	4	4		8	0	0	10		16	0	0	27
% 4+ Axle Trucks	0.2	0.1	0	0	0.2	0	0	0	0	0	0	0.2	0.4	0	0.3	0	0	2.7	2.1	1.7	0	0	0.5

Start Time	Haven Avenue Southbound					SR-210 Eastbound On Ramp					Haven Avenue Northbound					SR-210 Eastbound Off Ramp					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:45 PM	78	186	0		264	0	0	0		0	0	225	156		381	29	0	45		74			719
05:00 PM	76	167	0		243	0	0	0		0	0	213	143		356	35	1	45		81			680
05:15 PM	75	170	0		245	0	0	0		0	0	272	153		425	27	1	52		80			750
05:30 PM	70	162	0		232	0	0	0		0	0	215	134		349	33	3	47		83			664
Total Volume	299	685	0		984	0	0	0		0	0	925	586		1511	124	5	189		318			2813
% App. Total	30.4	69.6	0			0	0	0		0	0	61.2	38.8		.889	39	1.6	59.4		.958			.938
PHF	.958	.921	.000		.932	.000	.000	.000		.000	.000	.850	.939		.889	.886	.417	.909		.958			

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM



File Name : 08_RNC_Haven_210E PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

File Name : 08_RNC_Haven_210E PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

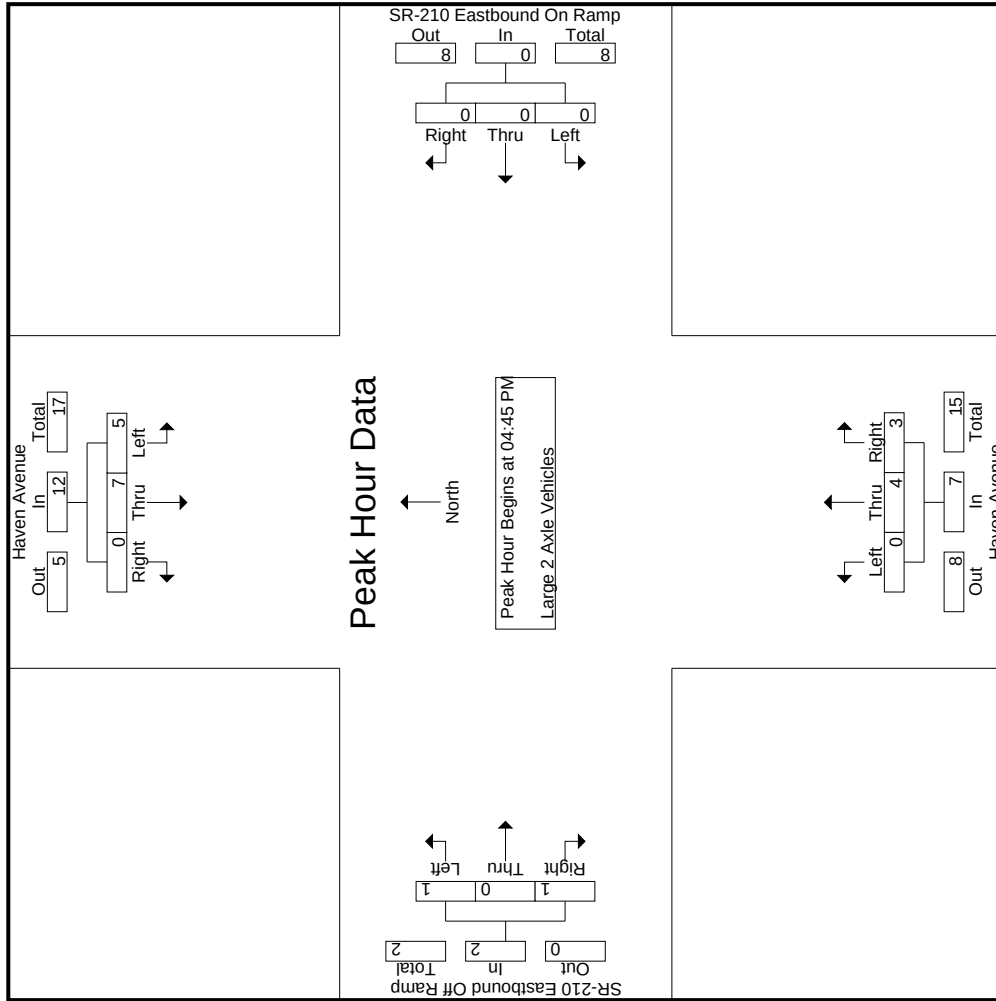
G-261

Groups Printed- Large 2 Axle Vehicles

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
04:00 PM	0	2	0	0	2	0	0	0	0	0	0	1	2	0	3	0	0	0	1	1	1	1	6	7
04:15 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
04:30 PM	1	1	0	0	2	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	0	7	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	3	3	
Total	2	5	0	0	7	0	0	0	0	0	0	7	4	0	11	0	0	0	1	1	1	1	19	20
05:00 PM	1	3	0	0	4	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	6	7
05:15 PM	2	3	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	7	8	
05:30 PM	2	1	0	0	3	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	5	5	
05:45 PM	2	3	0	0	5	0	0	0	0	0	0	3	3	1	6	1	0	1	1	2	2	13	15	
Total	7	10	0	0	17	0	0	0	0	0	0	5	5	2	10	2	0	2	2	4	4	31	35	
Grand Total	9	15	0	0	24	0	0	0	0	0	0	12	9	2	21	2	0	3	3	5	5	50	55	
% Approach	37.5	62.5	0	0		0	0	0	0		0	57.1	42.9			40	0	60		10		9.1	90.9	
Total %	18	30	0	0	48	0	0	0	0	0	0	24	18		42	4	0	6						

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0		0	0	0	0		0	2	1	3		0	0	0	0		3
05:00 PM	1	3	0	4		0	0	0	0		0	0	1	1		1	0	0	0		6
05:15 PM	2	3	0	5		0	0	0	0		0	1	0	1		0	0	1	1		7
05:30 PM	2	1	0	3		0	0	0	0		0	1	1	2		0	0	0	0		5
Total Volume	5	7	0	12		0	0	0	0		0	4	3	7		1	0	1	2		21
% App. Total	41.7	58.3	0			0	0	0			0	57.1	42.9			50	0	50			
PHF	.625	.583	.000	.600		.000	.000	.000	.000		.000	.500	.750	.583		.250	.000	.250	.500		.750

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Eastbound Ramps
Weather: Clear

File Name : 08_RNC_Haven_210E PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

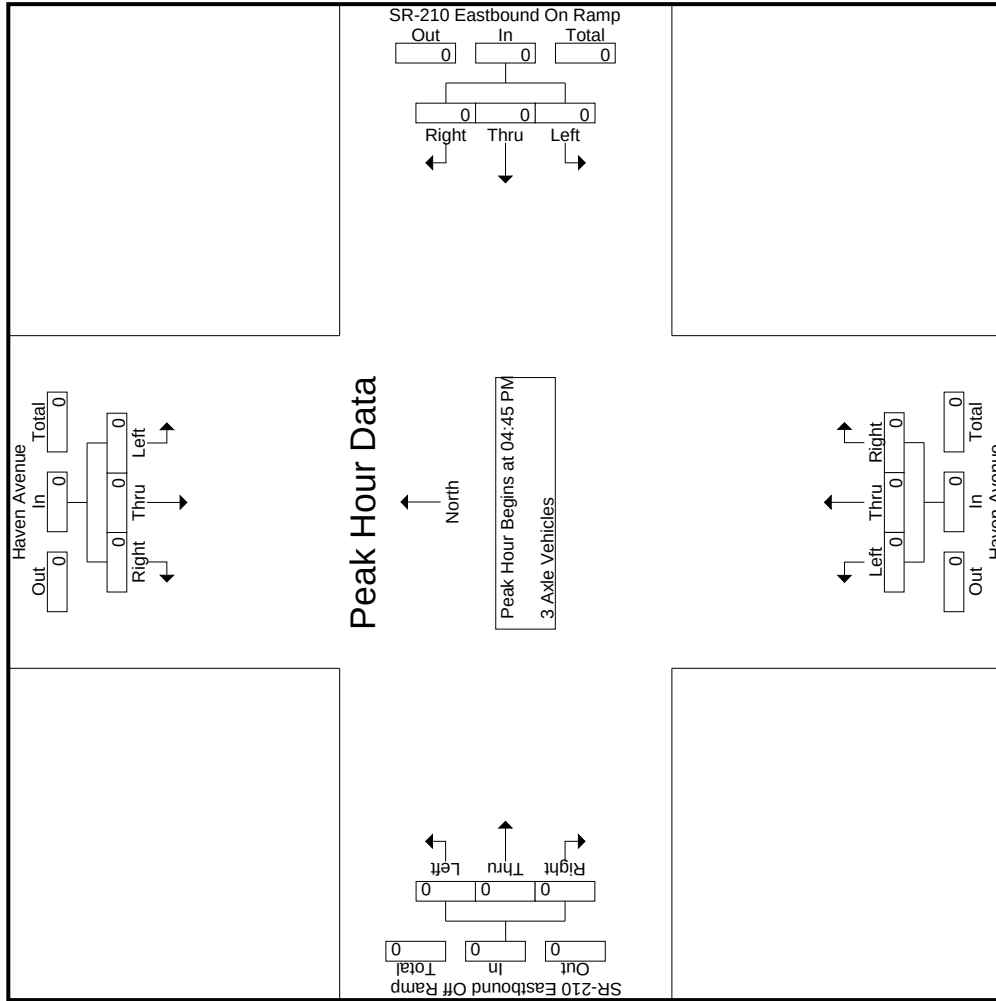
Start Time	Haven Avenue Southbound			SR-210 Eastbound On Ramp Westbound			Haven Avenue Northbound			SR-210 Eastbound Off Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	04:45 PM			0	0	0	0	0
+15 mins.	1	3	0	4	04:45 PM			0	0	0	1	0
+30 mins.	2	3	0	5	04:45 PM			0	0	0	0	1
+45 mins.	2	1	0	3	04:45 PM			0	0	0	0	0
Total Volume	5	7	0	12	04:45 PM			0	0	0	1	0
% App. Total	41.7	58.3	0		04:45 PM			0	57.1	42.9	50	0
PHF	.625	.583	.000	.600	04:45 PM			.000	.500	.750	.250	.500

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Eastbound Ramps
Weather: Clear

G-265

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound								
	Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
	04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total		0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	Approach %	0	100	0			0	0	0			0	0	0			0	0	0					
	Total %	0	100	0		100	0	0	0			0	0	0			0	0	0			0	100	

[illegible]



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

File Name : 08_RNC_Haven_210E PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 3

City of Rancho Cucamonga
N/S: Haven Avenue
E/W: SR-210 Eastbound Ramps
Weather: Clear

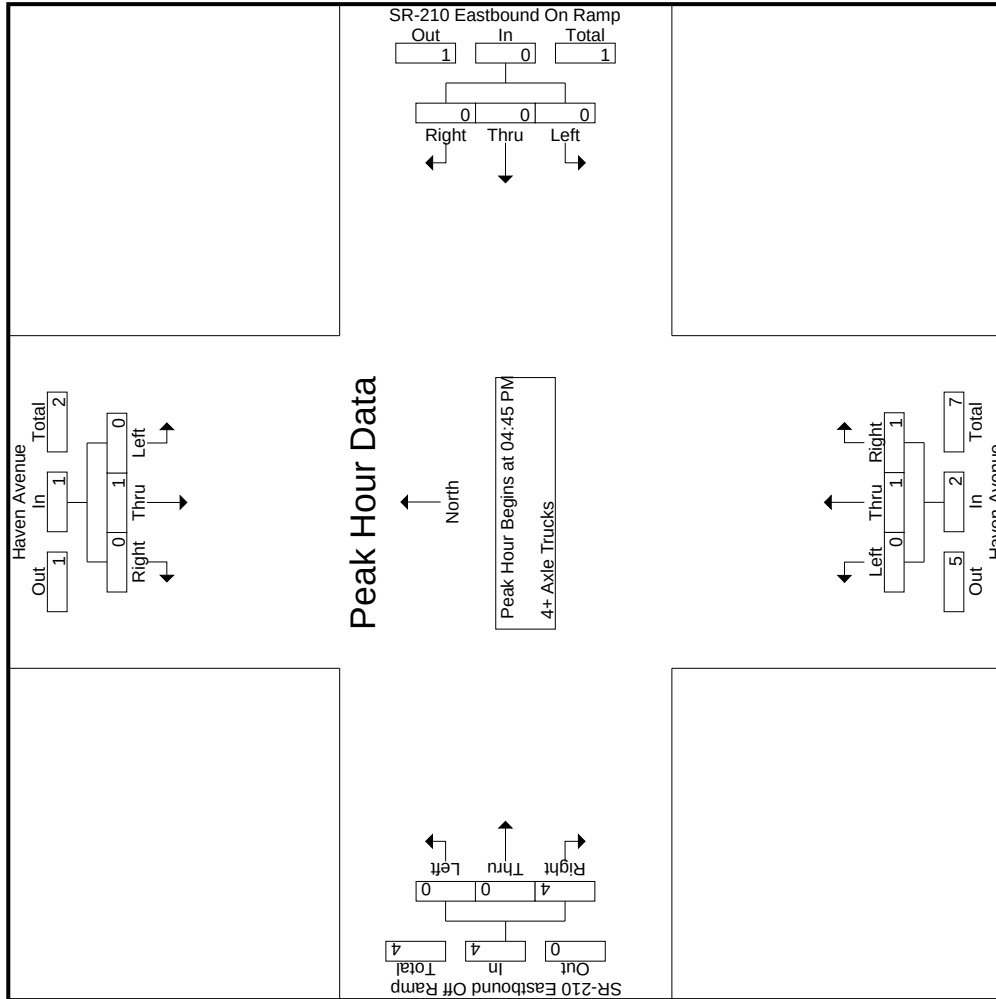
Start Time	Haven Avenue Southbound			SR-210 Eastbound On Ramp Westbound			Haven Avenue Northbound			SR-210 Eastbound Off Ramp Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	0	0	0	0	04:45 PM	0	0	0	0	04:45 PM	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

Start Time	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound							
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	2	0	0	5	5
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	4
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Total	1	1	0	0	2	0	0	0	0	0	0	7	0	0	3	1	3	1	3	1	1	12	13
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1	3	1	4	5
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	2	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	6
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	7	5	7	5	9	14
Grand Total	1	2	0	0	3	0	0	0	0	0	0	8	0	0	10	6	10	6	10	6	6	21	27
% Approach	33.3	66.7	0	0		0	0	0	0		0	50	50		38.1	0	0	100		47.6	22.2	77.8	
Total %	4.8	9.5	0	0	14.3	0	0	0	0	0	0	19	19			0	0	47.6					

	Haven Avenue Southbound					SR-210 Eastbound On Ramp Westbound					Haven Avenue Northbound					SR-210 Eastbound Off Ramp Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0		1
05:00 PM	0	1	0	1		0	0	0	0		0	0	0	0		0	0	3	3		4
05:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
05:30 PM	0	0	0	0		0	0	0	0		0	0	1	0		0	0	1	1		2
Total Volume	0	1	0	1		0	0	0	0		0	0	1	2		0	0	4	4		7
% App. Total	0	100	0			0	0	0			0	50	50			0	0	100			
PHF	.000	.250	.000	.250		.000	.000	.000	.000		.000	.250	.250	.500		.000	.000	.333	.333		.438

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM



Start Time	Haven Avenue Southbound				SR-210 Eastbound On Ramp Westbound				Haven Avenue Northbound				SR-210 Eastbound Off Ramp Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	04:45 PM				04:45 PM				04:45 PM			
+15 mins.	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
+45 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	1	1	1	2	0	0	4	4
% App. Total	0	100	0		0	0	0	0	50	50	50	100	0	0	100	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.250	.250	.250	.500	.000	.000	.333	.333

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: SR-210 Eastbound Ramps



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Haven Avenue	East Leg SR-210 Eastbound Ramps	South Leg Haven Avenue	West Leg SR-210 Eastbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	3	0	1	4
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	1	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	2	5

	North Leg Haven Avenue	East Leg SR-210 Eastbound Ramps	South Leg Haven Avenue	West Leg SR-210 Eastbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	1	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	2	3
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	3	4

Location: Rancho Cucamonga
 N/S: Haven Avenue
 E/W: SR-210 Eastbound Ramps



Date: 6/2/2021
 Day: Wednesday

BICYCLES

	Southbound Haven Avenue			Westbound SR-210 Eastbound Ramps			Northbound Haven Avenue			Eastbound SR-210 Eastbound Ramps			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

	Southbound Haven Avenue			Westbound SR-210 Eastbound Ramps			Northbound Haven Avenue			Eastbound SR-210 Eastbound Ramps			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	1	0	0	0	4	0	0	0	0	5

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

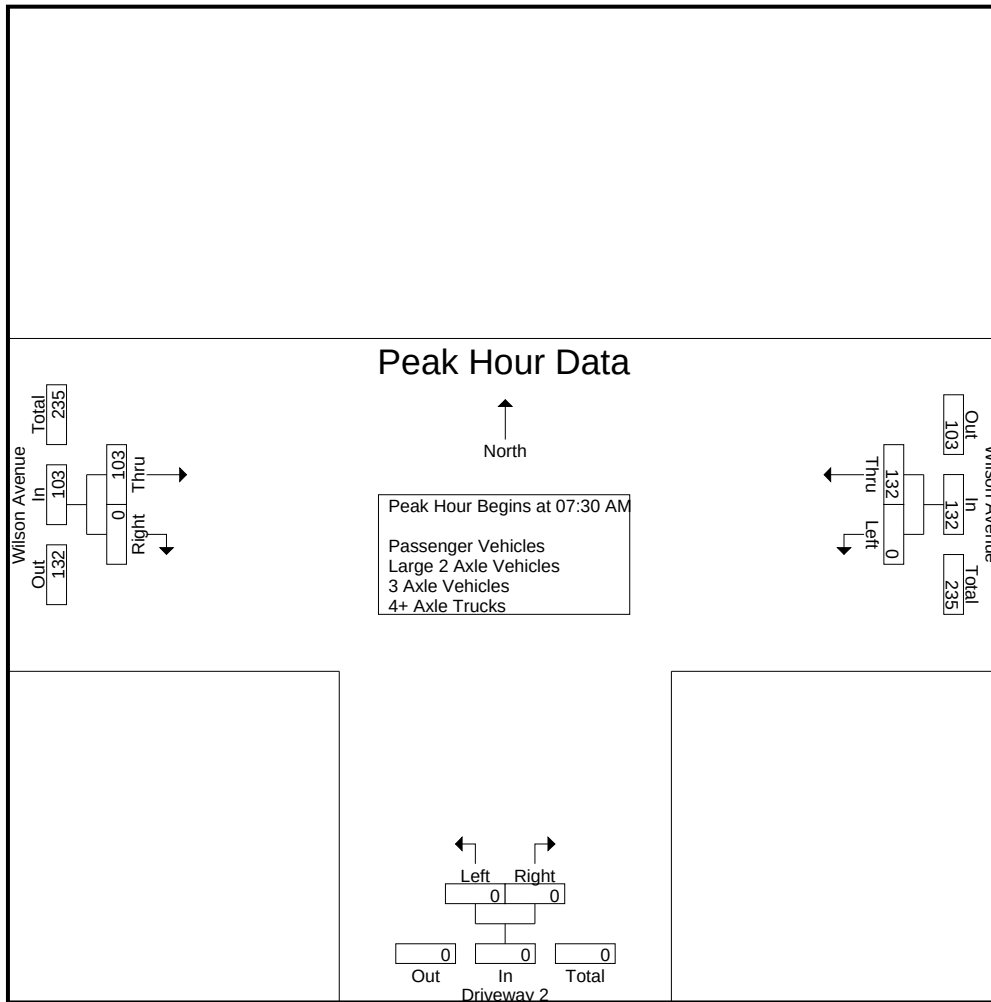
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	18	18	0	0	0	9	0	9	27
07:15 AM	0	21	21	0	0	0	8	0	8	29
07:30 AM	0	30	30	0	0	0	29	0	29	59
07:45 AM	0	40	40	0	0	0	39	0	39	79
Total	0	109	109	0	0	0	85	0	85	194
08:00 AM	0	33	33	0	0	0	20	0	20	53
08:15 AM	0	29	29	0	0	0	15	0	15	44
08:30 AM	0	27	27	0	0	0	16	0	16	43
08:45 AM	0	25	25	0	0	0	17	0	17	42
Total	0	114	114	0	0	0	68	0	68	182
Grand Total	0	223	223	0	0	0	153	0	153	376
Apprch %	0	100		0	0		100	0		
Total %	0	59.3	59.3	0	0	0	40.7	0	40.7	
Passenger Vehicles	0	219	219	0	0	0	148	0	148	367
% Passenger Vehicles	0	98.2	98.2	0	0	0	96.7	0	96.7	97.6
Large 2 Axle Vehicles	0	3	3	0	0	0	3	0	3	6
% Large 2 Axle Vehicles	0	1.3	1.3	0	0	0	2	0	2	1.6
3 Axle Vehicles	0	1	1	0	0	0	2	0	2	3
% 3 Axle Vehicles	0	0.4	0.4	0	0	0	1.3	0	1.3	0.8
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	30	30	0	0	0	29	0	29	59
07:45 AM	0	40	40	0	0	0	39	0	39	79
08:00 AM	0	33	33	0	0	0	20	0	20	53
08:15 AM	0	29	29	0	0	0	15	0	15	44
Total Volume	0	132	132	0	0	0	103	0	103	235
% App. Total	0	100		0	0		100	0		
PHF	.000	.825	.825	.000	.000	.000	.660	.000	.660	.744

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:30 AM		
+0 mins.	0	30	30	0	0	0	29	0	29
+15 mins.	0	40	40	0	0	0	39	0	39
+30 mins.	0	33	33	0	0	0	20	0	20
+45 mins.	0	29	29	0	0	0	15	0	15
Total Volume	0	132	132	0	0	0	103	0	103
% App. Total	0	100		0	0		100	0	
PHF	.000	.825	.825	.000	.000	.000	.660	.000	.660

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

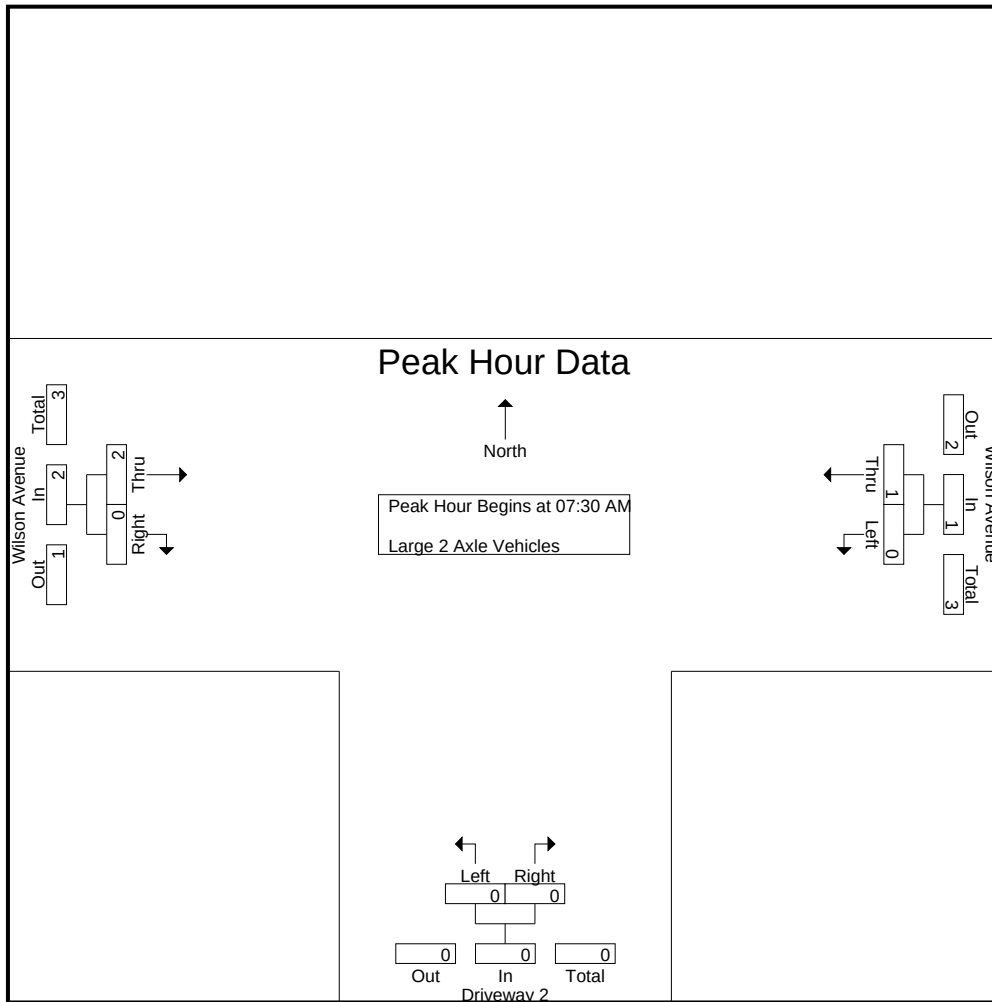
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	1	1	0	0	0	1	0	1	2
08:45 AM	0	1	1	0	0	0	0	0	0	1
Total	0	2	2	0	0	0	2	0	2	4
Grand Total	0	3	3	0	0	0	3	0	3	6
Apprch %	0	100		0	0		100	0		
Total %	0	50	50	0	0	0	50	0	50	

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	1	1	0	0	0	2	0	2	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500	.375

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	1	1	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

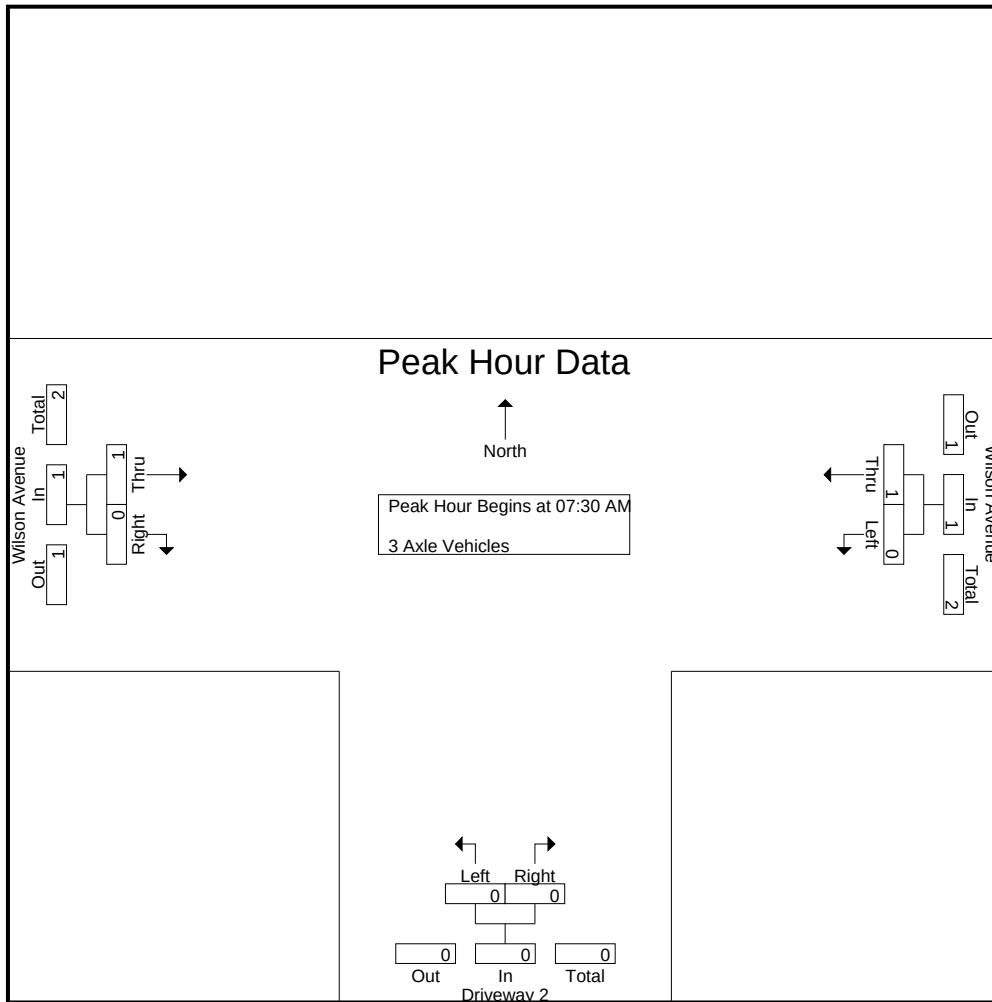
Groups Printed- 3 Axle Vehicles

Start Time	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	1	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
Grand Total	0	1	1	0	0	0	2	0	2	3
Apprch %	0	100		0	0		100	0		
Total %	0	33.3	33.3	0	0	0	66.7	0	66.7	

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	1	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	1	1	0	0	0	1	0	1	2
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.500

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	1	1	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

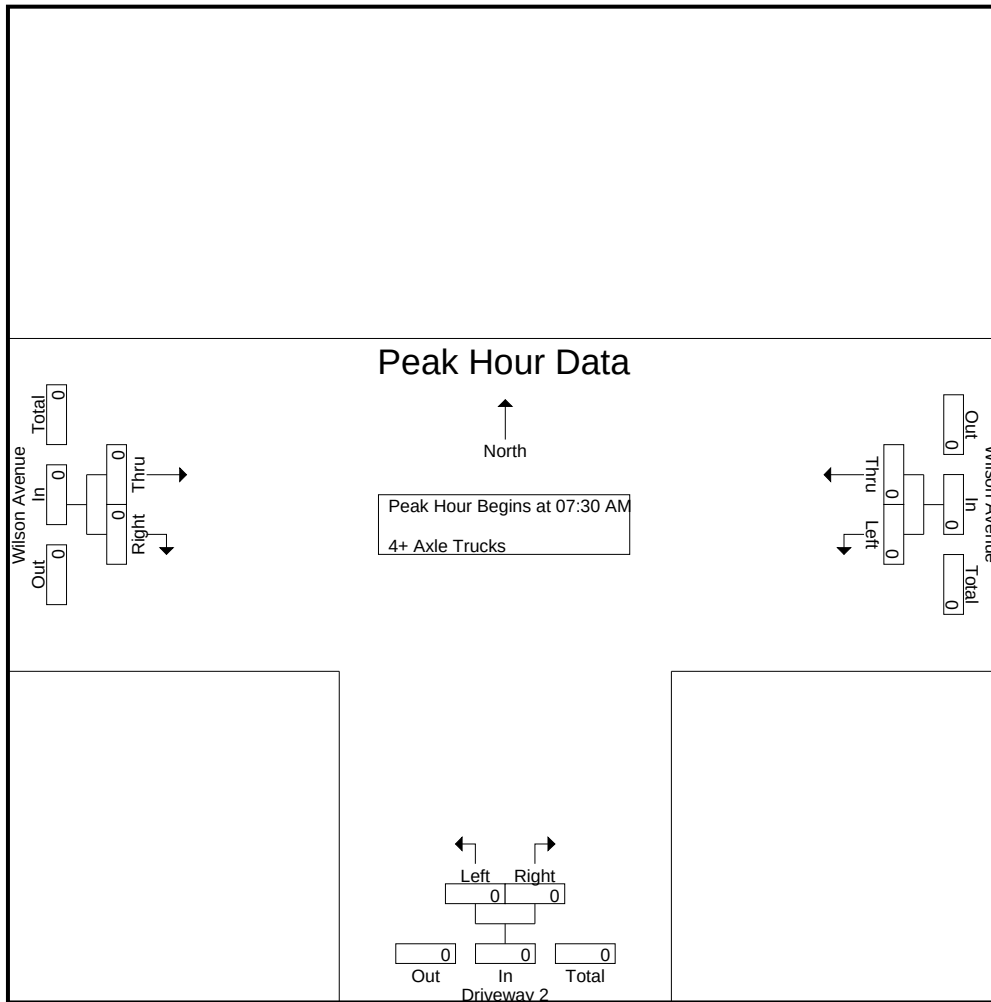
Groups Printed- 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

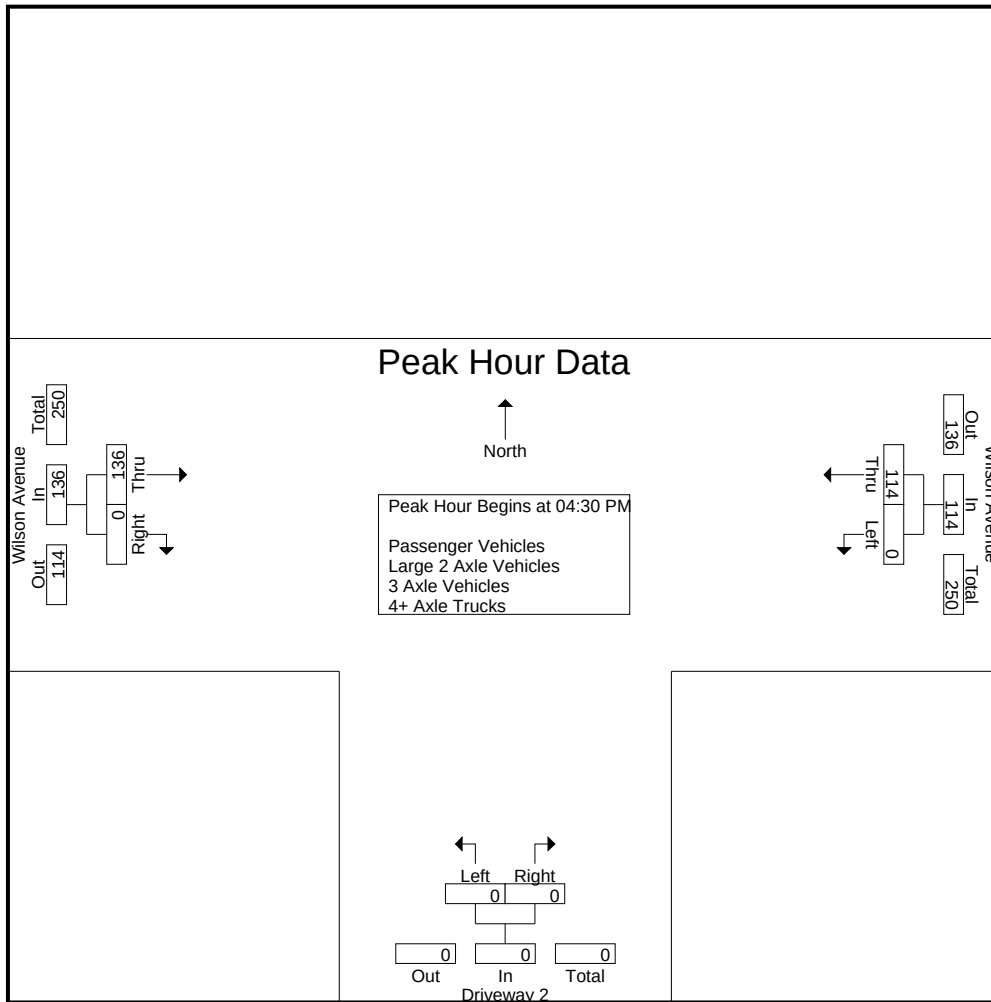
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	25	25	0	0	0	25	0	25	50
04:15 PM	0	29	29	0	0	0	29	0	29	58
04:30 PM	0	29	29	0	0	0	33	0	33	62
04:45 PM	0	23	23	0	0	0	38	0	38	61
Total	0	106	106	0	0	0	125	0	125	231
05:00 PM	0	23	23	0	0	0	28	0	28	51
05:15 PM	0	39	39	0	0	0	37	0	37	76
05:30 PM	0	23	23	0	0	0	29	0	29	52
05:45 PM	0	26	26	0	0	0	39	0	39	65
Total	0	111	111	0	0	0	133	0	133	244
Grand Total	0	217	217	0	0	0	258	0	258	475
Apprch %	0	100		0	0		100	0		
Total %	0	45.7	45.7	0	0	0	54.3	0	54.3	
Passenger Vehicles	0	212	212	0	0	0	252	0	252	464
% Passenger Vehicles	0	97.7	97.7	0	0	0	97.7	0	97.7	97.7
Large 2 Axle Vehicles	0	5	5	0	0	0	4	0	4	9
% Large 2 Axle Vehicles	0	2.3	2.3	0	0	0	1.6	0	1.6	1.9
3 Axle Vehicles	0	0	0	0	0	0	2	0	2	2
% 3 Axle Vehicles	0	0	0	0	0	0	0.8	0	0.8	0.4
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	29	29	0	0	0	33	0	33	62
04:45 PM	0	23	23	0	0	0	38	0	38	61
05:00 PM	0	23	23	0	0	0	28	0	28	51
05:15 PM	0	39	39	0	0	0	37	0	37	76
Total Volume	0	114	114	0	0	0	136	0	136	250
% App. Total	0	100		0	0		100	0		
PHF	.000	.731	.731	.000	.000	.000	.895	.000	.895	.822

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:30 PM		
+0 mins.	0	29	29	0	0	0	33	0	33
+15 mins.	0	23	23	0	0	0	38	0	38
+30 mins.	0	23	23	0	0	0	28	0	28
+45 mins.	0	39	39	0	0	0	37	0	37
Total Volume	0	114	114	0	0	0	136	0	136
% App. Total	0	100		0	0		100	0	
PHF	.000	.731	.731	.000	.000	.000	.895	.000	.895

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

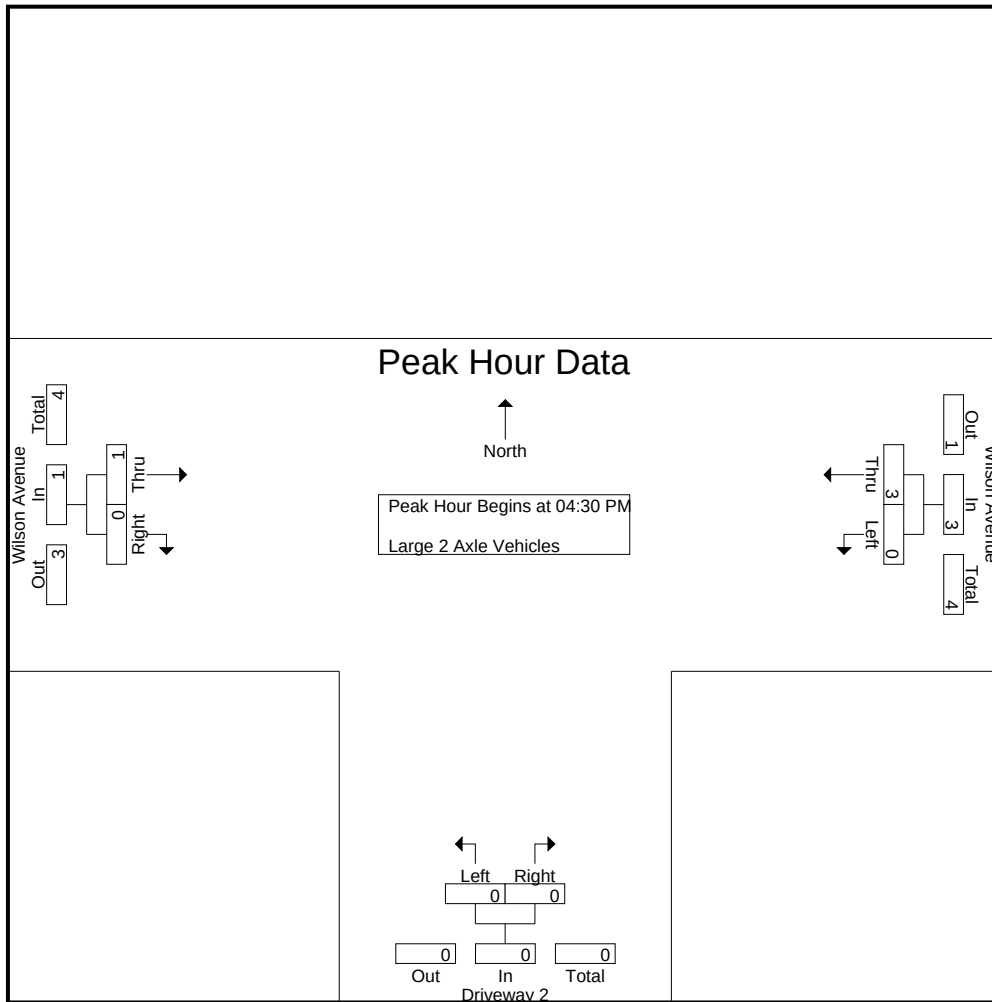
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	1	1	0	0	0	0	0	0	1
04:30 PM	0	1	1	0	0	0	1	0	1	2
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	3	3	0	0	0	2	0	2	5
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
05:30 PM	0	1	1	0	0	0	1	0	1	2
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	2	2	0	0	0	2	0	2	4
Grand Total	0	5	5	0	0	0	4	0	4	9
Apprch %	0	100		0	0		100	0		
Total %	0	55.6	55.6	0	0	0	44.4	0	44.4	

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	1	1	0	0	0	1	0	1	2
04:45 PM	0	1	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
Total Volume	0	3	3	0	0	0	1	0	1	4
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250	.500

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

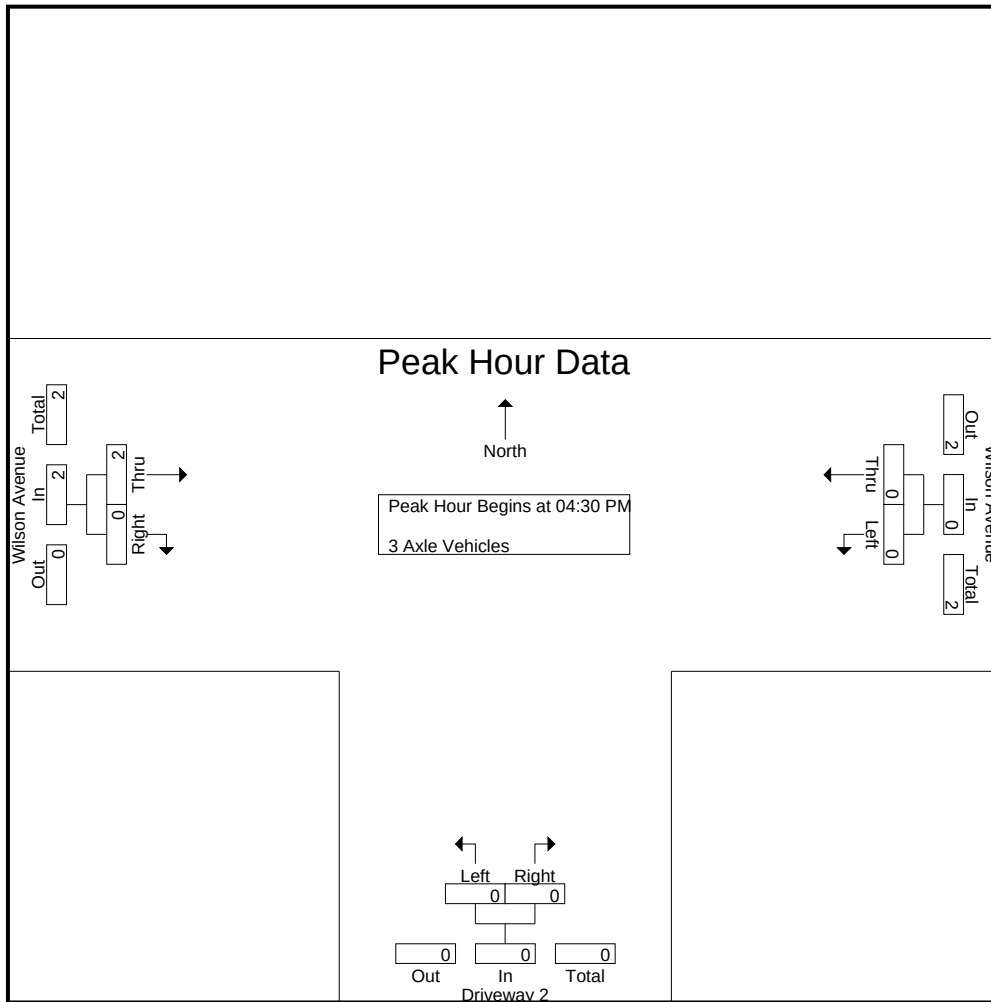
Groups Printed- 3 Axle Vehicles

Start Time	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	2	2
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	2	0	2	2
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2	2
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	2	0	2
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Driveway 2
E/W: Wilson Avenue
Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

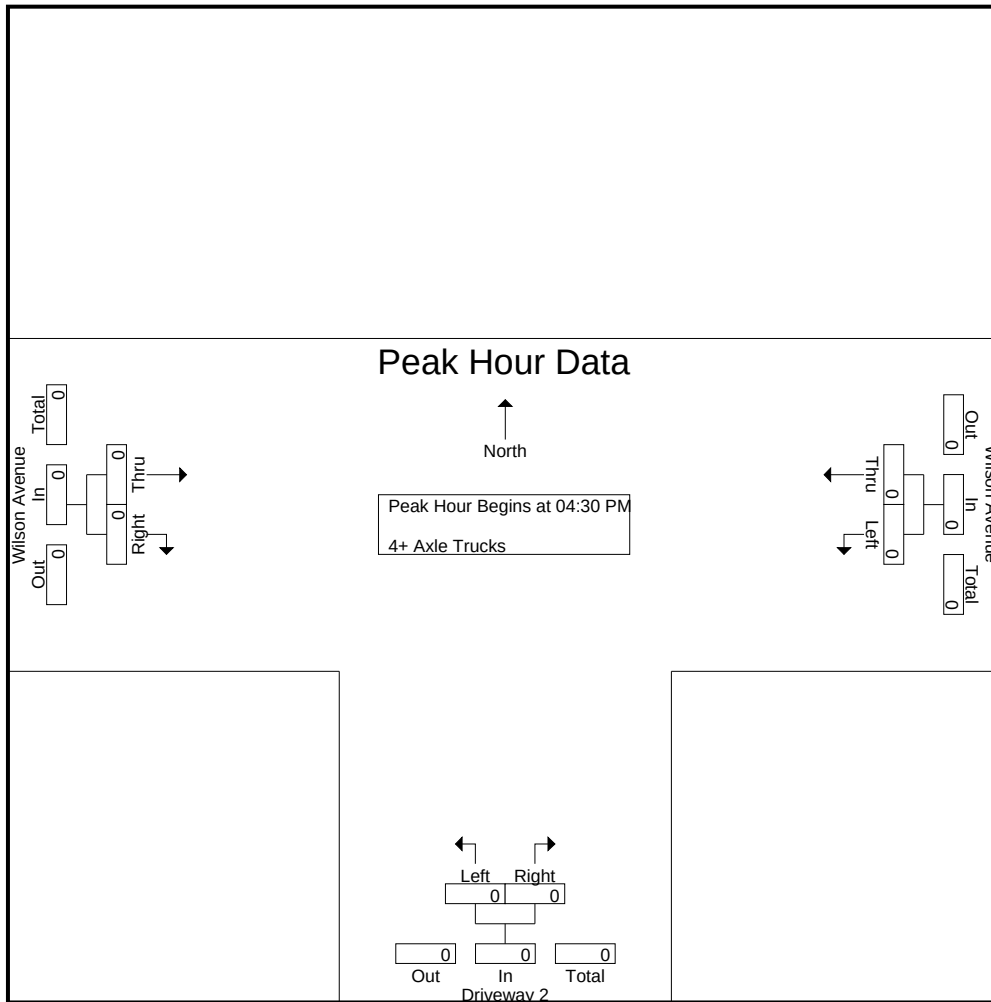
Groups Printed- 4+ Axle Trucks

Start Time	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			Driveway 2 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
 N/S: Driveway 2
 E/W: Wilson Avenue
 Weather: Clear

File Name : 09_RNC_DW2_Wilson PM
 Site Code : 05121260
 Start Date : 6/2/2021
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Driveway 2
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Dead End	East Leg Wilson Avenue	South Leg Driveway 2	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	3	0	0	0	3
8:00 AM	1	0	2	0	3
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	4	0	3	0	7

	North Leg Dead End	East Leg Wilson Avenue	South Leg Driveway 2	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	2	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	0	2

Location: Rancho Cucamonga
 N/S: Driveway 2
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

BICYCLES

	Southbound Dead End			Westbound Wilson Avenue			Northbound Driveway 2			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	3	0	6

	Southbound Dead End			Westbound Wilson Avenue			Northbound Driveway 2			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	2	0	0	0	0	0	3	0	5

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

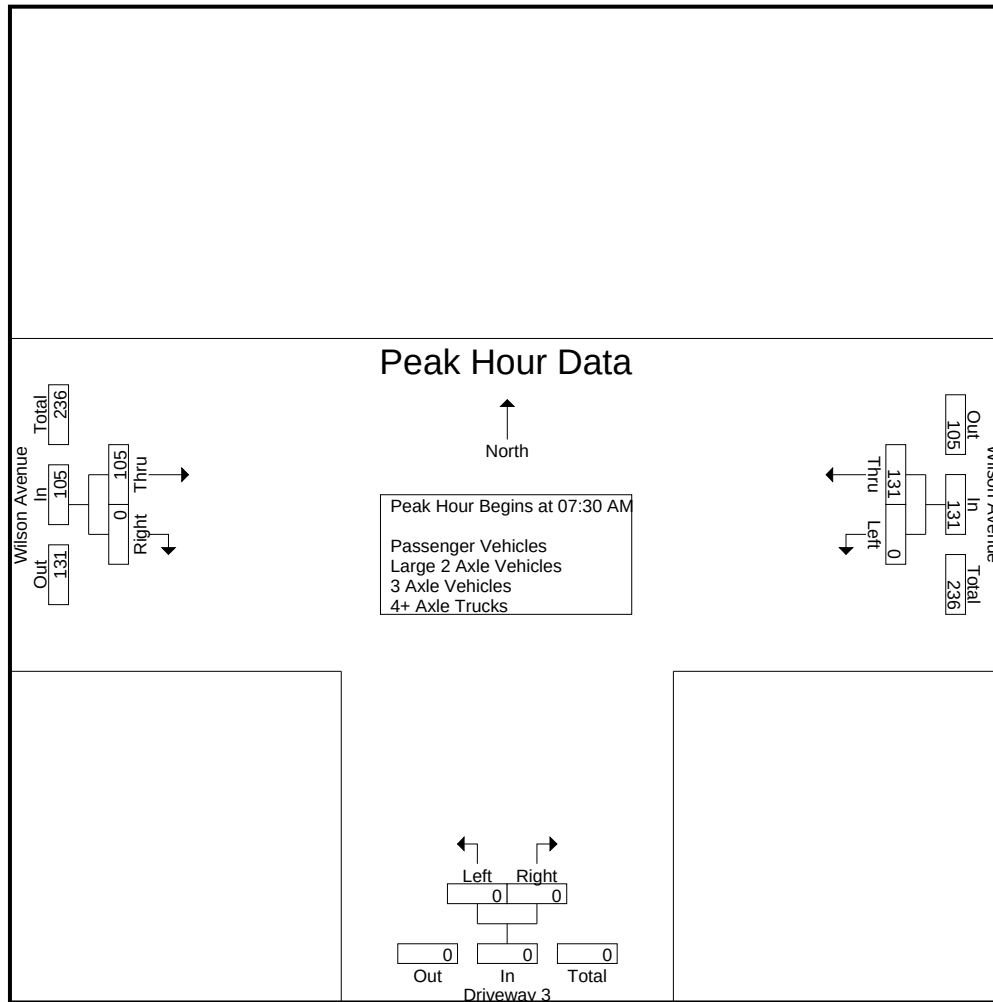
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	17	17	0	0	0	9	0	9	26
07:15 AM	0	20	20	0	0	0	8	0	8	28
07:30 AM	0	29	29	0	0	0	28	0	28	57
07:45 AM	0	38	38	0	0	0	41	0	41	79
Total	0	104	104	0	0	0	86	0	86	190
08:00 AM	0	35	35	0	0	0	21	0	21	56
08:15 AM	0	29	29	0	0	0	15	0	15	44
08:30 AM	0	25	25	0	0	0	14	0	14	39
08:45 AM	0	26	26	0	0	0	18	0	18	44
Total	0	115	115	0	0	0	68	0	68	183
Grand Total	0	219	219	0	0	0	154	0	154	373
Apprch %	0	100		0	0		100	0		
Total %	0	58.7	58.7	0	0	0	41.3	0	41.3	
Passenger Vehicles	0	214	214	0	0	0	145	0	145	359
% Passenger Vehicles	0	97.7	97.7	0	0	0	94.2	0	94.2	96.2
Large 2 Axle Vehicles	0	3	3	0	0	0	7	0	7	10
% Large 2 Axle Vehicles	0	1.4	1.4	0	0	0	4.5	0	4.5	2.7
3 Axle Vehicles	0	2	2	0	0	0	2	0	2	4
% 3 Axle Vehicles	0	0.9	0.9	0	0	0	1.3	0	1.3	1.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	29	29	0	0	0	28	0	28	57
07:45 AM	0	38	38	0	0	0	41	0	41	79
08:00 AM	0	35	35	0	0	0	21	0	21	56
08:15 AM	0	29	29	0	0	0	15	0	15	44
Total Volume	0	131	131	0	0	0	105	0	105	236
% App. Total	0	100		0	0		100	0		
PHF	.000	.862	.862	.000	.000	.000	.640	.000	.640	.747

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:30 AM		
+0 mins.	0	29	29	0	0	0	28	0	28
+15 mins.	0	38	38	0	0	0	41	0	41
+30 mins.	0	35	35	0	0	0	21	0	21
+45 mins.	0	29	29	0	0	0	15	0	15
Total Volume	0	131	131	0	0	0	105	0	105
% App. Total	0	100		0	0		100	0	
PHF	.000	.862	.862	.000	.000	.000	.640	.000	.640

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

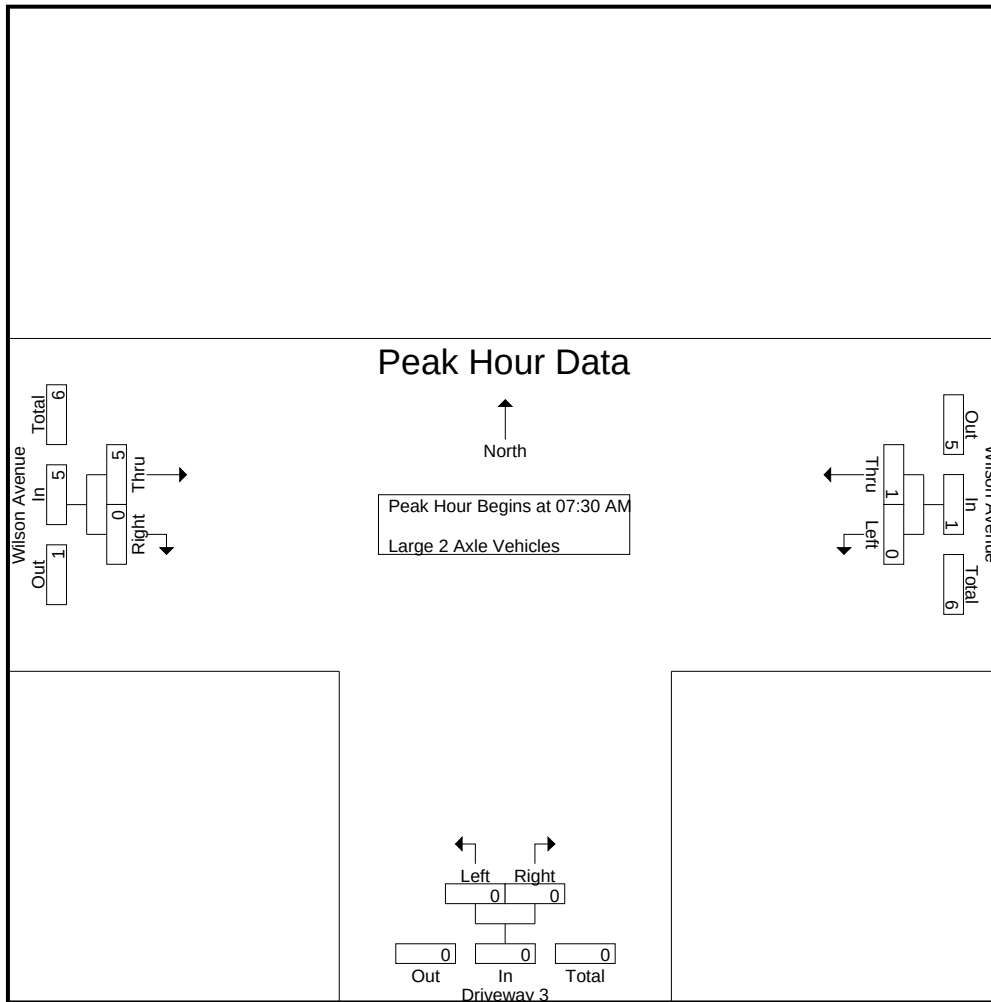
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
08:00 AM	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	0	0	0	0	0	3	0	3	3
08:30 AM	0	1	1	0	0	0	0	0	0	1
08:45 AM	0	1	1	0	0	0	2	0	2	3
Total	0	2	2	0	0	0	6	0	6	8
Grand Total	0	3	3	0	0	0	7	0	7	10
Apprch %	0	100		0	0		100	0		
Total %	0	30	30	0	0	0	70	0	70	

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	0	0	0	0	0	3	0	3	3
Total Volume	0	1	1	0	0	0	5	0	5	6
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.417	.000	.417	.500

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	3	0	3
Total Volume	0	1	1	0	0	0	5	0	5
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.417	.000	.417

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

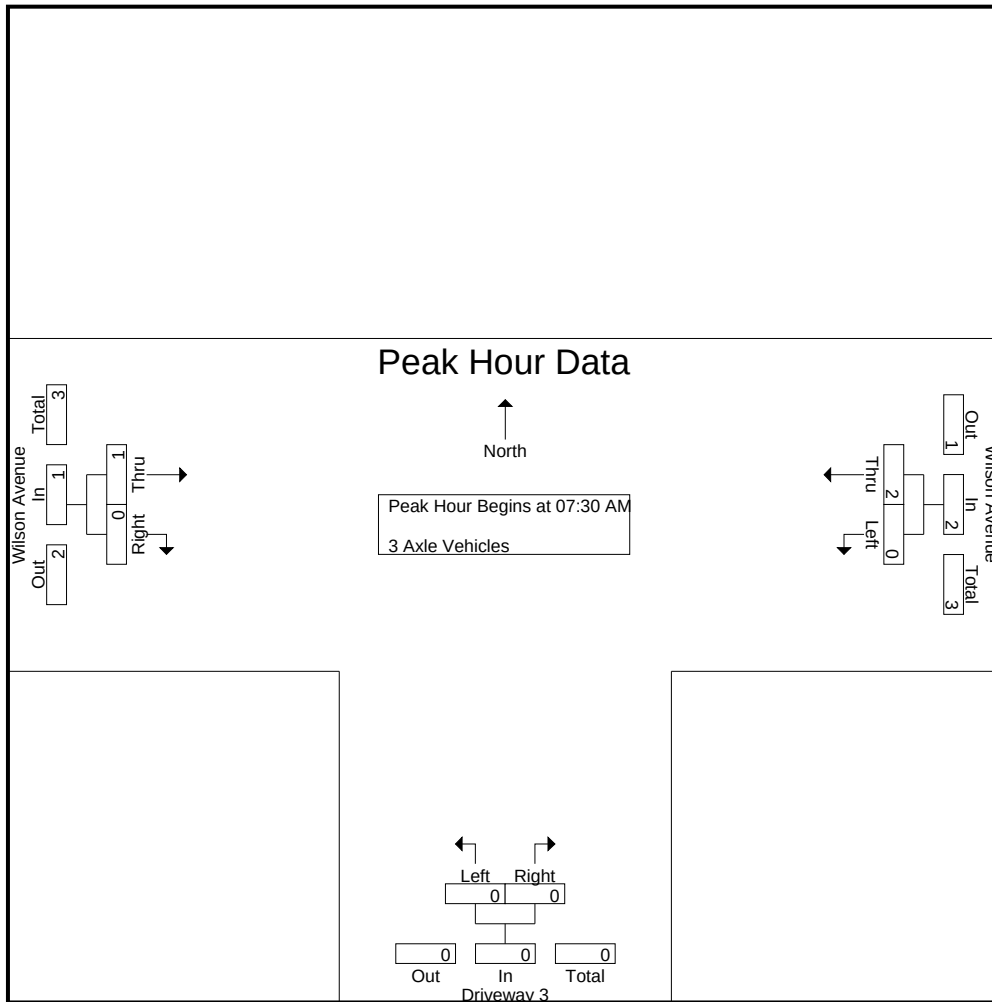
Groups Printed- 3 Axle Vehicles

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	2	2	0	0	0	1	0	1	3
Grand Total	0	2	2	0	0	0	2	0	2	4
Apprch %	0	100		0	0		100	0		
Total %	0	50	50	0	0	0	50	0	50	

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	2	2	0	0	0	1	0	1	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.375

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	2	2	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	2	2	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
Site Code : 05121260
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Page No : 1

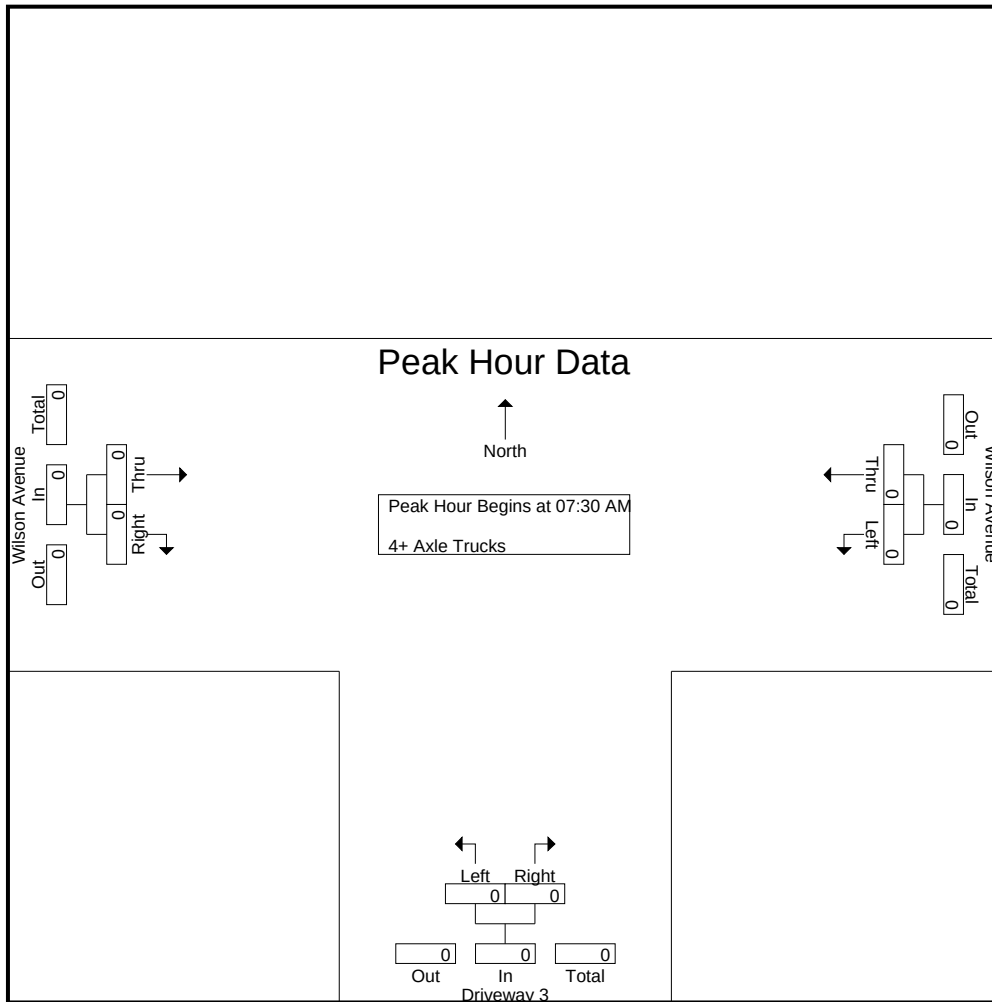
Groups Printed- 4+ Axle Trucks

Start Time	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
 N/S: Driveway 3
 E/W: Wilson Avenue
 Weather: Clear

File Name : 10_RNC_DW3_Wilson AM
 Site Code : 05121260
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
Site Code : 05121260
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Page No : 1

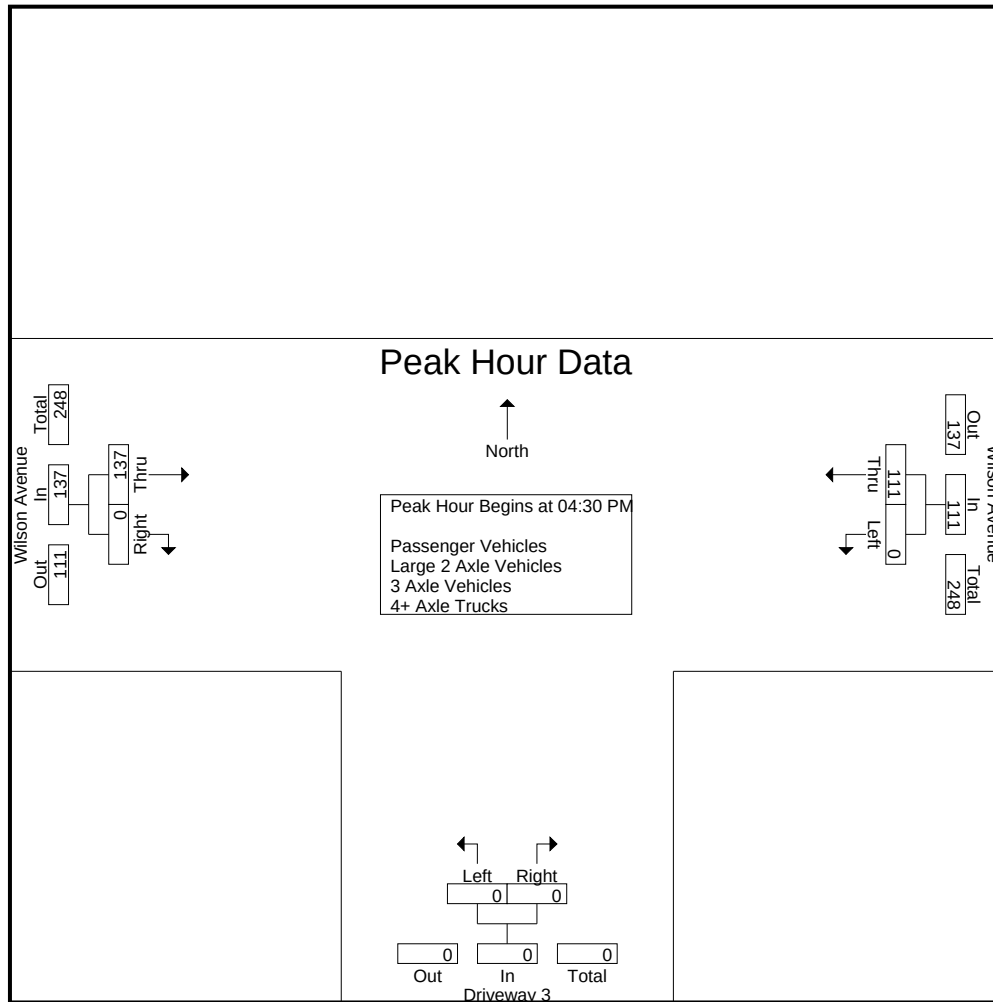
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	24	24	0	0	0	25	0	25	49
04:15 PM	0	29	29	0	0	0	30	0	30	59
04:30 PM	0	30	30	0	0	0	33	0	33	63
04:45 PM	0	22	22	0	0	0	37	0	37	59
Total	0	105	105	0	0	0	125	0	125	230
05:00 PM	0	22	22	0	0	0	29	0	29	51
05:15 PM	0	37	37	0	0	0	38	0	38	75
05:30 PM	0	21	21	0	0	0	27	0	27	48
05:45 PM	0	26	26	0	0	0	38	0	38	64
Total	0	106	106	0	0	0	132	0	132	238
Grand Total	0	211	211	0	0	0	257	0	257	468
Apprch %	0	100		0	0		100	0		
Total %	0	45.1	45.1	0	0	0	54.9	0	54.9	
Passenger Vehicles	0	206	206	0	0	0	253	0	253	459
% Passenger Vehicles	0	97.6	97.6	0	0	0	98.4	0	98.4	98.1
Large 2 Axle Vehicles	0	5	5	0	0	0	3	0	3	8
% Large 2 Axle Vehicles	0	2.4	2.4	0	0	0	1.2	0	1.2	1.7
3 Axle Vehicles	0	0	0	0	0	0	1	0	1	1
% 3 Axle Vehicles	0	0	0	0	0	0	0.4	0	0.4	0.2
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	30	30	0	0	0	33	0	33	63
04:45 PM	0	22	22	0	0	0	37	0	37	59
05:00 PM	0	22	22	0	0	0	29	0	29	51
05:15 PM	0	37	37	0	0	0	38	0	38	75
Total Volume	0	111	111	0	0	0	137	0	137	248
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.901	.000	.901	.827

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:30 PM		
+0 mins.	0	30	30	0	0	0	33	0	33
+15 mins.	0	22	22	0	0	0	37	0	37
+30 mins.	0	22	22	0	0	0	29	0	29
+45 mins.	0	37	37	0	0	0	38	0	38
Total Volume	0	111	111	0	0	0	137	0	137
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.901	.000	.901

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
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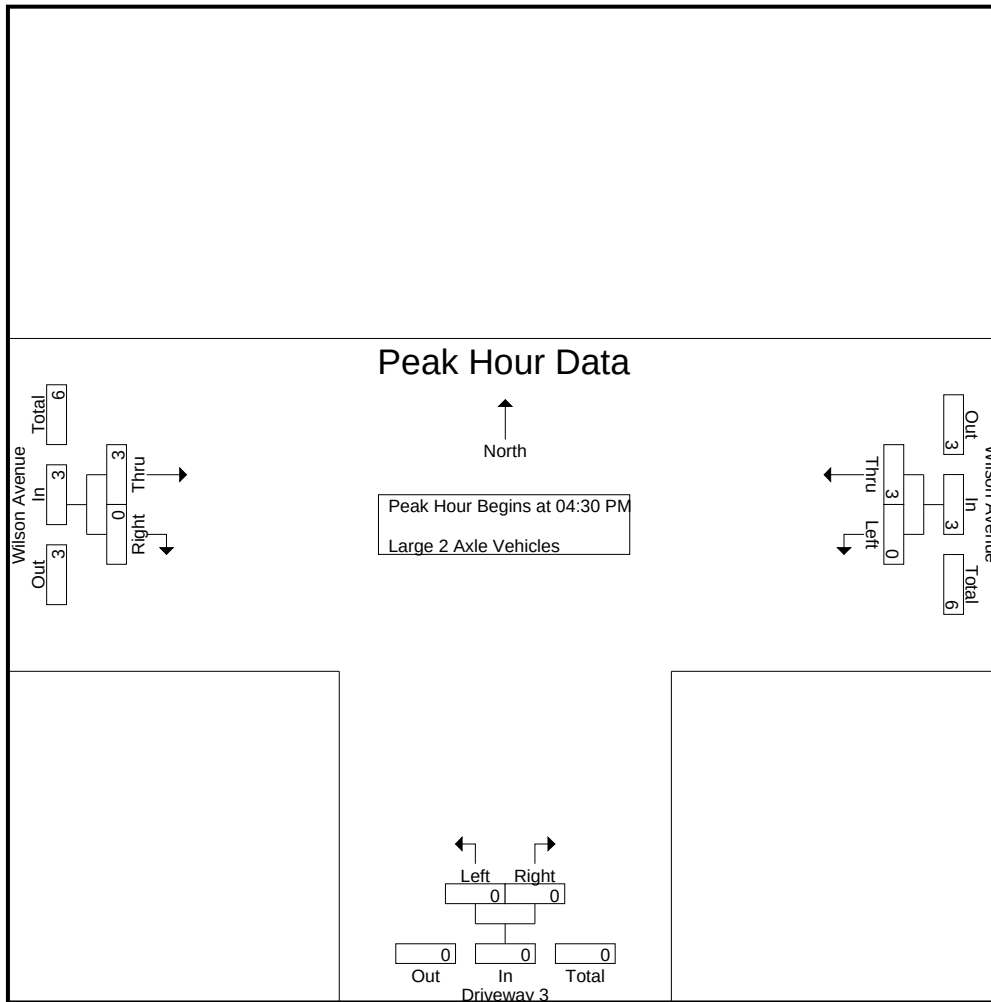
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	1	0	0	0	0	0	0	1
04:30 PM	0	1	1	0	0	0	3	0	3	4
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	3	3	0	0	0	3	0	3	6
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
05:30 PM	0	1	1	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	2	2	0	0	0	0	0	0	2
Grand Total	0	5	5	0	0	0	3	0	3	8
Apprch %	0	100		0	0		100	0		
Total %	0	62.5	62.5	0	0	0	37.5	0	37.5	

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	1	1	0	0	0	3	0	3	4
04:45 PM	0	1	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
Total Volume	0	3	3	0	0	0	3	0	3	6
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250	.375

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	1	1	0	0	0	3	0	3
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	3	0	3
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
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Groups Printed- 3 Axle Vehicles

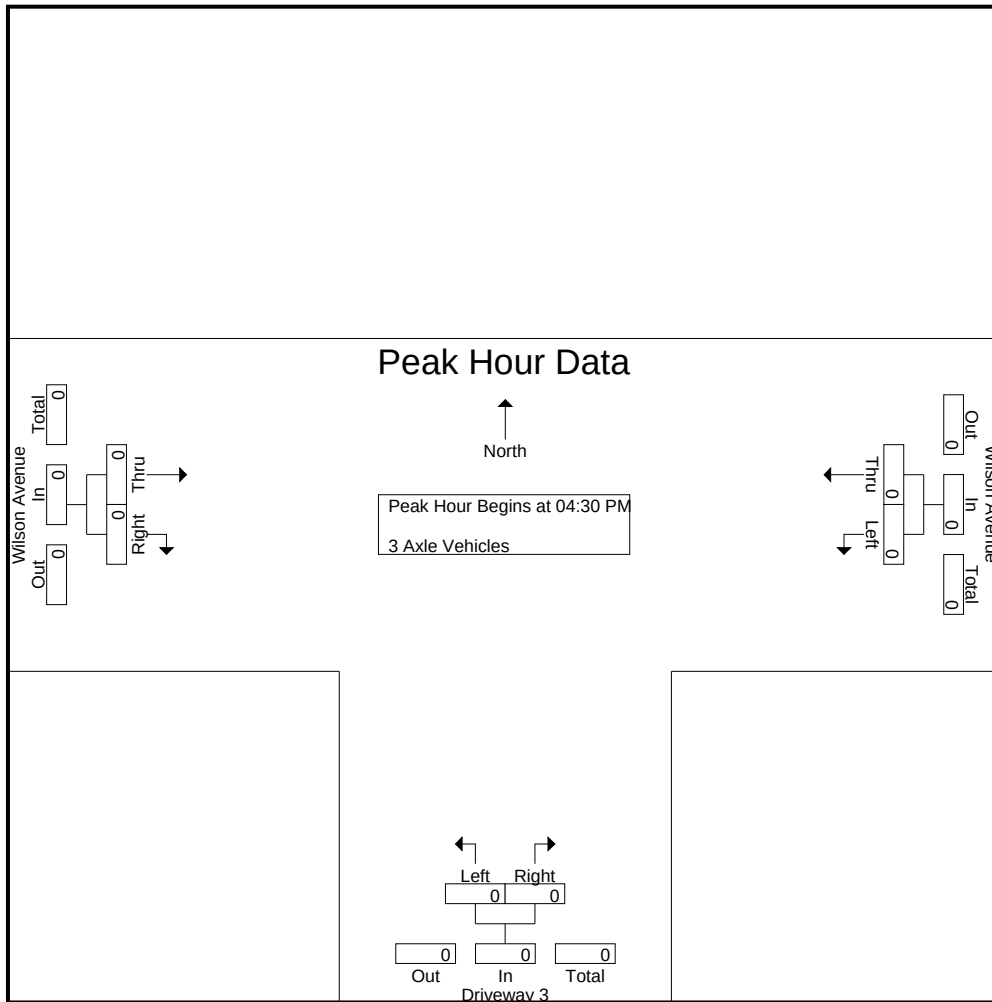
Start Time	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

Start Time	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
Site Code : 05121260
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: Driveway 3
E/W: Wilson Avenue
Weather: Clear

File Name : 10_RNC_DW3_Wilson PM
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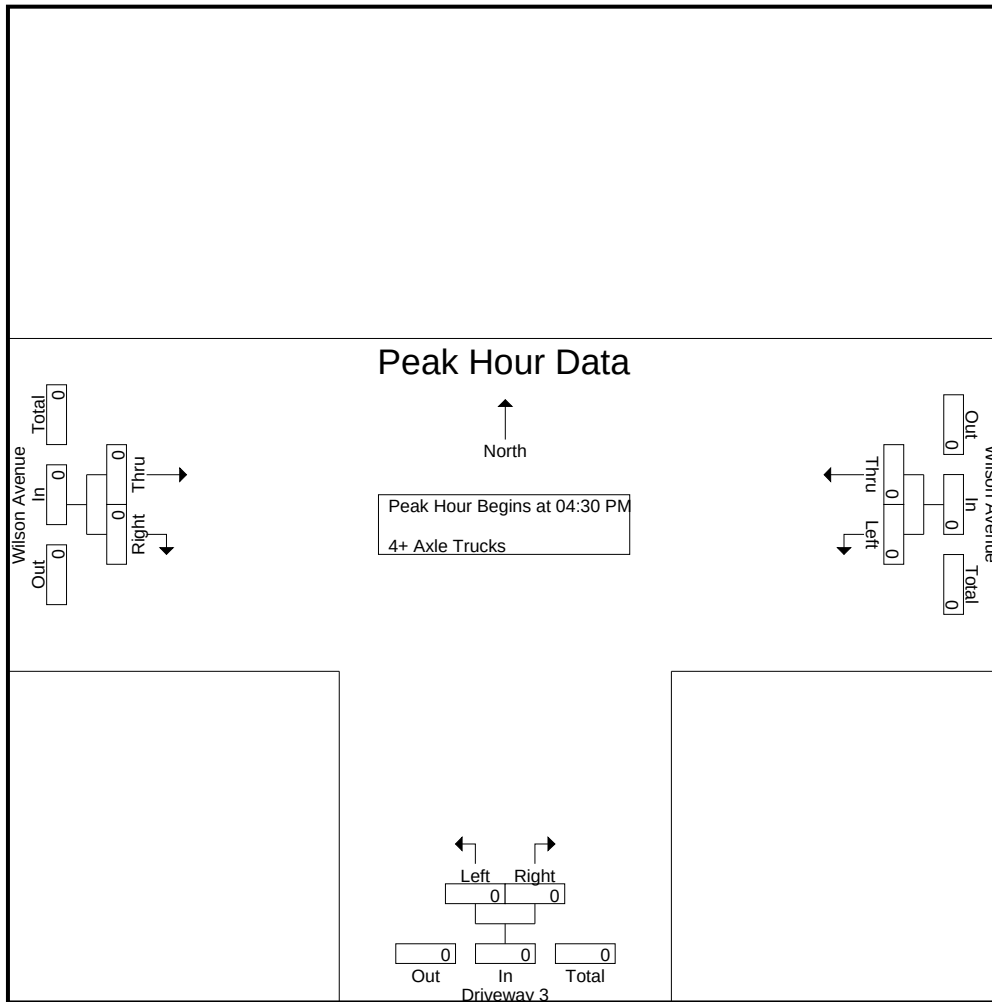
Groups Printed- 4+ Axle Trucks

Start Time	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			Driveway 3 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
 N/S: Driveway 3
 E/W: Wilson Avenue
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File Name : 10_RNC_DW3_Wilson PM
 Site Code : 05121260
 Start Date : 6/2/2021
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Driveway 3
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Dead End	East Leg Wilson Avenue	South Leg Driveway 3	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	2	0	2
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	0	2

	North Leg Dead End	East Leg Wilson Avenue	South Leg Driveway 3	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Rancho Cucamonga
 N/S: Driveway 3
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

BICYCLES

	Southbound Dead End			Westbound Wilson Avenue			Northbound Driveway 3			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	3	0	6

	Southbound Dead End			Westbound Wilson Avenue			Northbound Driveway 3			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	3	0	6

City of Rancho Cucamonga
N/S: Driveway 4
E/W: Wilson Avenue
Weather: Clear

File Name : 11_RNC_DW4_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
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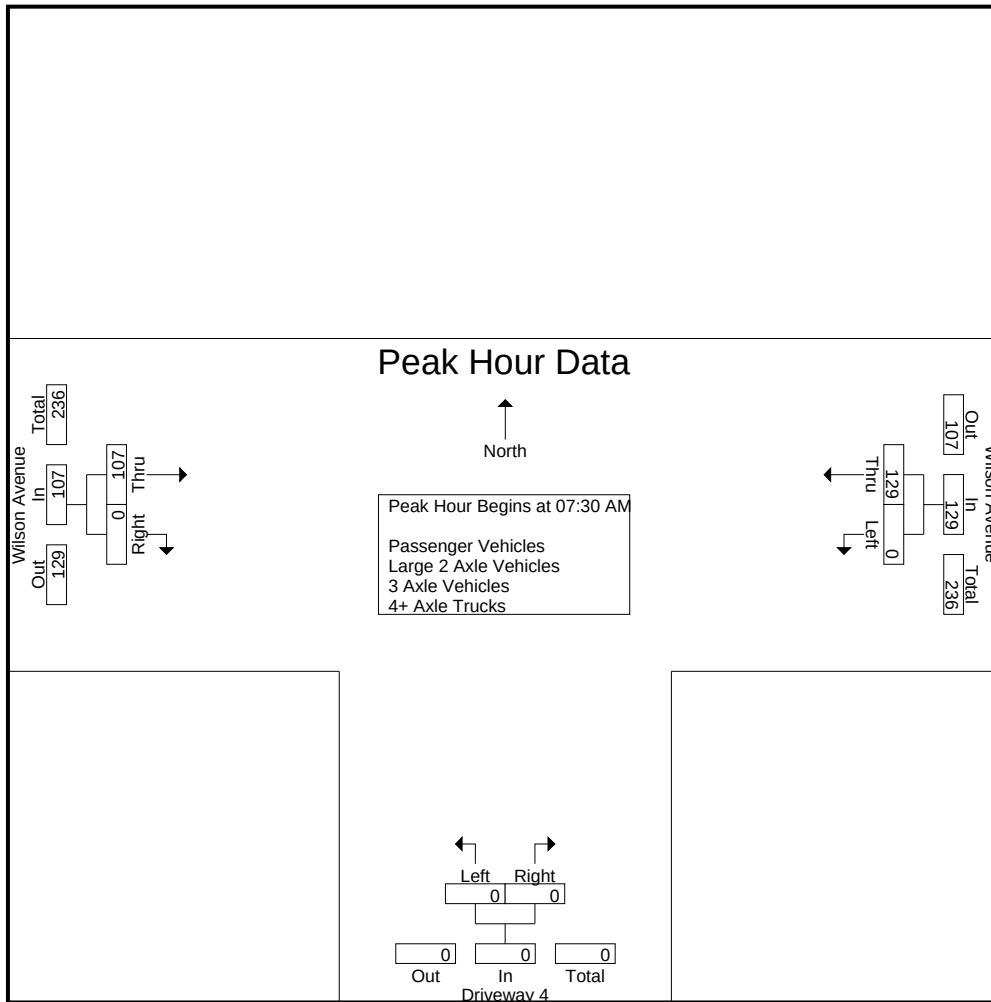
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	16	16	0	0	0	9	0	9	25
07:15 AM	0	19	19	0	0	0	8	0	8	27
07:30 AM	0	29	29	0	0	0	30	0	30	59
07:45 AM	0	41	41	0	0	0	46	0	46	87
Total	0	105	105	0	0	0	93	0	93	198
08:00 AM	0	33	33	0	0	0	17	0	17	50
08:15 AM	0	26	26	0	0	0	14	0	14	40
08:30 AM	0	23	23	0	0	0	15	0	15	38
08:45 AM	0	24	24	0	0	0	18	0	18	42
Total	0	106	106	0	0	0	64	0	64	170
Grand Total	0	211	211	0	0	0	157	0	157	368
Apprch %	0	100		0	0		100	0		
Total %	0	57.3	57.3	0	0	0	42.7	0	42.7	
Passenger Vehicles	0	206	206	0	0	0	151	0	151	357
% Passenger Vehicles	0	97.6	97.6	0	0	0	96.2	0	96.2	97
Large 2 Axle Vehicles	0	3	3	0	0	0	4	0	4	7
% Large 2 Axle Vehicles	0	1.4	1.4	0	0	0	2.5	0	2.5	1.9
3 Axle Vehicles	0	2	2	0	0	0	2	0	2	4
% 3 Axle Vehicles	0	0.9	0.9	0	0	0	1.3	0	1.3	1.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	29	29	0	0	0	30	0	30	59
07:45 AM	0	41	41	0	0	0	46	0	46	87
08:00 AM	0	33	33	0	0	0	17	0	17	50
08:15 AM	0	26	26	0	0	0	14	0	14	40
Total Volume	0	129	129	0	0	0	107	0	107	236
% App. Total	0	100		0	0		100	0		
PHF	.000	.787	.787	.000	.000	.000	.582	.000	.582	.678

City of Rancho Cucamonga
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:30 AM		
+0 mins.	0	29	29	0	0	0	30	0	30
+15 mins.	0	41	41	0	0	0	46	0	46
+30 mins.	0	33	33	0	0	0	17	0	17
+45 mins.	0	26	26	0	0	0	14	0	14
Total Volume	0	129	129	0	0	0	107	0	107
% App. Total	0	100		0	0		100	0	
PHF	.000	.787	.787	.000	.000	.000	.582	.000	.582

City of Rancho Cucamonga
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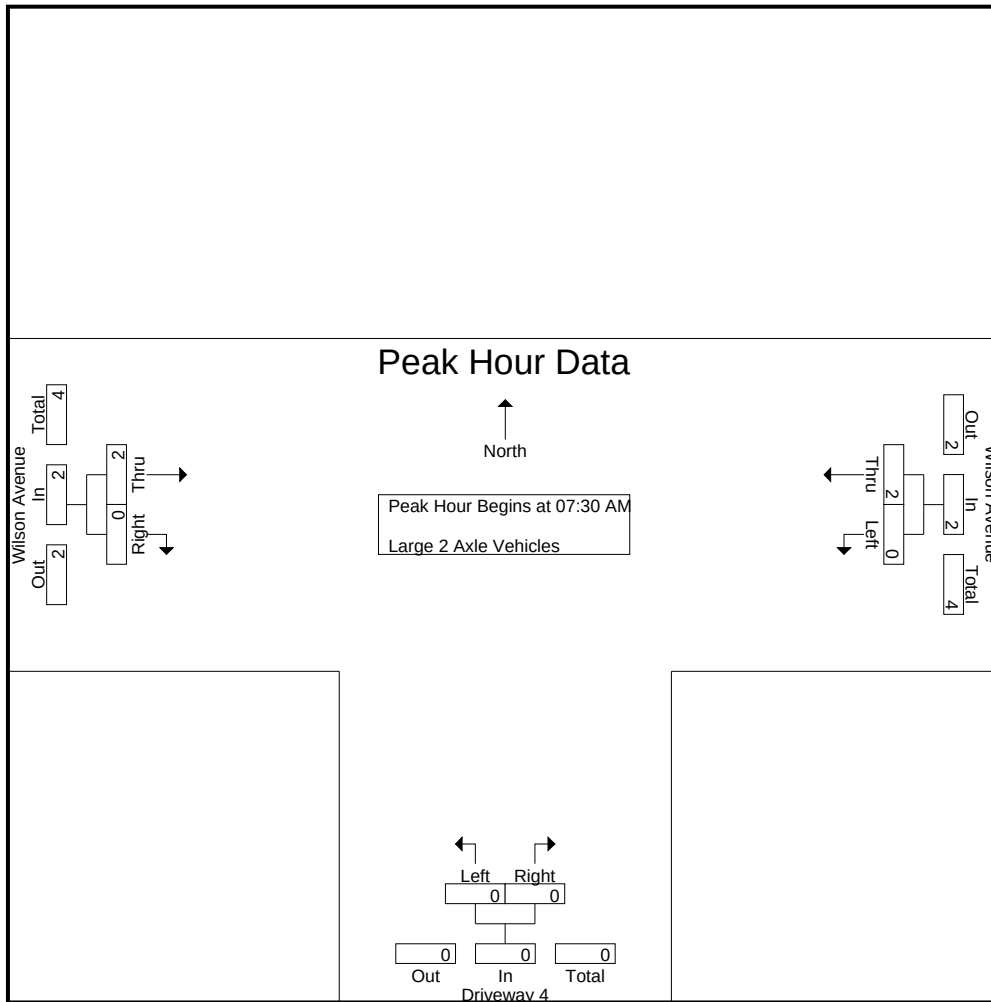
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	1	0	0	0	1	0	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	1	1	0	0	0	2	0	2	3
Total	0	2	2	0	0	0	3	0	3	5
Grand Total	0	3	3	0	0	0	4	0	4	7
Apprch %	0	100		0	0		100	0		
Total %	0	42.9	42.9	0	0	0	57.1	0	57.1	

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	1	0	0	0	1	0	1	2
Total Volume	0	2	2	0	0	0	2	0	2	4
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500	.500

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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	1	0	1
Total Volume	0	2	2	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500

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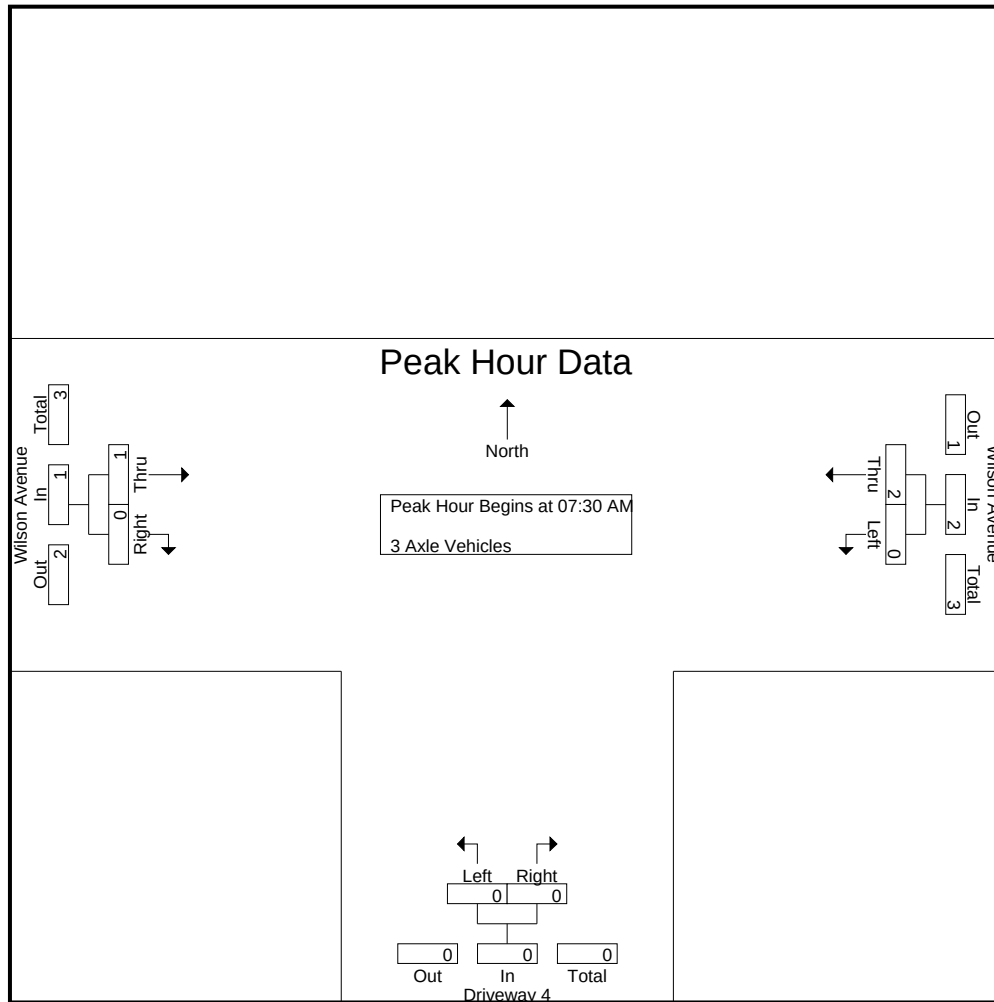
Groups Printed- 3 Axle Vehicles

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	2	2	0	0	0	1	0	1	3
Grand Total	0	2	2	0	0	0	2	0	2	4
Apprch %	0	100		0	0		100	0		
Total %	0	50	50	0	0	0	50	0	50	

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	2	2	0	0	0	1	0	1	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.375

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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	2	2	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	2	2	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

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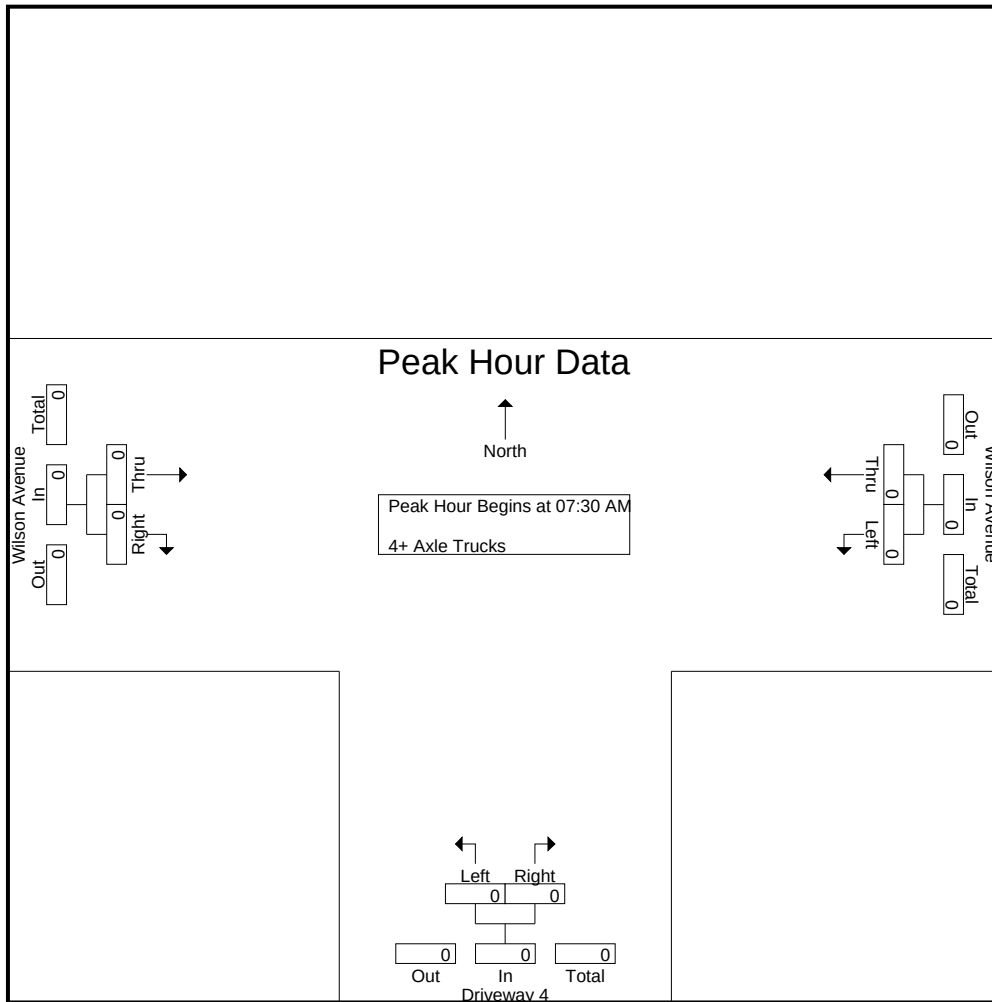
Groups Printed- 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

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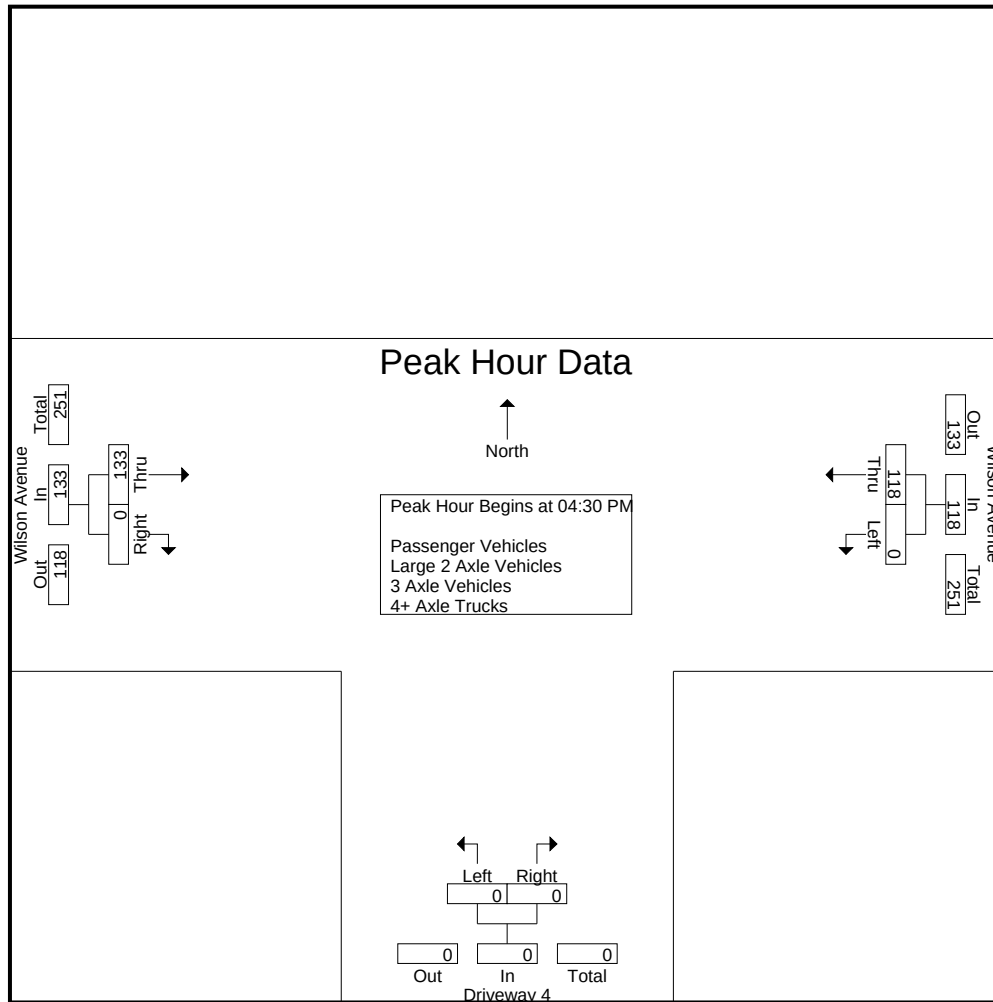
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	21	21	0	0	0	25	0	25	46
04:15 PM	0	27	27	0	0	0	26	0	26	53
04:30 PM	0	29	29	0	0	0	32	0	32	61
04:45 PM	0	26	26	0	0	0	38	0	38	64
Total	0	103	103	0	0	0	121	0	121	224
05:00 PM	0	27	27	0	0	0	27	0	27	54
05:15 PM	0	36	36	0	0	0	36	0	36	72
05:30 PM	0	23	23	0	0	0	25	0	25	48
05:45 PM	0	25	25	0	0	0	42	0	42	67
Total	0	111	111	0	0	0	130	0	130	241
Grand Total	0	214	214	0	0	0	251	0	251	465
Apprch %	0	100		0	0		100	0		
Total %	0	46	46	0	0	0	54	0	54	
Passenger Vehicles	0	209	209	0	0	0	245	0	245	454
% Passenger Vehicles	0	97.7	97.7	0	0	0	97.6	0	97.6	97.6
Large 2 Axle Vehicles	0	5	5	0	0	0	4	0	4	9
% Large 2 Axle Vehicles	0	2.3	2.3	0	0	0	1.6	0	1.6	1.9
3 Axle Vehicles	0	0	0	0	0	0	2	0	2	2
% 3 Axle Vehicles	0	0	0	0	0	0	0.8	0	0.8	0.4
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	29	29	0	0	0	32	0	32	61
04:45 PM	0	26	26	0	0	0	38	0	38	64
05:00 PM	0	27	27	0	0	0	27	0	27	54
05:15 PM	0	36	36	0	0	0	36	0	36	72
Total Volume	0	118	118	0	0	0	133	0	133	251
% App. Total	0	100		0	0		100	0		
PHF	.000	.819	.819	.000	.000	.000	.875	.000	.875	.872

City of Rancho Cucamonga
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:30 PM		
+0 mins.	0	29	29	0	0	0	32	0	32
+15 mins.	0	26	26	0	0	0	38	0	38
+30 mins.	0	27	27	0	0	0	27	0	27
+45 mins.	0	36	36	0	0	0	36	0	36
Total Volume	0	118	118	0	0	0	133	0	133
% App. Total	0	100		0	0		100	0	
PHF	.000	.819	.819	.000	.000	.000	.875	.000	.875

City of Rancho Cucamonga
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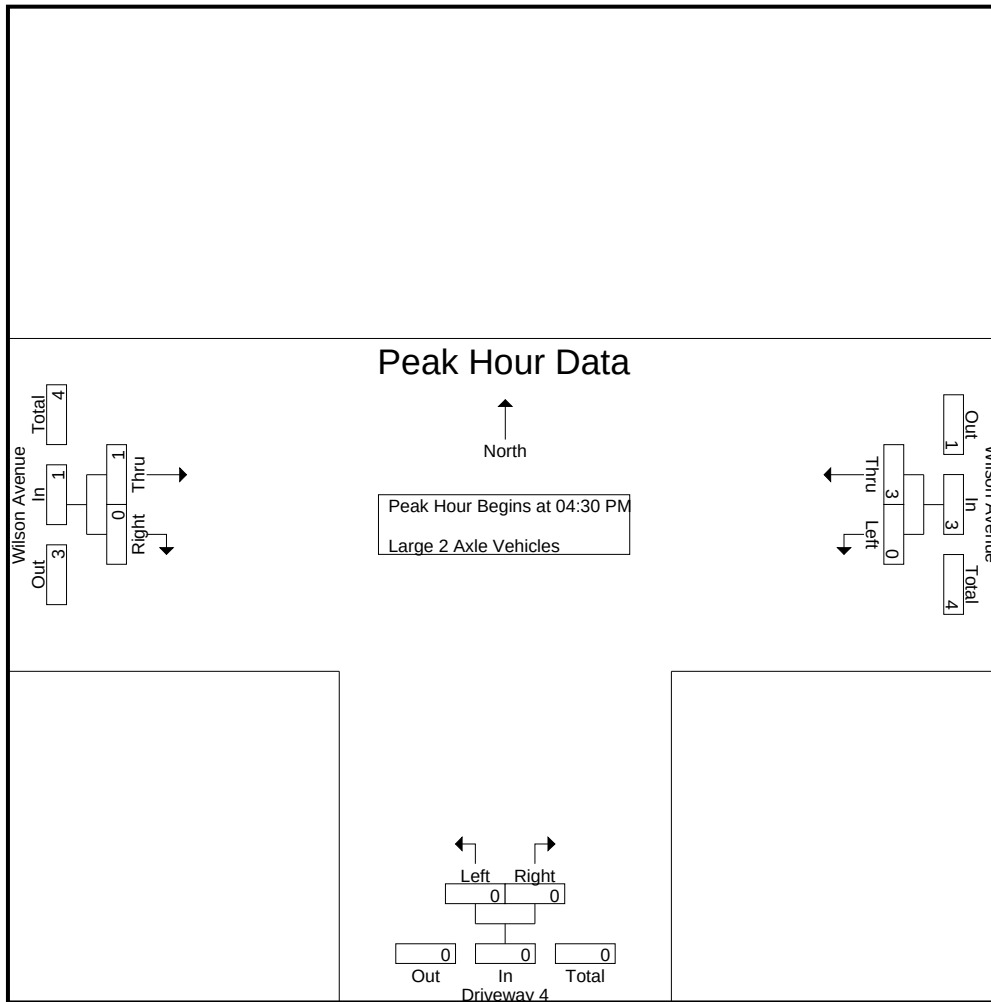
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	0	0	0	1	0	1	2
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	1	0	0	0	1	0	1	2
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	3	3	0	0	0	2	0	2	5
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
05:30 PM	0	1	1	0	0	0	1	0	1	2
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	2	2	0	0	0	2	0	2	4
Grand Total	0	5	5	0	0	0	4	0	4	9
Apprch %	0	100		0	0		100	0		
Total %	0	55.6	55.6	0	0	0	44.4	0	44.4	

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	1	1	0	0	0	1	0	1	2
04:45 PM	0	1	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
Total Volume	0	3	3	0	0	0	1	0	1	4
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250	.500

City of Rancho Cucamonga
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250

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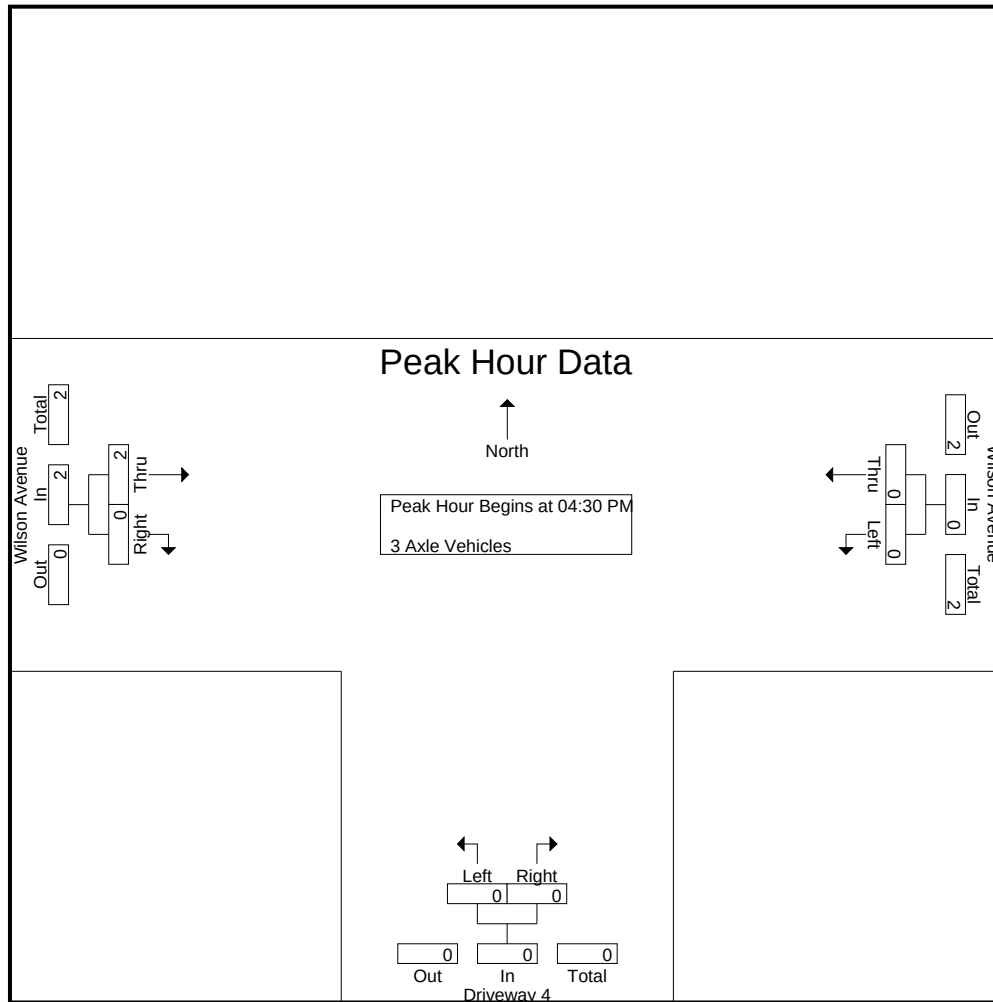
Groups Printed- 3 Axle Vehicles

Start Time	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	2	2
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	2	0	2	2
Apprch %	0	0		0	0		100	0		
Total %	0	0		0	0		100	0	100	

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2	2
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

City of Rancho Cucamonga
N/S: Driveway 4
E/W: Wilson Avenue
Weather: Clear

File Name : 11_RNC_DW4_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	2	0	2
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: Driveway 4
E/W: Wilson Avenue
Weather: Clear

File Name : 11_RNC_DW4_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

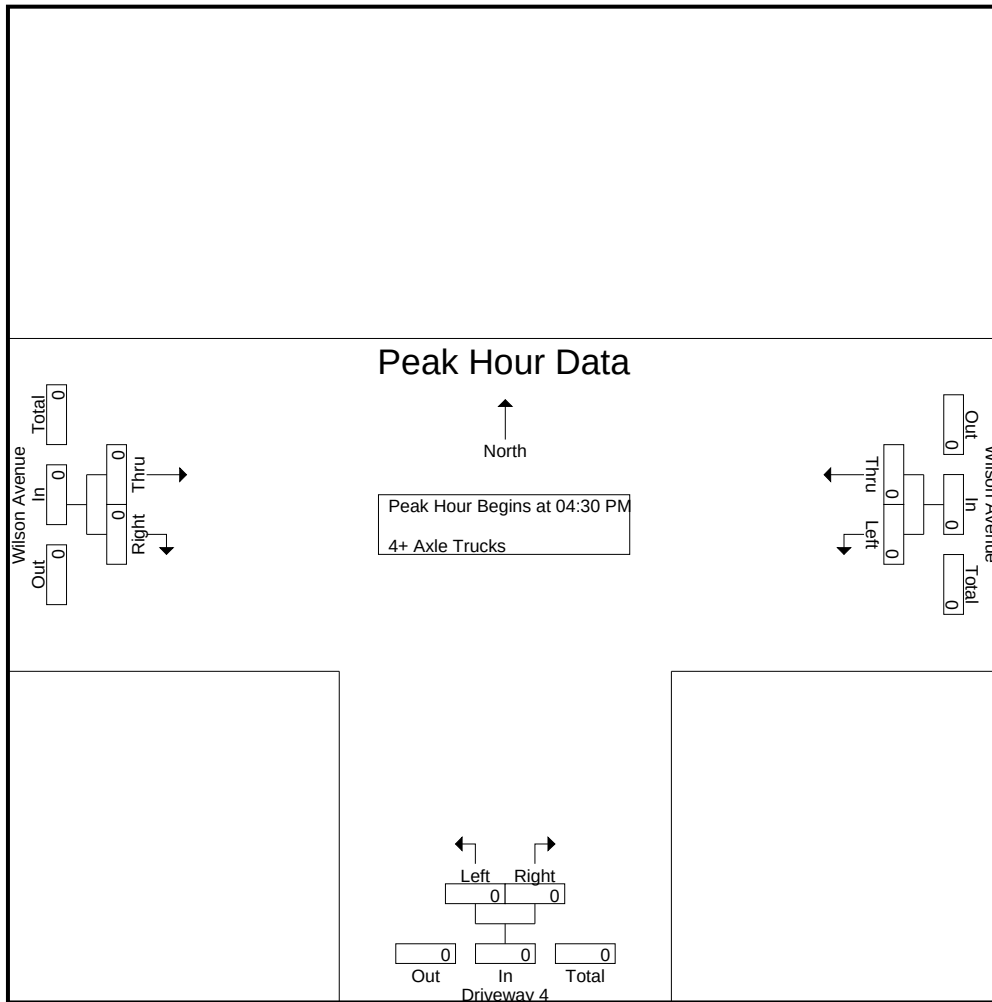
Groups Printed- 4+ Axle Trucks

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			Driveway 4 Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
 N/S: Driveway 4
 E/W: Wilson Avenue
 Weather: Clear

File Name : 11_RNC_DW4_Wilson PM
 Site Code : 05121260
 Start Date : 6/2/2021
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: Driveway 4
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Dead End	East Leg Wilson Avenue	South Leg Driveway 4	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	2	0	0	0	2
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	0	2	0	4

	North Leg Dead End	East Leg Wilson Avenue	South Leg Driveway 4	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1
5:00 PM	1	0	0	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	1	0	2

Location: Rancho Cucamonga
 N/S: Driveway 4
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

BICYCLES

	Southbound Dead End			Westbound Wilson Avenue			Northbound Driveway 4			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	3	0	6

	Southbound Dead End			Westbound Wilson Avenue			Northbound Driveway 4			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	2	0	0	0	0	0	3	0	5

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
Weather: Clear

File Name : 12_RNC_College_Wilson AM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 1

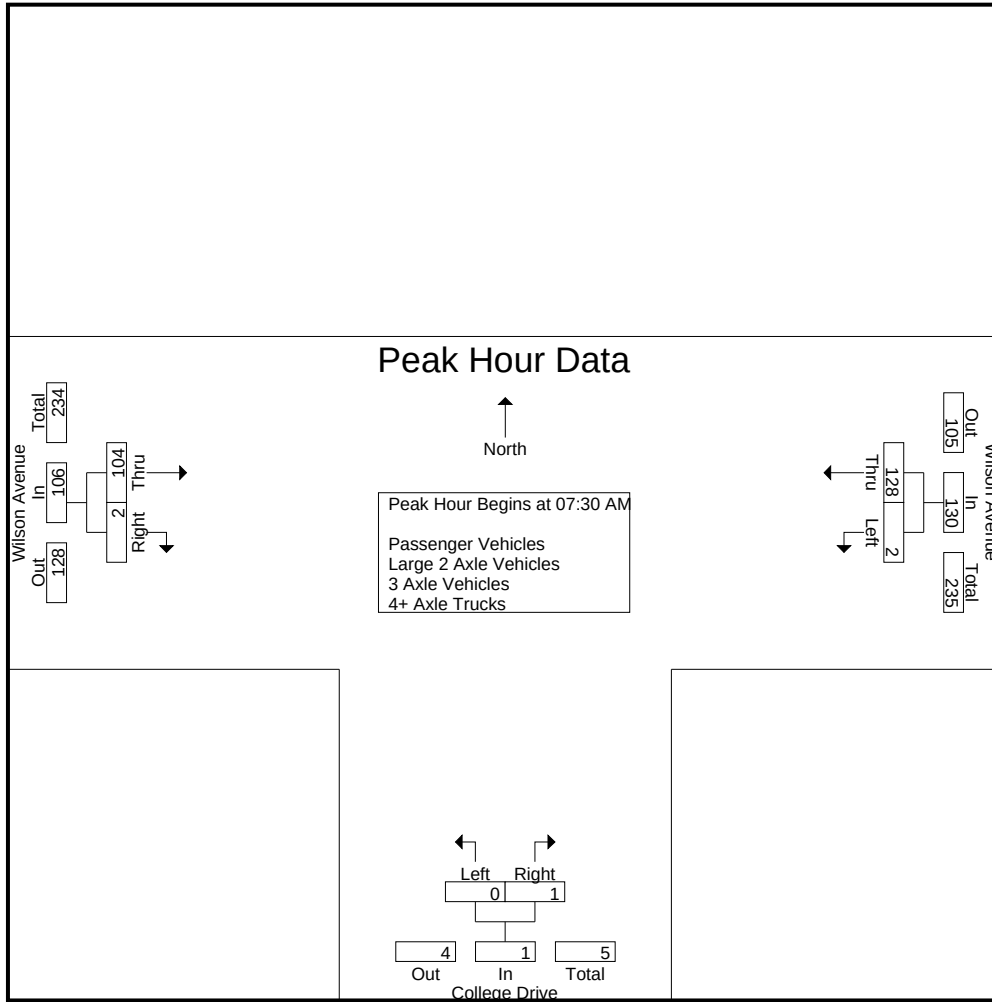
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	1	15	16	1	0	1	9	0	9	26
07:15 AM	2	19	21	0	0	0	7	1	8	29
07:30 AM	0	28	28	0	0	0	27	2	29	57
07:45 AM	1	41	42	0	0	0	45	0	45	87
Total	4	103	107	1	0	1	88	3	91	199
08:00 AM	1	33	34	0	0	0	18	0	18	52
08:15 AM	0	26	26	0	1	1	14	0	14	41
08:30 AM	0	22	22	0	0	0	15	0	15	37
08:45 AM	0	21	21	3	0	3	16	1	17	41
Total	1	102	103	3	1	4	63	1	64	171
Grand Total	5	205	210	4	1	5	151	4	155	370
Apprch %	2.4	97.6		80	20		97.4	2.6		
Total %	1.4	55.4	56.8	1.1	0.3	1.4	40.8	1.1	41.9	
Passenger Vehicles	5	201	206	4	1	5	145	3	148	359
% Passenger Vehicles	100	98	98.1	100	100	100	96	75	95.5	97
Large 2 Axle Vehicles	0	2	2	0	0	0	5	0	5	7
% Large 2 Axle Vehicles	0	1	1	0	0	0	3.3	0	3.2	1.9
3 Axle Vehicles	0	2	2	0	0	0	1	1	2	4
% 3 Axle Vehicles	0	1	1	0	0	0	0.7	25	1.3	1.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	28	28	0	0	0	27	2	29	57
07:45 AM	1	41	42	0	0	0	45	0	45	87
08:00 AM	1	33	34	0	0	0	18	0	18	52
08:15 AM	0	26	26	0	1	1	14	0	14	41
Total Volume	2	128	130	0	1	1	104	2	106	237
% App. Total	1.5	98.5		0	100		98.1	1.9		
PHF	.500	.780	.774	.000	.250	.250	.578	.250	.589	.681

City of Rancho Cucamonga
N/S: College Drive
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Weather: Clear

File Name : 12_RNC_College_Wilson AM
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			07:30 AM		
+0 mins.	0	28	28	0	0	0	27	2	29
+15 mins.	1	41	42	0	1	1	45	0	45
+30 mins.	1	33	34	0	0	0	18	0	18
+45 mins.	0	26	26	3	0	3	14	0	14
Total Volume	2	128	130	3	1	4	104	2	106
% App. Total	1.5	98.5		75	25		98.1	1.9	
PHF	.500	.780	.774	.250	.250	.333	.578	.250	.589

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
Weather: Clear

File Name : 12_RNC_College_Wilson AM
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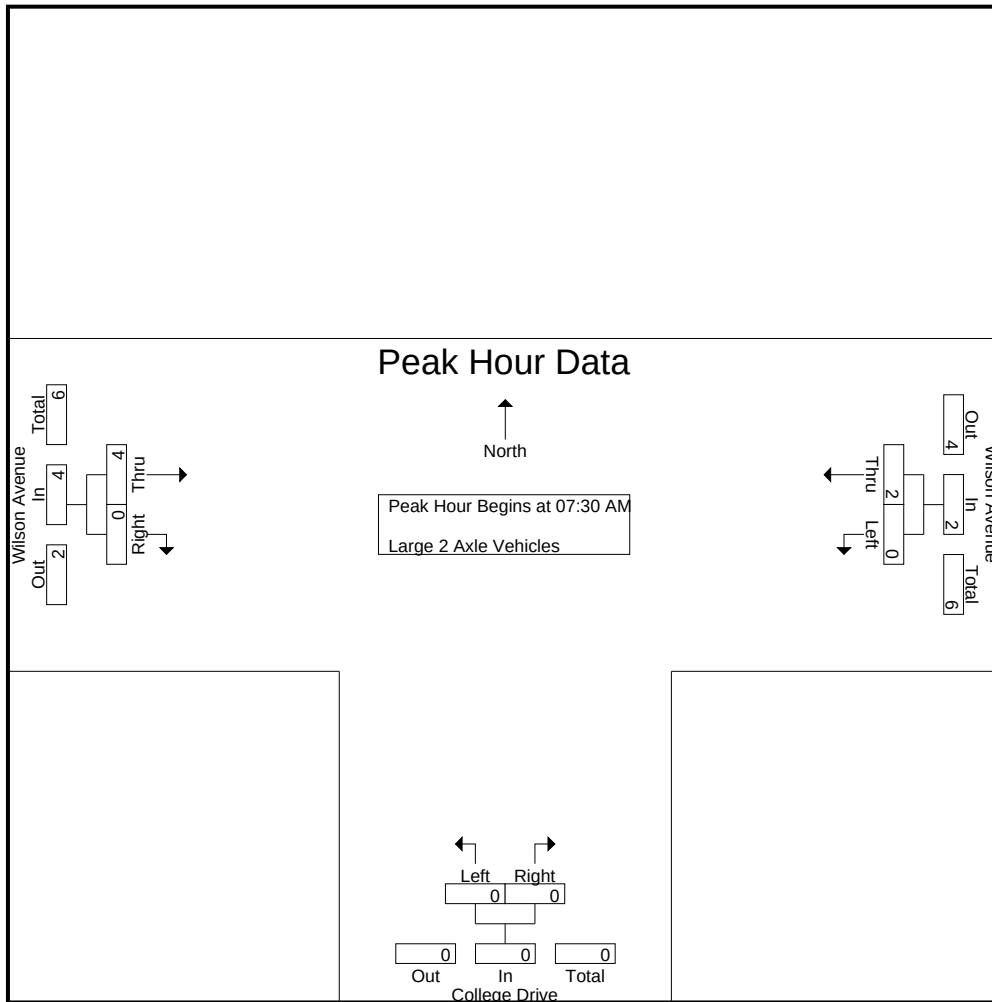
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
08:00 AM	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	1	1	0	0	0	2	0	2	3
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	1	1	0	0	0	4	0	4	5
Grand Total	0	2	2	0	0	0	5	0	5	7
Apprch %	0	100		0	0		100	0		
Total %	0	28.6	28.6	0	0	0	71.4	0	71.4	

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	1	1	0	0	0	2	0	2	3
Total Volume	0	2	2	0	0	0	4	0	4	6
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500	.500

City of Rancho Cucamonga
N/S: College Drive
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	1	1	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	1	1	0	0	0	2	0	2
Total Volume	0	2	2	0	0	0	4	0	4
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
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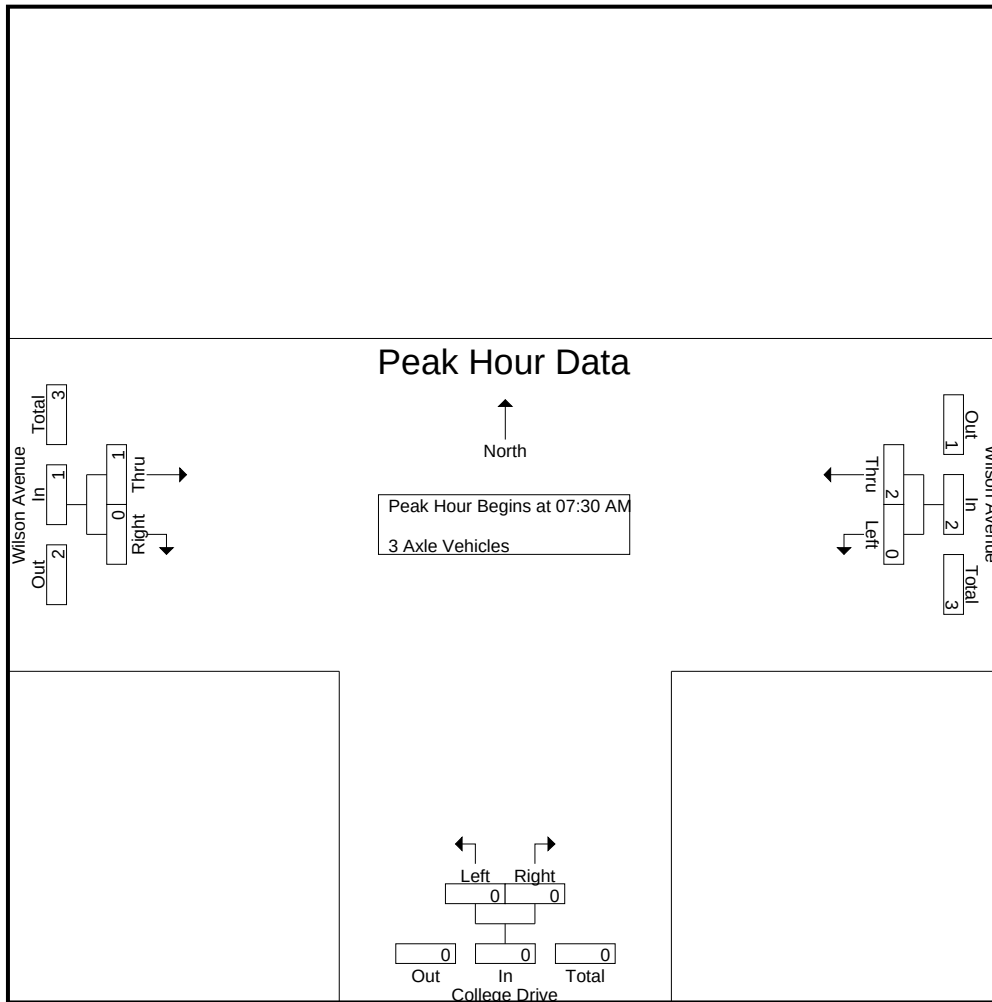
Groups Printed- 3 Axle Vehicles

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	1	1
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	2	2	0	0	0	1	0	1	3
Grand Total	0	2	2	0	0	0	1	1	2	4
Apprch %	0	100		0	0		50	50		
Total %	0	50	50	0	0	0	25	25	50	

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	2	2	0	0	0	1	0	1	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.375

City of Rancho Cucamonga
N/S: College Drive
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Weather: Clear

File Name : 12_RNC_College_Wilson AM
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	2	2	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	2	2	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: College Drive
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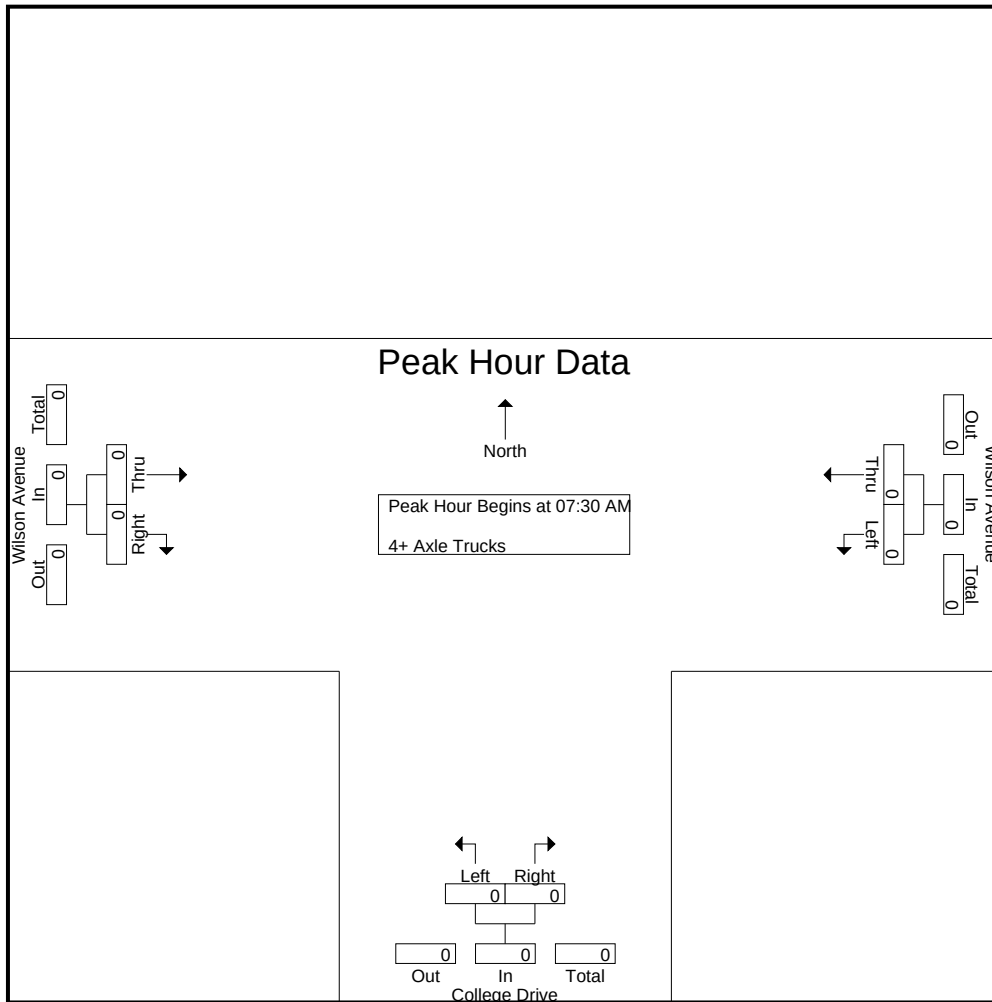
Groups Printed- 4+ Axle Trucks

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: College Drive
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: College Drive
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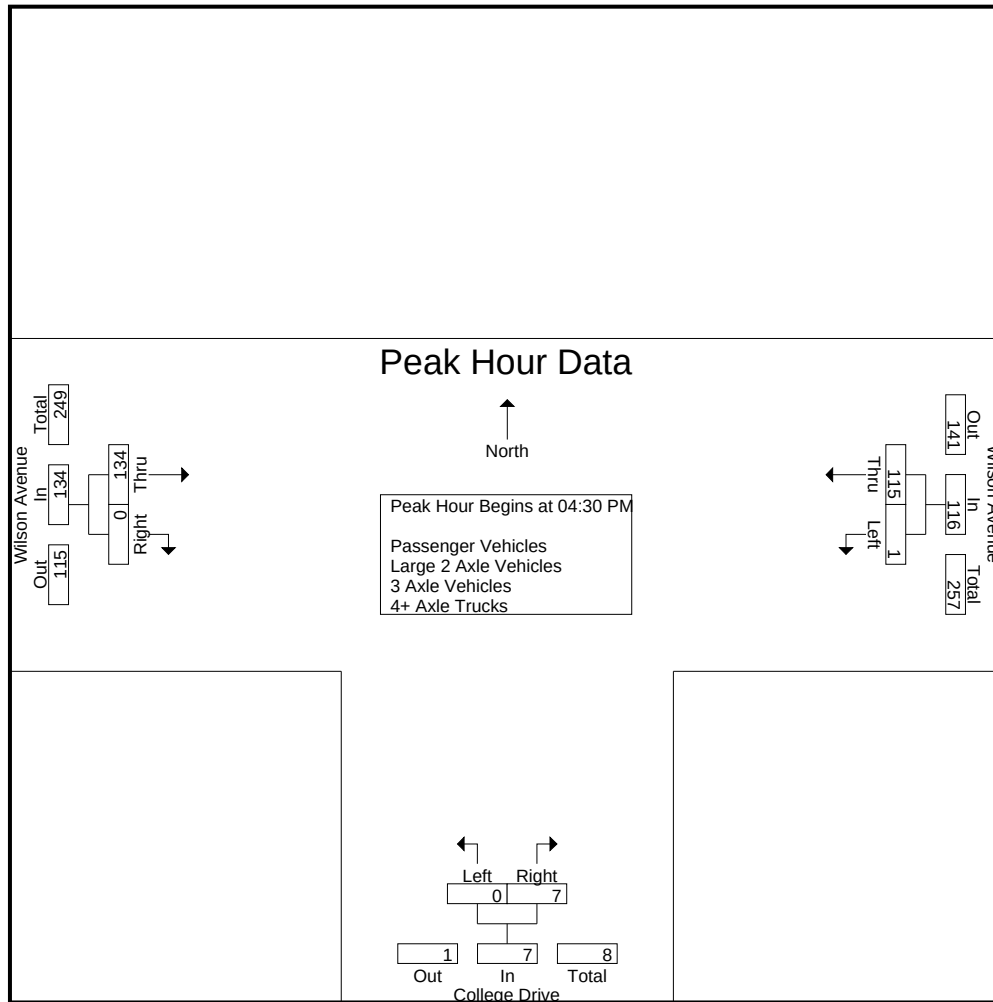
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	18	18	1	0	1	26	1	27	46
04:15 PM	1	25	26	1	0	1	25	0	25	52
04:30 PM	0	30	30	0	3	3	32	0	32	65
04:45 PM	1	24	25	0	1	1	39	0	39	65
Total	2	97	99	2	4	6	122	1	123	228
05:00 PM	0	26	26	0	3	3	28	0	28	57
05:15 PM	0	35	35	0	0	0	35	0	35	70
05:30 PM	0	23	23	0	0	0	24	0	24	47
05:45 PM	0	25	25	0	0	0	41	0	41	66
Total	0	109	109	0	3	3	128	0	128	240
Grand Total	2	206	208	2	7	9	250	1	251	468
Apprch %	1	99		22.2	77.8		99.6	0.4		
Total %	0.4	44	44.4	0.4	1.5	1.9	53.4	0.2	53.6	
Passenger Vehicles	2	201	203	2	7	9	243	0	243	455
% Passenger Vehicles	100	97.6	97.6	100	100	100	97.2	0	96.8	97.2
Large 2 Axle Vehicles	0	5	5	0	0	0	7	1	8	13
% Large 2 Axle Vehicles	0	2.4	2.4	0	0	0	2.8	100	3.2	2.8
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	30	30	0	3	3	32	0	32	65
04:45 PM	1	24	25	0	1	1	39	0	39	65
05:00 PM	0	26	26	0	3	3	28	0	28	57
05:15 PM	0	35	35	0	0	0	35	0	35	70
Total Volume	1	115	116	0	7	7	134	0	134	257
% App. Total	0.9	99.1		0	100		100	0		
PHF	.250	.821	.829	.000	.583	.583	.859	.000	.859	.918

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
Weather: Clear

File Name : 12_RNC_College_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:15 PM			04:30 PM		
+0 mins.	0	30	30	1	0	1	32	0	32
+15 mins.	1	24	25	0	3	3	39	0	39
+30 mins.	0	26	26	0	1	1	28	0	28
+45 mins.	0	35	35	0	3	3	35	0	35
Total Volume	1	115	116	1	7	8	134	0	134
% App. Total	0.9	99.1		12.5	87.5		100	0	
PHF	.250	.821	.829	.250	.583	.667	.859	.000	.859

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
Weather: Clear

File Name : 12_RNC_College_Wilson PM
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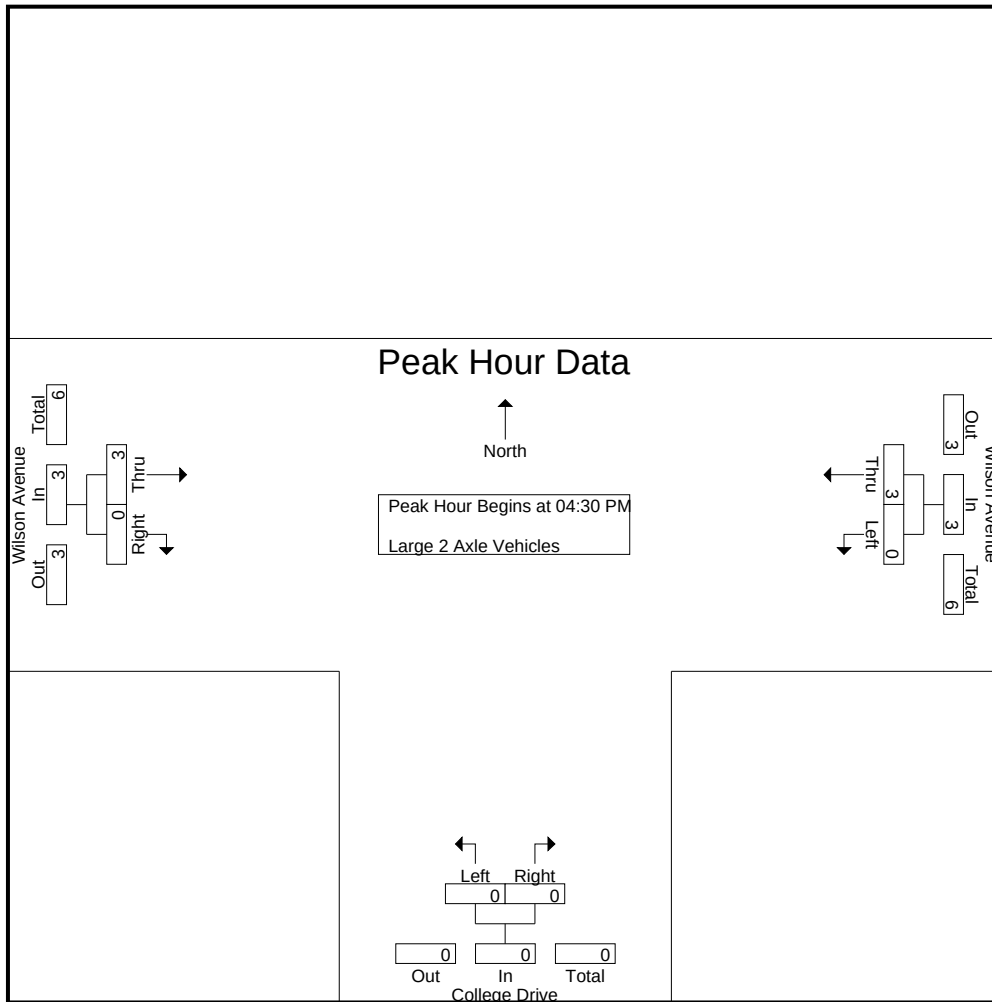
Groups Printed- Large 2 Axle Vehicles

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	2	1	3	3
04:15 PM	0	1	1	0	0	0	0	0	0	1
04:30 PM	0	1	1	0	0	0	3	0	3	4
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	3	3	0	0	0	5	1	6	9
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
05:30 PM	0	1	1	0	0	0	1	0	1	2
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	2	2	0	0	0	2	0	2	4
Grand Total	0	5	5	0	0	0	7	1	8	13
Apprch %	0	100		0	0		87.5	12.5		
Total %	0	38.5	38.5	0	0	0	53.8	7.7	61.5	

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	1	1	0	0	0	3	0	3	4
04:45 PM	0	1	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	0	0	0	1
Total Volume	0	3	3	0	0	0	3	0	3	6
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250	.375

City of Rancho Cucamonga
 N/S: College Drive
 E/W: Wilson Avenue
 Weather: Clear

File Name : 12_RNC_College_Wilson PM
 Site Code : 05121260
 Start Date : 6/2/2021
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	1	1	0	0	0	3	0	3
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	3	0	3
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.250	.000	.250

City of Rancho Cucamonga
N/S: College Drive
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File Name : 12_RNC_College_Wilson PM
Site Code : 05121260
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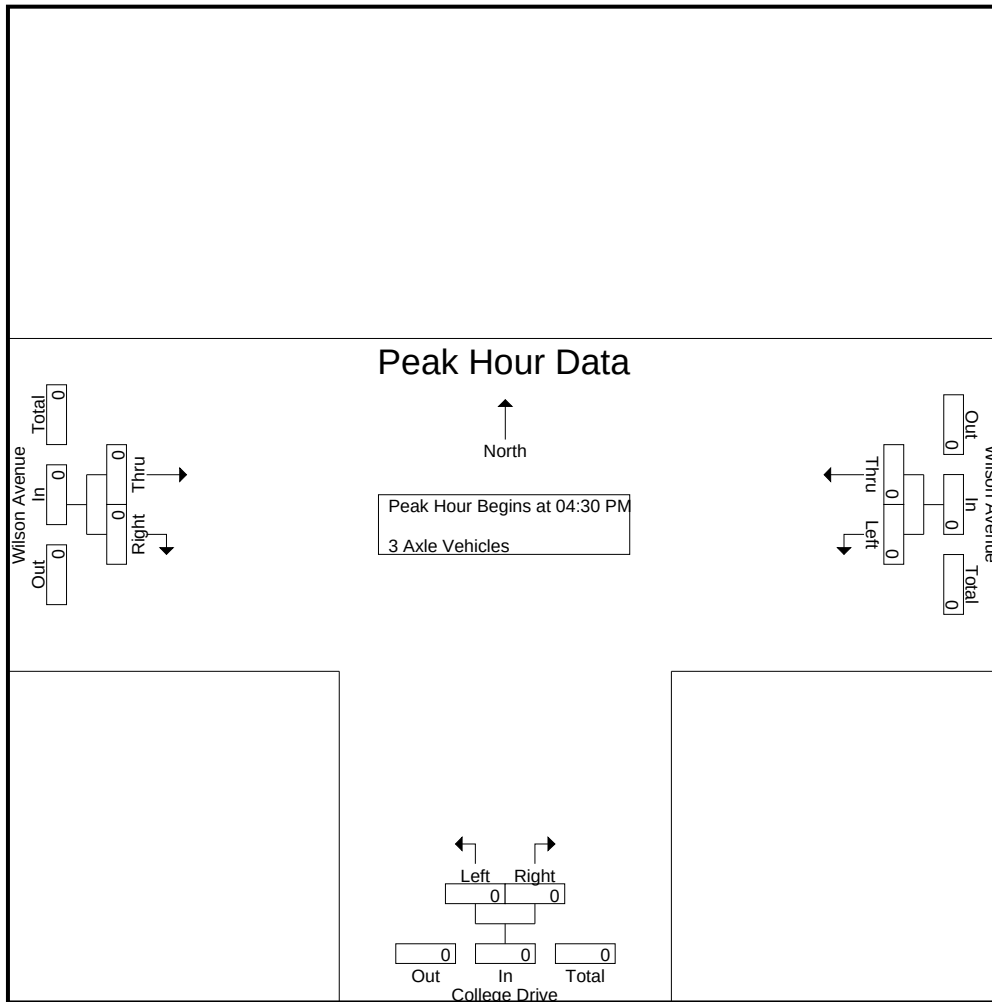
Groups Printed- 3 Axle Vehicles

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
Weather: Clear

File Name : 12_RNC_College_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
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File Name : 12_RNC_College_Wilson PM
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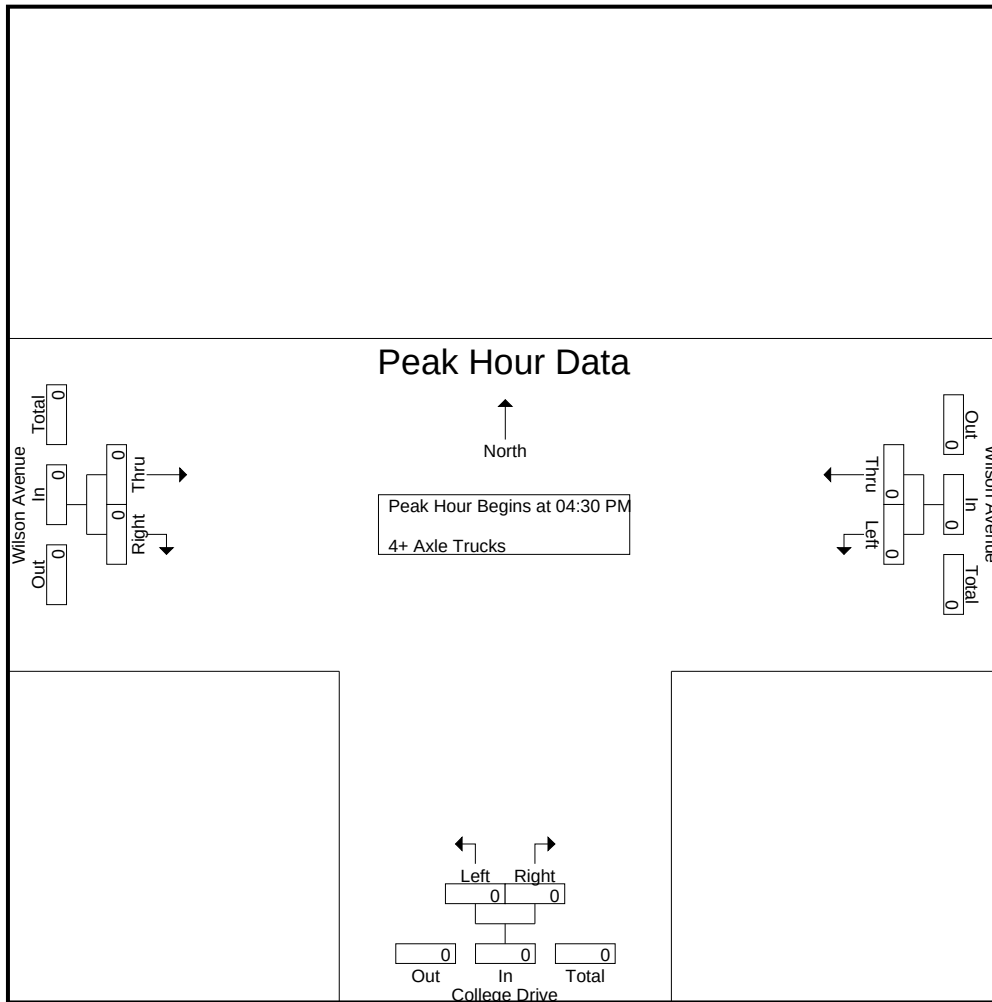
Groups Printed- 4+ Axle Trucks

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Wilson Avenue Westbound			College Drive Northbound			Wilson Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Rancho Cucamonga
N/S: College Drive
E/W: Wilson Avenue
Weather: Clear

File Name : 12_RNC_College_Wilson PM
Site Code : 05121260
Start Date : 6/2/2021
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:30 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Rancho Cucamonga
 N/S: College Drive
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

PEDESTRIANS

	North Leg Dead End	East Leg Wilson Avenue	South Leg College Drive	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	0	2

	North Leg Dead End	East Leg Wilson Avenue	South Leg College Drive	West Leg Wilson Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Rancho Cucamonga
 N/S: College Drive
 E/W: Wilson Avenue



Date: 6/2/2021
 Day: Wednesday

BICYCLES

	Southbound Dead End			Westbound Wilson Avenue			Northbound College Drive			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	3	0	6

	Southbound Dead End			Westbound Wilson Avenue			Northbound College Drive			Eastbound Wilson Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	2	0	0	0	0	0	3	0	5

1: Haven & Wilson

	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
2019 historic	35	64	227	12	151	23	7	120	39	71	53	30	832
2021 adjusted	36	67	236	12	157	24	7	125	41	74	55	31	866
2021 collected	26	84	26	16	141	16	9	63	24	31	73	29	538
growth													161%
New 2021 Adj.	36	84	236	16	157	24	9	125	41	74	73	31	906

6: Haven & Lemon

	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
2019 historic	80	894	58	6	450	45	36	16	62	281	45	11	1984
2021 adjusted	83	930	60	6	468	47	37	17	65	292	47	11	2064
2021 collected	69	249	94	6	343	40	46	24	63	194	51	5	1184
growth													174%
New 2021 Adj.	83	930	94	6	468	47	46	24	65	292	51	11	2118

1: Haven & Wilson

	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
2019 historic	61	143	137	32	114	16	52	110	55	194	80	58	1052
2021 adjusted	63	149	143	33	119	17	54	114	57	202	83	60	1095
2021 collected growth	33	161	24	26	120	10	25	85	36	16	46	51	633
New 2021 Adj.	63	161	143	33	120	17	54	114	57	202	83	60	1108

173%

6: Haven & Lemon

	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
2019 historic	166	653	219	13	783	40	115	80	103	176	30	16	2394
2021 adjusted	173	679	228	14	815	42	120	83	107	183	31	17	2491
2021 collected growth	165	362	196	7	318	18	84	103	111	161	40	8	1573
New 2021 Adj.	173	679	228	14	815	42	120	103	111	183	40	17	2523

158%

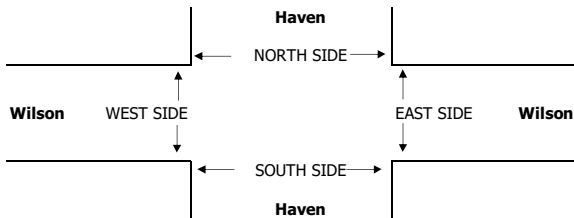
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T816

DATE: Tue, Mar 26, 19	LOCATION: NORTH & SOUTH: EAST & WEST:	Rancho Cucamnoga Haven Wilson	PROJECT #: SC2042 LOCATION #: 8 CONTROL: SIGNAL
NOTES:		AM PM MD OTHER OTHER ▲ ◀ W ▶ E ▼ S	☒ Add U-Turns to Left Turns

	NORTHBOUND Haven			SOUTHBOUND Haven			EASTBOUND Wilson			WESTBOUND Wilson			TOTAL
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 2	WR 0	
7:30 AM	10	8	55	1	41	10	1	35	15	17	14	5	212
7:45 AM	8	17	99	3	46	6	2	53	12	31	22	12	311
8:00 AM	7	19	46	5	26	2	1	17	5	16	7	3	154
8:15 AM	10	20	27	3	38	5	3	15	7	7	10	10	155
8:30 AM	9	24	54	10	41	3	1	11	5	10	10	6	184
8:45 AM	8	15	51	5	39	10	1	25	10	22	13	5	204
9:00 AM	9	16	50	6	34	8	2	23	6	18	9	4	185
9:15 AM	8	14	48	5	31	7	1	20	5	19	12	4	174
VOLUMES	69	133	430	38	296	51	12	199	65	140	97	49	1,579
APPROACH %	11%	21%	68%	10%	77%	13%	4%	72%	24%	49%	34%	17%	
APP/DEPART	632	/	194	385	/	521	276	/	667	286	/	197	0
BEGIN PEAK HR	7:30 AM												
VOLUMES	35	64	227	12	151	23	7	120	39	71	53	30	832
APPROACH %	11%	20%	70%	6%	81%	12%	4%	72%	23%	46%	34%	19%	
PEAK HR FACTOR	0.657			0.845			0.619			0.592			0.669
APP/DEPART	326	/	101	186	/	274	166	/	359	154	/	98	0
12:00 PM	19	20	71	5	29	8	3	24	8	61	21	9	278
12:15 PM	28	27	72	4	33	2	1	34	14	90	37	6	348
12:30 PM	13	24	54	5	26	2	5	20	10	59	15	4	237
12:45 PM	11	35	30	4	33	0	2	11	9	32	16	5	188
1:00 PM	13	32	29	4	33	2	5	9	12	23	14	14	190
1:15 PM	10	18	32	4	38	3	2	12	11	25	12	12	179
1:30 PM	7	31	69	2	35	4	2	22	11	59	20	8	270
1:45 PM	15	38	73	4	24	5	4	27	7	112	35	9	353
VOLUMES	116	225	430	32	251	26	24	159	82	461	170	67	2,043
APPROACH %	15%	29%	56%	10%	81%	8%	9%	60%	31%	66%	24%	10%	
APP/DEPART	771	/	316	309	/	831	265	/	622	698	/	274	0
BEGIN PEAK HR	12:00 PM												
VOLUMES	71	106	227	18	121	12	11	89	41	242	89	24	1,051
APPROACH %	18%	26%	56%	12%	80%	8%	8%	63%	29%	68%	25%	7%	
PEAK HR FACTOR	0.795			0.899			0.719			0.667			0.755
APP/DEPART	404	/	141	151	/	429	141	/	334	355	/	147	0
3:30 PM	10	37	44	3	33	2	7	25	12	36	15	5	229
3:45 PM	9	23	40	7	24	2	8	20	7	43	25	6	214
4:00 PM	11	38	22	6	30	8	5	21	14	23	10	16	204
4:15 PM	8	25	22	7	24	1	2	21	9	25	13	10	167
4:30 PM	18	43	33	8	20	7	9	23	15	51	20	12	259
4:45 PM	10	46	40	4	33	3	17	31	12	69	34	13	312
5:00 PM	20	23	32	12	36	4	12	31	14	35	12	18	249
5:15 PM	13	31	32	8	25	2	14	25	14	39	14	15	232
VOLUMES	99	266	265	55	225	29	74	197	97	321	143	95	1,866
APPROACH %	16%	42%	42%	18%	73%	9%	20%	54%	26%	57%	26%	17%	
APP/DEPART	630	/	435	309	/	661	368	/	517	559	/	253	0
BEGIN PEAK HR	4:30 PM												
VOLUMES	61	143	137	32	114	16	52	110	55	194	80	58	1,052
APPROACH %	18%	42%	40%	20%	70%	10%	24%	51%	25%	58%	24%	17%	
PEAK HR FACTOR	0.888			0.779			0.904			0.716			0.843
APP/DEPART	341	/	253	162	/	373	217	/	279	332	/	147	0



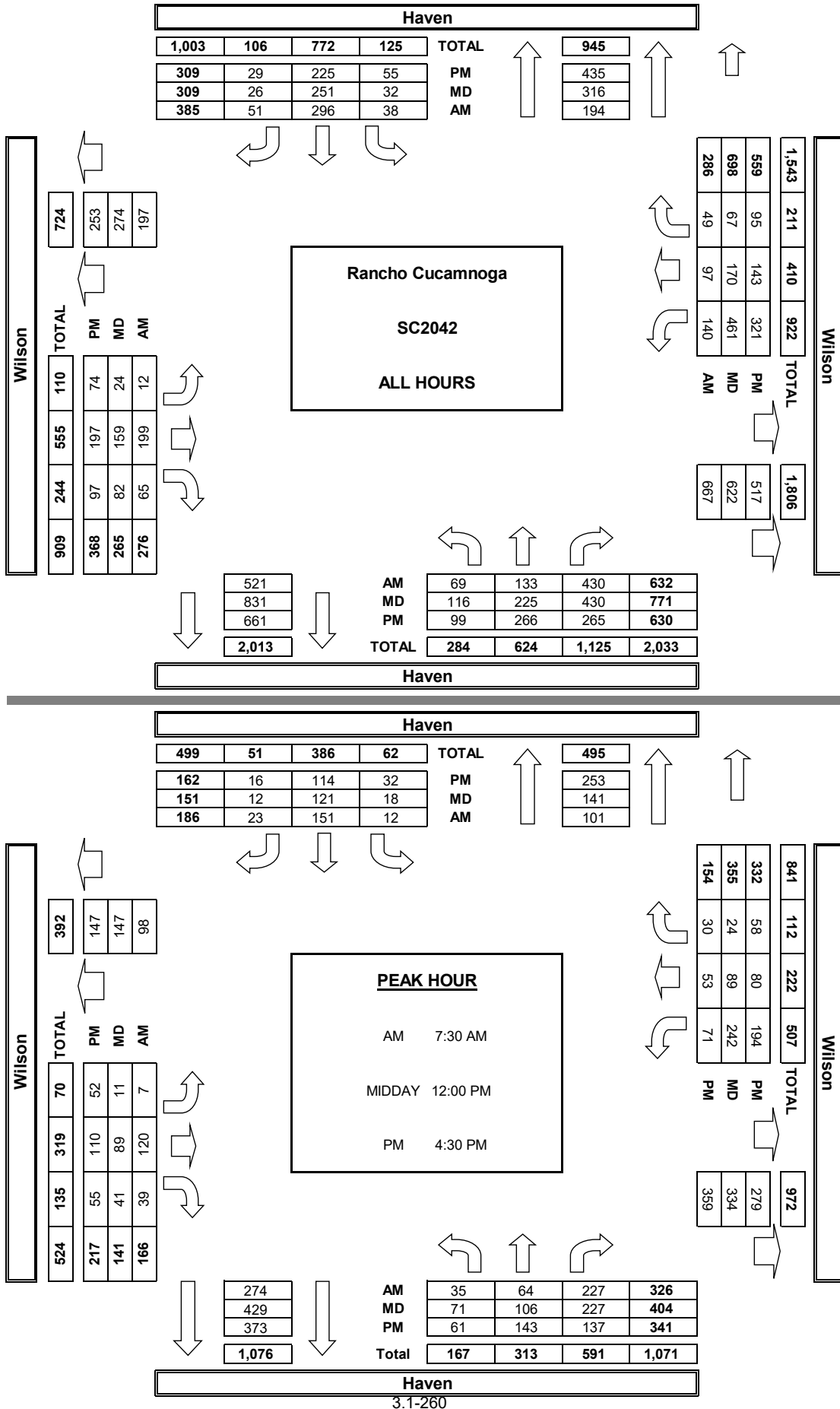
	AM	MIDDAY	PM
7:30 AM	10	19	10
7:45 AM	8	28	9
8:00 AM	7	13	11
8:15 AM	10	11	18
8:30 AM	9	13	10
8:45 AM	8	10	4
9:00 AM	9	7	20
9:15 AM	8	15	13
TOTAL	69	116	99
12:00 PM	19	28	10
12:15 PM	28	13	9
12:30 PM	13	11	18
12:45 PM	11	13	10
1:00 PM	13	10	4
1:15 PM	10	7	20
1:30 PM	7	15	13
1:45 PM	15	38	73
TOTAL	116	225	265
3:30 PM	10	37	44
3:45 PM	9	23	40
4:00 PM	11	38	22
4:15 PM	8	25	22
4:30 PM	18	43	33
4:45 PM	10	46	40
5:00 PM	20	23	32
5:15 PM	13	31	32
TOTAL	99	266	265

PEDESTRIAN + BIKE CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	0	0	0	
1	0	0	0	1	
0	1	0	0	1	
3	0	0	0	3	
1	0	0	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
5	1	0	0	6	
1	0	0	0	1	
1	2	0	0	3	
1	0	3	1	5	
0	1	0	2	3	
0	0	0	0	0	
0	2	0	1	3	
0	0	0	0	0	
0	0	0	1	1	
3	5	3	5	16	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	1	0	0	1	
0	1	0	0	1	
0	1	0	0	1	
0	0	0	0	0	
1	1	0	1	3	
1	4	0	1	6	

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	0	0	0	1
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3	1	0	0	4
1	0	0	0	1
1	1	0	0	2
1	0	3	1	5
0	1	0	2	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3	2	3	3	11
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	1	0	1	3
1	0	0	1	2

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	1	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	3	0	2	5
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1

AimTD LLC
TURNING MOVEMENT COUNTS



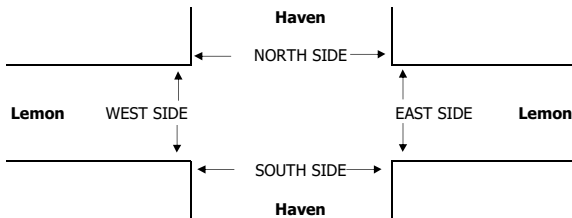
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T816

DATE: Tue, Mar 26, 19	LOCATION: NORTH & SOUTH: EAST & WEST:	Rancho Cucamonga Haven Lemon	PROJECT #: LOCATION #: CONTROL:	SC2042 5 SIGNAL
NOTES: Queue SB MD			AM PM MD OTHER OTHER ▲ ◀ W ▶ E ▼ S N	☒ Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Haven			Haven			Lemon			Lemon			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	1	3	0	1	1	0	1	1	0	
7:00 AM	11	127	24	0	90	8	6	4	14	67	8	1	360
7:15 AM	16	247	11	1	93	11	5	3	12	68	14	4	485
7:30 AM	28	241	10	3	138	8	16	5	18	84	14	1	566
7:45 AM	25	279	13	2	129	18	9	4	18	62	9	5	573
8:00 AM	21	127	11	2	81	10	13	8	18	45	9	3	348
8:15 AM	18	126	24	1	78	13	5	8	26	58	6	1	364
8:30 AM	24	124	18	1	100	13	14	3	21	47	12	5	382
8:45 AM	20	149	11	3	107	2	7	2	22	44	5	3	375
VOLUMES	163	1,420	122	13	816	83	75	37	149	475	77	23	3,453
APPROACH %	10%	83%	7%	1%	89%	9%	29%	14%	57%	83%	13%	4%	
APP/DEPART	1,705	/	1,520	912	/	1,468	261	/	170	575	/	295	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	80	894	58	6	450	45	36	16	62	281	45	11	1,984
APPROACH %	8%	87%	6%	1%	90%	9%	32%	14%	54%	83%	13%	3%	
PEAK HR FACTOR	0.814			0.841			0.731			0.851			0.866
APP/DEPART	1,032	/	942	501	/	801	114	/	79	337	/	162	0
12:00 PM	25	189	29	4	220	11	11	3	21	37	4	4	558
12:15 PM	31	222	40	4	348	17	21	9	22	39	8	7	768
12:30 PM	49	151	27	2	240	15	13	7	31	50	5	2	592
12:45 PM	39	147	44	1	147	8	18	7	27	34	6	1	479
1:00 PM	34	140	28	3	174	5	13	6	16	36	3	3	461
1:15 PM	35	127	39	4	151	4	9	7	17	39	8	2	442
1:30 PM	25	191	42	1	216	5	17	5	13	42	6	3	566
1:45 PM	27	196	32	4	329	14	20	9	13	35	4	2	685
VOLUMES	265	1,363	281	23	1,825	79	122	53	160	312	44	24	4,551
APPROACH %	14%	71%	15%	1%	95%	4%	36%	16%	48%	82%	12%	6%	
APP/DEPART	1,909	/	1,512	1,927	/	2,384	335	/	354	380	/	301	0
BEGIN PEAK HR	12:00 PM												
VOLUMES	144	709	140	11	955	51	63	26	101	160	23	14	2,397
APPROACH %	15%	71%	14%	1%	94%	5%	33%	14%	53%	81%	12%	7%	
PEAK HR FACTOR	0.847			0.689			0.913			0.864			0.780
APP/DEPART	993	/	788	1,017	/	1,263	190	/	175	197	/	171	0
3:30 PM	36	148	46	3	185	12	15	13	18	39	5	5	525
3:45 PM	39	137	50	1	161	11	15	11	20	35	5	2	487
4:00 PM	37	145	53	2	160	11	18	18	34	35	6	3	522
4:15 PM	36	110	49	1	142	4	16	23	23	34	4	3	445
4:30 PM	49	148	55	4	238	7	29	16	28	47	5	5	631
4:45 PM	46	187	42	5	201	7	27	11	22	35	7	2	592
5:00 PM	33	159	56	2	183	15	25	28	27	62	6	2	598
5:15 PM	38	159	66	2	161	11	34	25	26	32	12	7	573
VOLUMES	314	1,193	417	20	1,431	78	179	145	198	319	50	29	4,373
APPROACH %	16%	62%	22%	1%	94%	5%	34%	28%	38%	80%	13%	7%	
APP/DEPART	1,924	/	1,403	1,529	/	2,039	522	/	580	398	/	351	0
BEGIN PEAK HR	4:30 PM												
VOLUMES	166	653	219	13	783	40	115	80	103	176	30	16	2,394
APPROACH %	16%	63%	21%	2%	94%	5%	39%	27%	35%	79%	14%	7%	
PEAK HR FACTOR	0.944			0.839			0.876			0.793			0.948
APP/DEPART	1,038	/	786	836	/	1,114	298	/	310	222	/	184	0

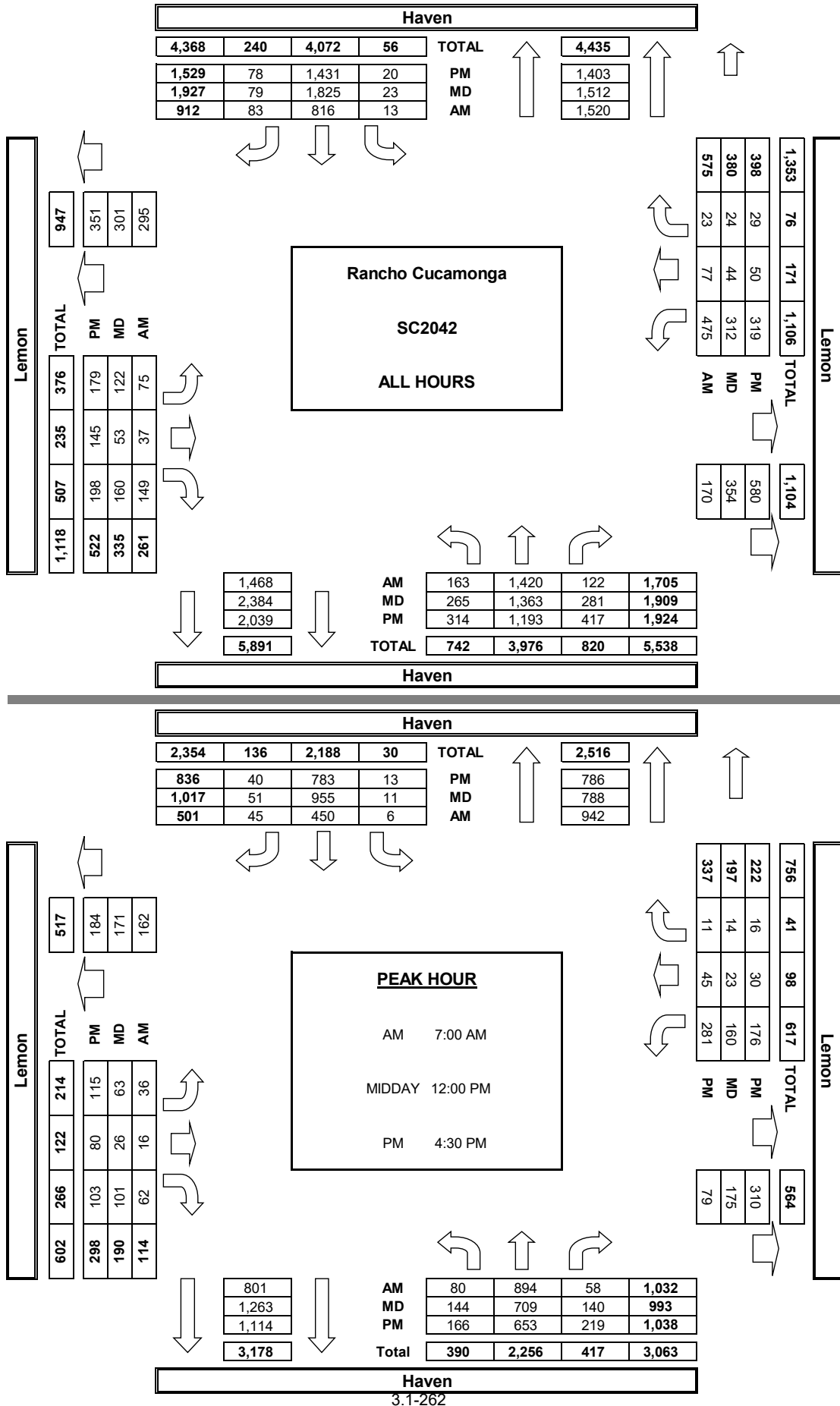


		PEDESTRIAN + BIKE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	1	0	1
	7:30 AM	1	2	0	2	5
	7:45 AM	1	1	1	0	3
	8:00 AM	0	0	0	0	0
	8:15 AM	0	1	0	1	2
	8:30 AM	0	0	0	1	1
	8:45 AM	0	0	0	0	0
MIDDAY	TOTAL	2	4	2	4	12
	12:00 PM	2	0	3	2	7
	12:15 PM	0	0	1	1	2
	12:30 PM	2	0	1	0	3
	12:45 PM	0	3	1	1	5
	1:00 PM	0	1	1	1	3
	1:15 PM	0	0	1	0	1
	1:30 PM	3	5	0	0	8
PM	1:45 PM	0	5	0	2	7
	TOTAL	7	14	8	7	36
	3:30 PM	0	3	1	1	5
	3:45 PM	0	1	0	1	2
	4:00 PM	1	0	1	1	3
	4:15 PM	0	3	0	2	5
	4:30 PM	1	3	1	1	6
	4:45 PM	0	6	1	1	8
	5:00 PM	0	1	0	1	2
	5:15 PM	0	1	1	3	5
	TOTAL	2	18	5	11	36

		PEDESTRIAN CROSSINGS			
		N SIDE	S SIDE	E SIDE	W SIDE
AM	7:00 AM	0	0	0	0
	7:15 AM	0	0	1	0
	7:30 AM	1	2	0	2
	7:45 AM	0	1	1	0
	8:00 AM	0	0	0	0
	8:15 AM	0	1	0	1
	8:30 AM	0	0	0	1
	8:45 AM	0	0	0	0
MIDDAY	TOTAL	1	4	2	4
	12:00 PM	2	0	3	1
	12:15 PM	0	0	1	1
	12:30 PM	2	0	1	0
	12:45 PM	0	3	1	1
	1:00 PM	0	1	1	1
	1:15 PM	0	0	1	0
	1:30 PM	3	5	0	0
PM	1:45 PM	0	5	0	2
	TOTAL	7	14	8	6
	3:30 PM	0	2	1	1
	3:45 PM	0	0	0	0
	4:00 PM	0	0	1	0
	4:15 PM	0	3	0	2
	4:30 PM	1	3	1	0
	4:45 PM	0	6	1	1
	5:00 PM	0	1	0	1
	5:15 PM	0	1	1	3
	TOTAL	1	19	5	8

		BICYCLE CROSSINGS			
		NS	SS	ES	WS
AM	7:00 AM	0	0	0	0
	7:15 AM	0	0	0	0
	7:30 AM	0	0	0	0
	7:45 AM	1	0	0	0
	8:00 AM	0	0	0	0
	8:15 AM	0	0	0	0
	8:30 AM	0	0	0	0
	8:45 AM	0	0	0	0
MIDDAY	TOTAL	1	0	0	0
	12:00 PM	0	0	0	1
	12:15 PM	0	0	0	0
	12:30 PM	0	0	0	0
	12:45 PM	0	0	0	0
	1:00 PM	0	0	0	0
	1:15 PM	0	0	0	0
	1:30 PM	0	0	0	0
PM	1:45 PM	0	0	0	0
	TOTAL	0	0	0	1
	3:30 PM	0	1	0	0
	3:45 PM	0	1	0	1
	4:00 PM	1	0	0	1
	4:15 PM	0	0	0	0
	4:30 PM	0	0	0	1
	4:45 PM	0	1	0	0
	5:00 PM	0	1	0	1
	5:15 PM	0	0	0	0
	TOTAL	1	4	0	3

AimTD LLC
TURNING MOVEMENT COUNTS



3.1-262

APPENDIX 3.2:

EXISTING (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	184	56	74	130	31	39	94	236	16	323	24
Future Volume (vph)	9	184	56	74	130	31	39	94	236	16	323	24
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.0	16.8	16.8	24.9	22.9	22.9	6.0	17.9	17.9	5.7	15.8	15.8
Actuated g/C Ratio	0.38	0.29	0.29	0.43	0.39	0.39	0.10	0.31	0.31	0.10	0.27	0.27
v/c Ratio	0.03	0.52	0.16	0.24	0.14	0.07	0.33	0.16	0.48	0.14	0.51	0.07
Control Delay	11.8	23.7	1.2	12.8	13.9	0.2	38.6	18.7	5.3	35.6	22.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	23.7	1.2	12.8	13.9	0.2	38.6	18.7	5.3	35.6	22.4	0.2
LOS	B	C	A	B	B	A	D	B	A	D	C	A
Approach Delay		18.2			11.8			12.2			21.5	
Approach LOS		B			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 58.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 16.2

Intersection LOS: B

Intersection Capacity Utilization 48.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	184	56	74	130	31	39	94	236	16	323	24
Future Volume (veh/h)	9	184	56	74	130	31	39	94	236	16	323	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1826	1796	1900	1856	1737	1841	1515	1885	1900	1841	1900
Adj Flow Rate, veh/h	13	275	47	110	194	0	58	140	333	24	482	17
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Percent Heavy Veh, %	0	5	7	0	3	11	4	26	1	0	4	0
Cap, veh/h	443	420	345	376	1022	427	95	773	429	51	848	389
Arrive On Green	0.02	0.23	0.23	0.08	0.29	0.00	0.05	0.27	0.27	0.03	0.24	0.24
Sat Flow, veh/h	1810	1826	1497	1810	3526	1472	1753	2878	1598	1810	3497	1604
Grp Volume(v), veh/h	13	275	47	110	194	0	58	140	333	24	482	17
Grp Sat Flow(s),veh/h/ln	1810	1826	1497	1810	1763	1472	1753	1439	1598	1810	1749	1604
Q Serve(g_s), s	0.3	7.2	1.3	2.3	2.2	0.0	1.7	2.0	10.1	0.7	6.3	0.4
Cycle Q Clear(g_c), s	0.3	7.2	1.3	2.3	2.2	0.0	1.7	2.0	10.1	0.7	6.3	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	420	345	376	1022	427	95	773	429	51	848	389
V/C Ratio(X)	0.03	0.65	0.14	0.29	0.19	0.00	0.61	0.18	0.78	0.47	0.57	0.04
Avail Cap(c_a), veh/h	586	1115	914	411	2152	899	181	1493	829	173	1788	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	18.3	16.0	13.7	14.0	0.0	24.2	14.7	17.7	25.1	17.4	15.2
Incr Delay (d2), s/veh	0.0	1.7	0.2	0.2	0.1	0.0	2.3	0.1	3.0	2.5	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.7	0.4	0.8	0.7	0.0	0.7	0.5	3.3	0.3	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	20.0	16.2	13.8	14.1	0.0	26.6	14.8	20.8	27.6	18.0	15.2
LnGrp LOS	B	C	B	B	B	A	C	B	C	C	B	B
Approach Vol, veh/h		335			304			531			523	
Approach Delay, s/veh		19.3			14.0			19.8			18.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	19.9	8.6	17.9	7.5	18.5	5.5	21.0				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	2.7	12.1	4.3	9.2	3.7	8.3	2.3	4.2				
Green Ext Time (p_c), s	0.0	1.7	0.0	1.5	0.0	2.8	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘	↗ ↘ ↘			↗ ↘ ↘
Traffic Vol, veh/h	0	3	366	73	0	453
Future Vol, veh/h	0	3	366	73	0	453
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	3	389	78	0	482

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	234	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	659	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	659	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	659
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	4	436	0	0	453
Future Vol, veh/h	17	4	436	0	0	453
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	7	0	0	4
Mvmt Flow	19	4	490	0	0	509

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	694	245	0
Stage 1	490	-	-
Stage 2	204	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	445	648	-
Stage 1	494	-	-
Stage 2	750	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	445	648	-
Mov Cap-2 Maneuver	445	-	-
Stage 1	494	-	-
Stage 2	750	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 445 648	-
HCM Lane V/C Ratio	- 0.043 0.007	-
HCM Control Delay (s)	- 13.5 10.6	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.1 0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	5	357	302	0	482
Future Vol, veh/h	0	5	357	302	0	482
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	5	392	332	0	530

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	362	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	546	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	546	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	546
HCM Lane V/C Ratio	-	-	0.01
HCM Control Delay (s)	-	-	11.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Timings
5: Haven Av. & Amber Ln.

Chaffey College (JN 13236)

07/29/2021

							
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	0	320	0	12	650	82	396
Future Volume (vph)	0	320	0	12	650	82	396
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	9.6	33.8	10.0	34.2
Total Split (%)	31.0%	31.0%	31.0%	8.3%	29.4%	8.7%	29.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.4	15.1	15.1	5.4	30.0	5.8	39.5
Actuated g/C Ratio	0.18	0.20	0.20	0.07	0.40	0.08	0.53
v/c Ratio	0.05	0.54	0.41	0.11	1.35dr	0.64	0.17
Control Delay	0.2	34.4	14.8	45.1	27.6	61.4	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	34.4	14.8	45.1	27.6	61.4	15.3
LOS	A	C	B	D	C	E	B
Approach Delay	0.2		24.7		27.7		23.1
Approach LOS	A		C		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 74.3

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 69.8%

ICU Level of Service C

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln.

			
Ø1	Ø2	Ø4	Ø8
10 s	33.8 s	35.6 s	35.6 s
			
Ø5	Ø6		
9.6 s	34.2 s		

HCM 6th Signalized Intersection Summary

5: Haven Av. & Amber Ln.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	0	0	20	320	0	9	12	650	1039	82	396	3
Future Volume (veh/h)	0	0	20	320	0	9	12	650	1039	82	396	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1900	1900	1693	1841	1885	1900	1826	1900
Adj Flow Rate, veh/h	0	0	2	358	0	0	13	714	0	90	435	3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	2	0	0	14	4	1	0	5	0
Cap, veh/h	0	0	23	792	423	0	27	1341		134	1656	11
Arrive On Green	0.00	0.00	0.01	0.22	0.00	0.00	0.02	0.27	0.00	0.07	0.32	0.32
Sat Flow, veh/h	0	0	1606	3563	1900	0	1612	5191	0	1810	5107	35
Grp Volume(v), veh/h	0	0	2	358	0	0	13	714	0	90	283	155
Grp Sat Flow(s),veh/h/ln	0	0	1606	1781	1900	0	1612	1675	0	1810	1662	1819
Q Serve(g_s), s	0.0	0.0	0.1	4.0	0.0	0.0	0.4	5.6	0.0	2.2	2.9	2.9
Cycle Q Clear(g_c), s	0.0	0.0	0.1	4.0	0.0	0.0	0.4	5.6	0.0	2.2	2.9	2.9
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	23	792	423	0	27	1341		134	1077	590
V/C Ratio(X)	0.00	0.00	0.09	0.45	0.00	0.00	0.49	0.53		0.67	0.26	0.26
Avail Cap(c_a), veh/h	0	0	1073	2382	1270	0	174	3034		211	2035	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	22.6	15.6	0.0	0.0	22.6	14.5	0.0	20.9	11.6	11.6
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.4	0.0	0.0	5.0	0.3	0.0	2.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.5	0.0	0.0	0.2	1.7	0.0	0.9	0.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	24.2	16.0	0.0	0.0	27.6	14.9	0.0	23.1	11.7	11.8
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B
Approach Vol, veh/h	2		358				727		A	528		
Approach Delay, s/veh	24.2		16.0				15.1		13.7			
Approach LOS	C		B				B		B			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.0	18.2	5.3		5.4	20.8	14.9					
Change Period (Y+Rc), s	4.6	5.8	4.6		4.6	5.8	4.6					
Max Green Setting (Gmax), s	5.4	28.0	31.0		5.0	28.4	31.0					
Max Q Clear Time (g_c+I1), s	4.2	7.6	2.1		2.4	4.9	6.0					
Green Ext Time (p_c), s	0.0	4.4	0.0		0.0	2.4	1.3					
Intersection Summary												
HCM 6th Ctrl Delay	14.8											
HCM 6th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	24	292	51	83	2032	9	727
Future Volume (vph)	120	24	292	51	83	2032	9	727
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	10.9	38.4	11.8	39.3	17.0	55.2	9.6	47.8
Total Split (%)	9.5%	33.4%	10.3%	34.2%	14.8%	48.0%	8.3%	41.6%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	18.5	13.7	19.9	14.4	8.6	50.9	5.2	41.5
Actuated g/C Ratio	0.22	0.16	0.23	0.17	0.10	0.59	0.06	0.48
v/c Ratio	0.42	0.31	0.99	0.31	0.53	0.80	0.09	0.36
Control Delay	28.6	15.0	79.7	27.7	51.7	19.4	47.1	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	15.0	79.7	27.7	51.7	19.4	47.1	17.6
LOS	C	B	E	C	D	B	D	B
Approach Delay		22.8		68.9		20.6		18.0
Approach LOS		C		E		C		B

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 85.8

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 25.1

Intersection LOS: C

Intersection Capacity Utilization 81.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

			
Ø1	Ø2	Ø3	Ø4
9.6 s	55.2 s	11.8 s	38.4 s
			
Ø5	Ø6	Ø7	Ø8
17 s	47.8 s	10.9 s	39.3 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	24	65	292	51	26	83	2032	94	9	727	64
Future Volume (veh/h)	120	24	65	292	51	26	83	2032	94	9	727	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1796	1900	1870	1559	1900	1841	1870	1796	1900	1870	1900
Adj Flow Rate, veh/h	135	27	0	328	57	26	93	2283	95	10	817	69
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	7	0	2	23	0	4	2	7	0	2	0
Cap, veh/h	328	229	0	389	139	63	119	2724	113	22	2333	196
Arrive On Green	0.07	0.13	0.00	0.08	0.14	0.14	0.07	0.54	0.54	0.01	0.49	0.49
Sat Flow, veh/h	1795	1796	0	1781	1007	459	1753	5029	208	1810	4797	403
Grp Volume(v), veh/h	135	27	0	328	0	83	93	1541	837	10	579	307
Grp Sat Flow(s),veh/h/ln	1795	1796	0	1781	0	1467	1753	1702	1833	1810	1702	1797
Q Serve(g_s), s	5.6	1.2	0.0	7.2	0.0	4.5	4.5	32.9	33.4	0.5	9.1	9.2
Cycle Q Clear(g_c), s	5.6	1.2	0.0	7.2	0.0	4.5	4.5	32.9	33.4	0.5	9.1	9.2
Prop In Lane	1.00		0.00	1.00		0.31	1.00		0.11	1.00		0.22
Lane Grp Cap(c), veh/h	328	229	0	389	0	203	119	1844	993	22	1655	874
V/C Ratio(X)	0.41	0.12	0.00	0.84	0.00	0.41	0.78	0.84	0.84	0.45	0.35	0.35
Avail Cap(c_a), veh/h	328	684	0	389	0	573	251	1939	1044	104	1655	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	33.5	0.0	34.4	0.0	34.1	39.8	16.6	16.8	42.5	13.8	13.8
Incr Delay (d2), s/veh	0.3	0.2	0.0	14.8	0.0	1.3	4.2	3.2	6.2	5.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.5	0.0	4.7	0.0	1.6	2.0	11.4	13.2	0.2	3.1	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	33.7	0.0	49.1	0.0	35.5	44.0	19.9	22.9	47.7	13.9	14.0
LnGrp LOS	C	C	A	D	A	D	D	B	C	D	B	B
Approach Vol, veh/h		162			411			2471			896	
Approach Delay, s/veh		30.9			46.4			21.8			14.3	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	52.8	11.8	16.5	10.5	48.0	10.9	17.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.0	49.4	7.2	33.0	12.4	42.0	6.3	33.9				
Max Q Clear Time (g_c+I1), s	2.5	35.4	9.2	3.2	6.5	11.2	7.6	6.5				
Green Ext Time (p_c), s	0.0	11.6	0.0	0.1	0.0	5.9	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			23.1									
HCM 6th LOS			C									

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	476	8	865	537	1641	1066
Future Volume (vph)	476	8	865	537	1641	1066
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	46.8	46.8	46.8	26.0	73.2	47.2
Total Split (%)	39.0%	39.0%	39.0%	21.7%	61.0%	39.3%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	41.0	41.0	41.0	21.3	67.0	41.0
Actuated g/C Ratio	0.34	0.34	0.34	0.18	0.56	0.34
v/c Ratio	0.83	1.03	0.92	1.00	0.65	1.03
Control Delay	50.1	85.3	55.7	86.2	19.7	67.1
Queue Delay	0.0	0.0	0.0	0.0	3.1	0.0
Total Delay	50.1	85.3	55.7	86.2	22.8	67.1
LOS	D	F	E	F	C	E
Approach Delay		64.0			38.4	67.1
Approach LOS		E			D	E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 54.1

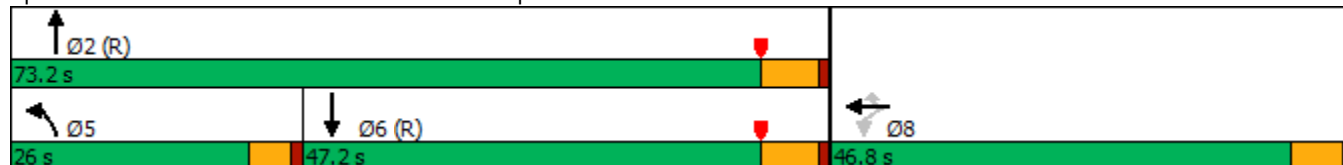
Intersection LOS: D

Intersection Capacity Utilization 144.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary

7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	476	8	865	537	1641	0	0	1066	529
Future Volume (veh/h)	0	0	0	476	8	865	537	1641	0	0	1066	529
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1604	1870	1856	1870	0	0	1870	1900
Adj Flow Rate, veh/h				758	0	416	603	1844	0	0	1198	466
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				1	20	2	3	2	0	0	2	0
Cap, veh/h				1056	0	466	609	3095	0	0	1409	547
Arrive On Green				0.29	0.00	0.29	0.18	0.61	0.00	0.00	0.39	0.39
Sat Flow, veh/h				3591	0	1585	3428	5274	0	0	3786	1404
Grp Volume(v), veh/h				758	0	416	603	1844	0	0	1127	537
Grp Sat Flow(s),veh/h/ln				1795	0	1585	1714	1702	0	0	1702	1618
Q Serve(g_s), s				22.7	0.0	30.1	21.1	26.7	0.0	0.0	36.3	36.4
Cycle Q Clear(g_c), s				22.7	0.0	30.1	21.1	26.7	0.0	0.0	36.3	36.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.87
Lane Grp Cap(c), veh/h				1056	0	466	609	3095	0	0	1325	630
V/C Ratio(X)				0.72	0.00	0.89	0.99	0.60	0.00	0.00	0.85	0.85
Avail Cap(c_a), veh/h				1227	0	542	609	3095	0	0	1325	630
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.83	0.83
Uniform Delay (d), s/veh				37.9	0.0	40.6	49.3	14.6	0.0	0.0	33.4	33.5
Incr Delay (d2), s/veh				1.7	0.0	15.5	9.0	0.1	0.0	0.0	5.9	11.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.8	0.0	13.3	9.5	9.2	0.0	0.0	15.2	15.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				39.6	0.0	56.1	58.2	14.7	0.0	0.0	39.3	45.1
LnGrp LOS				D	A	E	E	B	A	A	D	D
Approach Vol, veh/h					1174			2447			1664	
Approach Delay, s/veh					45.5			25.4			41.2	
Approach LOS					D			C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		78.9			26.0	52.9		41.1				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.8				
Max Green Setting (Gmax), s		67.0			* 21	41.0		41.0				
Max Q Clear Time (g_c+I1), s		28.7			23.1	38.4		32.1				
Green Ext Time (p_c), s		15.0			0.0	2.0		3.1				
Intersection Summary												
HCM 6th Ctrl Delay				34.8								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1344	5	335	835	540	1001
Future Volume (vph)	1344	5	335	835	540	1001
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	56.2	56.2	56.2	39.8	24.0	63.8
Total Split (%)	46.8%	46.8%	46.8%	33.2%	20.0%	53.2%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	50.4	50.4	50.4	33.6	19.3	57.6
Actuated g/C Ratio	0.42	0.42	0.42	0.28	0.16	0.48
v/c Ratio	1.04	1.07	0.50	1.05dr	1.03	0.44
Control Delay	80.3	88.7	22.5	69.1	95.5	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.3	88.7	22.5	69.1	95.5	21.3
LOS	F	F	C	E	F	C
Approach Delay		73.4		69.1		47.3
Approach LOS		E		E		D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 63.3

Intersection LOS: E

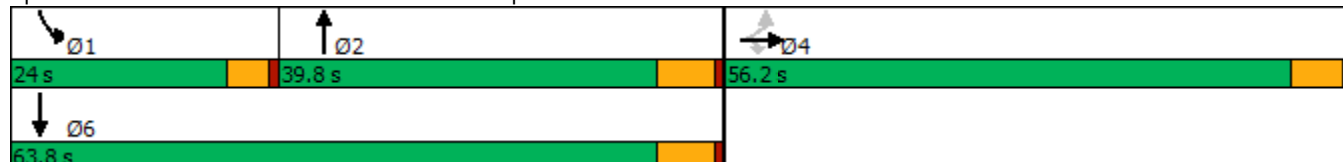
Intersection Capacity Utilization 144.9%

ICU Level of Service H

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary 8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  		  	  	
Traffic Volume (veh/h)	1344	5	335	0	0	0	0	835	536	540	1001	0
Future Volume (veh/h)	1344	5	335	0	0	0	0	835	536	540	1001	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1885	1411	1796				0	1856	1856	1885	1856	0
Adj Flow Rate, veh/h	1443	0	26				0	888	488	574	1065	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	33	7				0	3	3	1	3	0
Cap, veh/h	1498	0	635				0	950	442	563	2443	0
Arrive On Green	0.42	0.00	0.42				0.00	0.28	0.28	0.16	0.48	0.00
Sat Flow, veh/h	3591	0	1522				0	3544	1572	3483	5233	0
Grp Volume(v), veh/h	1443	0	26				0	888	488	574	1065	0
Grp Sat Flow(s),veh/h/ln	1795	0	1522				0	1689	1572	1742	1689	0
Q Serve(g_s), s	46.8	0.0	1.2				0.0	30.6	33.6	19.3	16.5	0.0
Cycle Q Clear(g_c), s	46.8	0.0	1.2				0.0	30.6	33.6	19.3	16.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1498	0	635				0	950	442	563	2443	0
V/C Ratio(X)	0.96	0.00	0.04				0.00	0.93	1.10	1.02	0.44	0.00
Avail Cap(c_a), veh/h	1515	0	642				0	950	442	563	2443	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.9	0.0	20.6				0.0	41.8	42.9	50.1	20.3	0.0
Incr Delay (d2), s/veh	15.2	0.0	0.0				0.0	15.7	73.8	43.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.2	0.0	0.4				0.0	14.3	21.6	11.5	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	0.0	20.7				0.0	57.6	116.7	93.1	20.4	0.0
LnGrp LOS	D	A	C				A	E	F	F	C	A
Approach Vol, veh/h	1469						1376			1639		
Approach Delay, s/veh	48.6						78.5			45.8		
Approach LOS	D						E			D		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	24.0	39.8	55.6		63.8							
Change Period (Y+Rc), s	* 4.7	6.2	5.8		6.2							
Max Green Setting (Gmax), s	* 19	33.6	50.4		57.6							
Max Q Clear Time (g_c+I1), s	21.3	35.6	48.8		18.5							
Green Ext Time (p_c), s	0.0	0.0	1.1		6.6							
Intersection Summary												
HCM 6th Ctrl Delay	56.8											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	421	15	15	231	3	3
Future Vol, veh/h	421	15	15	231	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	0	0	3	0	0
Mvmt Flow	569	20	20	312	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	592	0	934	582
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	994	-	297	517
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	290	516
Mov Cap-2 Maneuver	-	-	-	-	479	-
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	702	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		12.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	479	516	-	-	991	-
HCM Lane V/C Ratio	0.008	0.008	-	-	0.02	-
HCM Control Delay (s)	12.6	12	-	-	8.7	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	410	15	15	244	3	3
Future Vol, veh/h	410	15	15	244	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	0	0	3	0	0
Mvmt Flow	547	20	20	325	4	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	570	0	925	560
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1013	-	301	532
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1010	-	294	530
Mov Cap-2 Maneuver	-	-	-	-	485	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	693	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.5		12.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	507	-	-	1010	-	
HCM Lane V/C Ratio	0.016	-	-	0.02	-	
HCM Control Delay (s)	12.2	-	-	8.6	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	399	15	15	254	3	3
Future Vol, veh/h	399	15	15	254	3	3
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	587	22	22	374	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	611	0	1018	600
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	418	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	978	-	265	505
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	976	-	258	504
Mov Cap-2 Maneuver	-	-	-	-	456	-
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	654	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		12.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	479	-	-	976	-	
HCM Lane V/C Ratio	0.018	-	-	0.023	-	
HCM Control Delay (s)	12.7	-	-	8.8	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	384	18	33	266	3	9
Future Vol, veh/h	384	18	33	266	3	9
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	565	26	49	391	4	13
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	593	0	1069	580
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	993	-	247	518
Stage 1	-	-	-	-	564	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	234	517
Mov Cap-2 Maneuver	-	-	-	-	439	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	591	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1		12.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	517	-	-	991	-
HCM Lane V/C Ratio	0.01	0.026	-	-	0.049	-
HCM Control Delay (s)	13.3	12.1	-	-	8.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	155	67	202	115	60	71	185	143	33	151	17
Future Volume (vph)	54	155	67	202	115	60	71	185	143	33	151	17
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	20.6	14.0	14.0	22.9	18.8	18.8	5.8	17.4	17.4	5.3	12.8	12.8
Actuated g/C Ratio	0.36	0.24	0.24	0.40	0.33	0.33	0.10	0.30	0.30	0.09	0.22	0.22
v/c Ratio	0.13	0.42	0.16	0.49	0.12	0.11	0.47	0.20	0.28	0.23	0.23	0.04
Control Delay	11.5	22.3	1.1	16.8	17.3	0.4	40.7	17.6	5.5	34.0	20.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	22.3	1.1	16.8	17.3	0.4	40.7	17.6	5.5	34.0	20.7	0.2
LOS	B	C	A	B	B	A	D	B	A	C	C	A
Approach Delay		15.1			14.3			17.4			21.2	
Approach LOS		B			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 57.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 49.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	155	67	202	115	60	71	185	143	33	151	17
Future Volume (veh/h)	54	155	67	202	115	60	71	185	143	33	151	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1826	1841	1885	1856	1900	1900	1870	1900	1900	1841	1900
Adj Flow Rate, veh/h	64	185	35	240	137	17	85	220	150	39	180	14
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	5	4	1	3	0	0	2	0	0	4	0
Cap, veh/h	507	370	316	461	864	395	126	821	372	76	711	327
Arrive On Green	0.06	0.20	0.20	0.10	0.25	0.25	0.07	0.23	0.23	0.04	0.20	0.20
Sat Flow, veh/h	1810	1826	1560	1795	3526	1610	1810	3554	1610	1810	3497	1610
Grp Volume(v), veh/h	64	185	35	240	137	17	85	220	150	39	180	14
Grp Sat Flow(s),veh/h/ln	1810	1826	1560	1795	1763	1610	1810	1777	1610	1810	1749	1610
Q Serve(g_s), s	1.3	4.4	0.9	5.0	1.5	0.4	2.3	2.5	3.9	1.0	2.1	0.3
Cycle Q Clear(g_c), s	1.3	4.4	0.9	5.0	1.5	0.4	2.3	2.5	3.9	1.0	2.1	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	507	370	316	461	864	395	126	821	372	76	711	327
V/C Ratio(X)	0.13	0.50	0.11	0.52	0.16	0.04	0.67	0.27	0.40	0.51	0.25	0.04
Avail Cap(c_a), veh/h	584	1187	1014	461	2293	1047	199	1964	890	184	1905	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	17.4	16.0	14.2	14.6	14.2	22.3	15.5	16.0	23.1	16.5	15.8
Incr Delay (d2), s/veh	0.0	1.0	0.2	0.5	0.1	0.0	2.3	0.2	0.7	2.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.6	0.3	1.7	0.5	0.1	0.9	0.8	1.2	0.4	0.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	18.5	16.2	14.7	14.7	14.2	24.7	15.7	16.7	25.1	16.7	15.8
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		284			394			455			233	
Approach Delay, s/veh		17.1			14.7			17.7			18.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	17.2	9.6	15.8	8.0	15.8	7.5	17.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	3.0	5.9	7.0	6.4	4.3	4.1	3.3	3.5				
Green Ext Time (p_c), s	0.0	1.6	0.0	1.0	0.0	1.0	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	8	391	51	0	420
Future Vol, veh/h	0	8	391	51	0	420
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	8	399	52	0	429

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	226	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	666	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	666	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	666
HCM Lane V/C Ratio	-	-	0.012
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	8	435	0	0	419
Future Vol, veh/h	40	8	435	0	0	419
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	41	8	444	0	0	428

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	615	222	0
Stage 1	444	-	-
Stage 2	171	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	486	670	-
Stage 1	526	-	-
Stage 2	779	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	486	670	-
Mov Cap-2 Maneuver	476	-	-
Stage 1	526	-	-
Stage 2	779	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 476 670	-
HCM Lane V/C Ratio	- 0.086 0.012	-
HCM Control Delay (s)	- 13.3 10.4	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.3 0	-

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	23	466	210	0	500
Future Vol, veh/h	0	23	466	210	0	500
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	24	496	223	0	532

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	360	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	548	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	548	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 548	-
HCM Lane V/C Ratio	-	- 0.045	-
HCM Control Delay (s)	-	- 11.9	-
HCM Lane LOS	-	- B	-
HCM 95th %tile Q(veh)	-	- 0.1	-

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↕	↖	↕	↙	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	0	728	0	18	667	41	457
Future Volume (vph)	0	728	0	18	667	41	457
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	10.1	34.2	9.6	33.7
Total Split (%)	31.0%	31.0%	31.0%	8.8%	29.7%	8.3%	29.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.8	28.0	28.0	5.6	30.0	5.3	33.9
Actuated g/C Ratio	0.16	0.32	0.32	0.06	0.34	0.06	0.39
v/c Ratio	0.11	0.77	0.67	0.17	1.08dr	0.43	0.26
Control Delay	0.6	40.8	26.8	50.6	31.7	59.5	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.6	40.8	26.8	50.6	31.7	59.5	23.3
LOS	A	D	C	D	C	E	C
Approach Delay	0.6		33.8		31.9		26.3
Approach LOS	A		C		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 87.1

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 31.0

Intersection LOS: C

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

↙ Ø1	↑ Ø2	→ Ø4	↘ Ø8
9.6 s	34.2 s	35.6 s	35.6 s
↙ Ø5	↓ Ø6		
10.1 s	33.7 s		

HCM 6th Signalized Intersection Summary 5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	33	728	0	10	18	667	652	41	457	2
Future Volume (veh/h)	0	0	33	728	0	10	18	667	652	41	457	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1900	1900	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	0	0	6	837	0	0	20	758	0	47	519	2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	1	0	0	0	1	1	0	2	0
Cap, veh/h	0	0	26	1109	587	0	44	1325		85	1473	6
Arrive On Green	0.00	0.00	0.02	0.31	0.00	0.00	0.02	0.26	0.00	0.05	0.28	0.28
Sat Flow, veh/h	0	0	1610	3591	1900	0	1810	5316	0	1810	5250	20
Grp Volume(v), veh/h	0	0	6	837	0	0	20	758	0	47	336	185
Grp Sat Flow(s),veh/h/ln	0	0	1610	1795	1900	0	1810	1716	0	1810	1702	1866
Q Serve(g_s), s	0.0	0.0	0.2	11.1	0.0	0.0	0.6	6.8	0.0	1.3	4.2	4.2
Cycle Q Clear(g_c), s	0.0	0.0	0.2	11.1	0.0	0.0	0.6	6.8	0.0	1.3	4.2	4.2
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	26	1109	587	0	44	1325		85	955	524
V/C Ratio(X)	0.00	0.00	0.23	0.75	0.00	0.00	0.46	0.57		0.55	0.35	0.35
Avail Cap(c_a), veh/h	0	0	943	2104	1113	0	188	2763		171	1795	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	25.7	16.5	0.0	0.0	25.5	17.1	0.0	24.7	15.2	15.2
Incr Delay (d2), s/veh	0.0	0.0	4.6	1.1	0.0	0.0	2.8	0.4	0.0	2.1	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	4.3	0.0	0.0	0.3	2.2	0.0	0.6	1.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	30.3	17.5	0.0	0.0	28.3	17.5	0.0	26.7	15.4	15.6
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B
Approach Vol, veh/h	6			837			778			A		
Approach Delay, s/veh	30.3			17.5			17.8			16.4		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.1	19.4	5.4		5.9	20.6	20.9					
Change Period (Y+Rc), s	4.6	5.8	4.6		4.6	5.8	4.6					
Max Green Setting (Gmax), s	5.0	28.4	31.0		5.5	27.9	31.0					
Max Q Clear Time (g_c+I1), s	3.3	8.8	2.2		2.6	6.2	13.1					
Green Ext Time (p_c), s	0.0	4.7	0.0		0.0	2.9	3.2					

Intersection Summary

HCM 6th Ctrl Delay 17.4

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	171	103	183	40	173	1441	22	1414
Future Volume (vph)	171	103	183	40	173	1441	22	1414
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	12.0	38.4	11.4	37.8	20.4	55.5	9.7	44.8
Total Split (%)	10.4%	33.4%	9.9%	32.9%	17.7%	48.3%	8.4%	39.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	26.6	17.2	21.8	16.8	13.3	50.9	5.2	36.2
Actuated g/C Ratio	0.28	0.18	0.23	0.18	0.14	0.54	0.05	0.38
v/c Ratio	0.48	0.64	0.65	0.21	0.72	0.64	0.25	0.80
Control Delay	31.2	37.1	39.0	23.8	58.4	18.3	55.7	30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	37.1	39.0	23.8	58.4	18.3	55.7	30.7
LOS	C	D	D	C	E	B	E	C
Approach Delay		34.5		34.9		22.1		31.1
Approach LOS		C		C		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 94.6

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

			
Ø1	Ø2	Ø3	Ø4
9.7 s	55.5 s	11.4 s	38.4 s
			
Ø5	Ø6	Ø7	Ø8
20.4 s	44.8 s	12 s	37.8 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	103	111	183	40	27	173	1441	228	22	1414	82
Future Volume (veh/h)	171	103	111	183	40	27	173	1441	228	22	1414	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.98		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1841	1900	1870	1900	1885	1781	1885	1900
Adj Flow Rate, veh/h	178	107	54	191	42	25	180	1501	201	23	1473	85
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	0	4	1	4	0	2	0	1	8	1	0
Cap, veh/h	410	197	100	334	173	103	217	2230	298	42	1918	111
Arrive On Green	0.09	0.17	0.17	0.08	0.16	0.16	0.12	0.48	0.48	0.02	0.39	0.39
Sat Flow, veh/h	1767	1179	595	1795	1081	644	1781	4619	618	1697	4975	287
Grp Volume(v), veh/h	178	0	161	191	0	67	180	1123	579	23	1016	542
Grp Sat Flow(s),veh/h/ln	1767	0	1774	1795	0	1725	1781	1729	1779	1697	1716	1831
Q Serve(g_s), s	7.0	0.0	7.0	6.8	0.0	2.8	8.3	20.8	20.9	1.1	21.6	21.6
Cycle Q Clear(g_c), s	7.0	0.0	7.0	6.8	0.0	2.8	8.3	20.8	20.9	1.1	21.6	21.6
Prop In Lane	1.00		0.34	1.00		0.37	1.00		0.35	1.00		0.16
Lane Grp Cap(c), veh/h	410	0	297	334	0	277	217	1670	859	42	1323	706
V/C Ratio(X)	0.43	0.00	0.54	0.57	0.00	0.24	0.83	0.67	0.67	0.55	0.77	0.77
Avail Cap(c_a), veh/h	410	0	699	334	0	668	336	2053	1056	103	1599	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	31.9	27.8	0.0	30.7	35.9	16.6	16.6	40.4	22.4	22.4
Incr Delay (d2), s/veh	0.3	0.0	1.5	1.5	0.0	0.4	5.4	0.6	1.3	4.1	1.9	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	3.0	3.2	0.0	1.2	3.7	7.2	7.5	0.5	8.1	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	0.0	33.4	29.3	0.0	31.1	41.3	17.2	17.8	44.4	24.3	25.9
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	C	C
Approach Vol, veh/h		339			258			1882			1581	
Approach Delay, s/veh		29.8			29.8			19.7			25.2	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	46.2	11.4	19.4	14.8	38.1	12.0	18.8				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.1	49.7	6.8	33.0	15.8	39.0	7.4	32.4				
Max Q Clear Time (g_c+I1), s	3.1	22.9	8.8	9.0	10.3	23.6	9.0	4.8				
Green Ext Time (p_c), s	0.0	13.3	0.0	0.8	0.1	8.6	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			23.3									
HCM 6th LOS			C									

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	553	5	797	646	1548	1390
Future Volume (vph)	553	5	797	646	1548	1390
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	38.0	38.0	38.0	26.0	82.0	56.0
Total Split (%)	31.7%	31.7%	31.7%	21.7%	68.3%	46.7%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	32.2	32.2	32.2	21.3	75.8	49.8
Actuated g/C Ratio	0.27	0.27	0.27	0.18	0.63	0.42
v/c Ratio	1.10	1.13	1.01	1.12	0.51	1.08
Control Delay	113.2	121.8	82.6	118.1	12.7	77.3
Queue Delay	0.0	0.0	0.0	0.0	0.9	0.0
Total Delay	113.2	121.8	82.6	118.1	13.6	77.3
LOS	F	F	F	F	B	E
Approach Delay		106.2			44.3	77.3
Approach LOS		F			D	E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 71.4

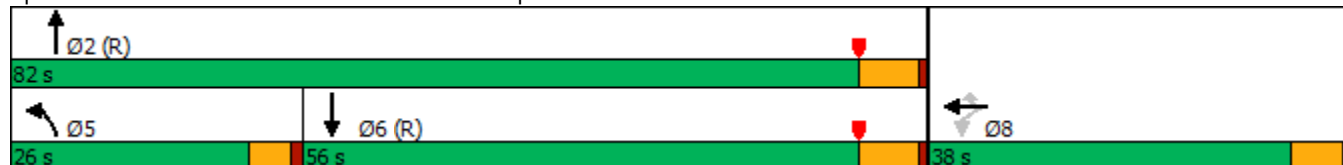
Intersection LOS: E

Intersection Capacity Utilization 107.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps

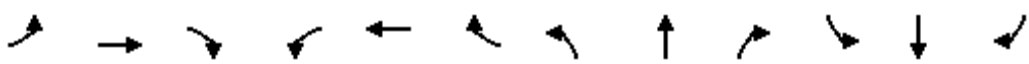


HCM 6th Signalized Intersection Summary

7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↷	↷	↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	553	5	797	646	1548	0	0	1390	729
Future Volume (veh/h)	0	0	0	553	5	797	646	1548	0	0	1390	729
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1411	1885	1885	1885	0	0	1885	1885
Adj Flow Rate, veh/h				764	0	376	687	1647	0	0	1479	617
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				1	33	1	1	1	0	0	1	1
Cap, veh/h				921	0	410	618	3312	0	0	1533	623
Arrive On Green				0.26	0.00	0.26	0.18	0.64	0.00	0.00	0.43	0.43
Sat Flow, veh/h				3591	0	1598	3483	5316	0	0	3761	1460
Grp Volume(v), veh/h				764	0	376	687	1647	0	0	1411	685
Grp Sat Flow(s),veh/h/ln				1795	0	1598	1742	1716	0	0	1716	1620
Q Serve(g_s), s				24.1	0.0	27.5	21.3	20.1	0.0	0.0	48.1	50.3
Cycle Q Clear(g_c), s				24.1	0.0	27.5	21.3	20.1	0.0	0.0	48.1	50.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.90
Lane Grp Cap(c), veh/h				921	0	410	618	3312	0	0	1465	692
V/C Ratio(X)				0.83	0.00	0.92	1.11	0.50	0.00	0.00	0.96	0.99
Avail Cap(c_a), veh/h				964	0	429	618	3312	0	0	1465	692
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.53	0.53
Uniform Delay (d), s/veh				42.1	0.0	43.4	49.4	11.2	0.0	0.0	33.5	34.1
Incr Delay (d2), s/veh				6.0	0.0	24.0	52.5	0.0	0.0	0.0	10.5	22.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.1	0.0	13.2	13.5	6.7	0.0	0.0	20.8	22.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				48.1	0.0	67.4	101.9	11.3	0.0	0.0	43.9	56.7
LnGrp LOS				D	A	E	F	B	A	A	D	E
Approach Vol, veh/h					1140			2334			2096	
Approach Delay, s/veh					54.5			37.9			48.1	
Approach LOS					D			D			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		83.4			26.0	57.4		36.6				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.8				
Max Green Setting (Gmax), s		75.8			* 21	49.8		32.2				
Max Q Clear Time (g_c+I1), s		22.1			23.3	52.3		29.5				
Green Ext Time (p_c), s		13.3			0.0	0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				45.2								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	611	8	313	1583	746	1199
Future Volume (vph)	611	8	313	1583	746	1199
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	27.0	27.0	27.0	65.0	28.0	93.0
Total Split (%)	22.5%	22.5%	22.5%	54.2%	23.3%	77.5%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.2	21.2	21.2	58.8	23.3	86.8
Actuated g/C Ratio	0.18	0.18	0.18	0.49	0.19	0.72
v/c Ratio	1.16	1.18	0.86	1.17dr	1.18	0.34
Control Delay	147.1	152.2	54.8	83.8	138.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	147.1	152.2	54.8	83.8	138.2	6.8
LOS	F	F	D	F	F	A
Approach Delay		120.9		83.8		57.2
Approach LOS		F		F		E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 80.6

Intersection LOS: F

Intersection Capacity Utilization 107.9%

ICU Level of Service G

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  		  	  	
Traffic Volume (veh/h)	611	8	313	0	0	0	0	1583	971	746	1199	0
Future Volume (veh/h)	611	8	313	0	0	0	0	1583	971	746	1199	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1856				0	1885	1885	1885	1885	0
Adj Flow Rate, veh/h	679	0	57				0	1684	733	794	1276	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3				0	1	1	1	1	0
Cap, veh/h	639	0	278				0	1750	714	676	3723	0
Arrive On Green	0.18	0.00	0.18				0.00	0.49	0.49	0.19	0.72	0.00
Sat Flow, veh/h	3619	0	1572				0	3742	1457	3483	5316	0
Grp Volume(v), veh/h	679	0	57				0	1613	804	794	1276	0
Grp Sat Flow(s),veh/h/ln	1810	0	1572				0	1716	1598	1742	1716	0
Q Serve(g_s), s	21.2	0.0	3.7				0.0	54.3	58.8	23.3	10.9	0.0
Cycle Q Clear(g_c), s	21.2	0.0	3.7				0.0	54.3	58.8	23.3	10.9	0.0
Prop In Lane	1.00		1.00				0.00		0.91	1.00		0.00
Lane Grp Cap(c), veh/h	639	0	278				0	1681	783	676	3723	0
V/C Ratio(X)	1.06	0.00	0.21				0.00	0.96	1.03	1.17	0.34	0.00
Avail Cap(c_a), veh/h	639	0	278				0	1681	783	676	3723	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.4	0.0	42.2				0.0	29.5	30.6	48.3	6.1	0.0
Incr Delay (d2), s/veh	53.2	0.0	0.4				0.0	13.5	39.1	93.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	0.0	1.4				0.0	23.6	29.2	18.5	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.6	0.0	42.6				0.0	43.0	69.7	141.7	6.1	0.0
LnGrp LOS	F	A	D				A	D	F	F	A	A
Approach Vol, veh/h	736						2417			2070		
Approach Delay, s/veh	97.9						51.9			58.2		
Approach LOS	F						D			E		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	28.0	65.0		27.0		93.0						
Change Period (Y+Rc), s	* 4.7	6.2		5.8		6.2						
Max Green Setting (Gmax), s	* 23	58.8		21.2		86.8						
Max Q Clear Time (g_c+I1), s	25.3	60.8		23.2		12.9						
Green Ext Time (p_c), s	0.0	0.0		0.0		8.9						
Intersection Summary												
HCM 6th Ctrl Delay	60.9											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	320	10	10	370	8	8
Future Vol, veh/h	320	10	10	370	8	8
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	390	12	12	451	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	405	0	874	399
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	475	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1165	-	323	655
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1162	-	319	653
Mov Cap-2 Maneuver	-	-	-	-	511	-
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	624	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	511	653	-	-	1162	-
HCM Lane V/C Ratio	0.019	0.015	-	-	0.01	-
HCM Control Delay (s)	12.2	10.6	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	318	10	10	372	8	8
Future Vol, veh/h	318	10	10	372	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	0	0	1	0	0
Mvmt Flow	383	12	12	448	10	10
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	395	0	861	389
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	472	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1175	-	329	664
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1175	-	326	664
Mov Cap-2 Maneuver	-	-	-	-	517	-
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	626	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		11.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	581	-	-	1175	-	
HCM Lane V/C Ratio	0.033	-	-	0.01	-	
HCM Control Delay (s)	11.4	-	-	8.1	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	316	10	10	373	8	8
Future Vol, veh/h	316	10	10	373	8	8
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	0	1	0	0
Mvmt Flow	363	11	11	429	9	9

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	376	0	822
Stage 1	-	-	-	-	371
Stage 2	-	-	-	-	451
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1194	-	346
Stage 1	-	-	-	-	702
Stage 2	-	-	-	-	646
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1192	-	342
Mov Cap-2 Maneuver	-	-	-	-	530
Stage 1	-	-	-	-	701
Stage 2	-	-	-	-	640

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	595	-	-	1192	-
HCM Lane V/C Ratio	0.031	-	-	0.01	-
HCM Control Delay (s)	11.2	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	314	10	22	375	8	28
Future Vol, veh/h	314	10	22	375	8	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	1	0	0
Mvmt Flow	341	11	24	408	9	30
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	352	0	803	347
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	456	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1218	-	355	701
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1218	-	348	701
Mov Cap-2 Maneuver	-	-	-	-	532	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	630	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.4	10.7			
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	532	701	-	-	1218	-
HCM Lane V/C Ratio	0.016	0.043	-	-	0.02	-
HCM Control Delay (s)	11.9	10.4	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

APPENDIX 3.3:

EXISTING (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing Conditions - Weekday PM Peak Hour**

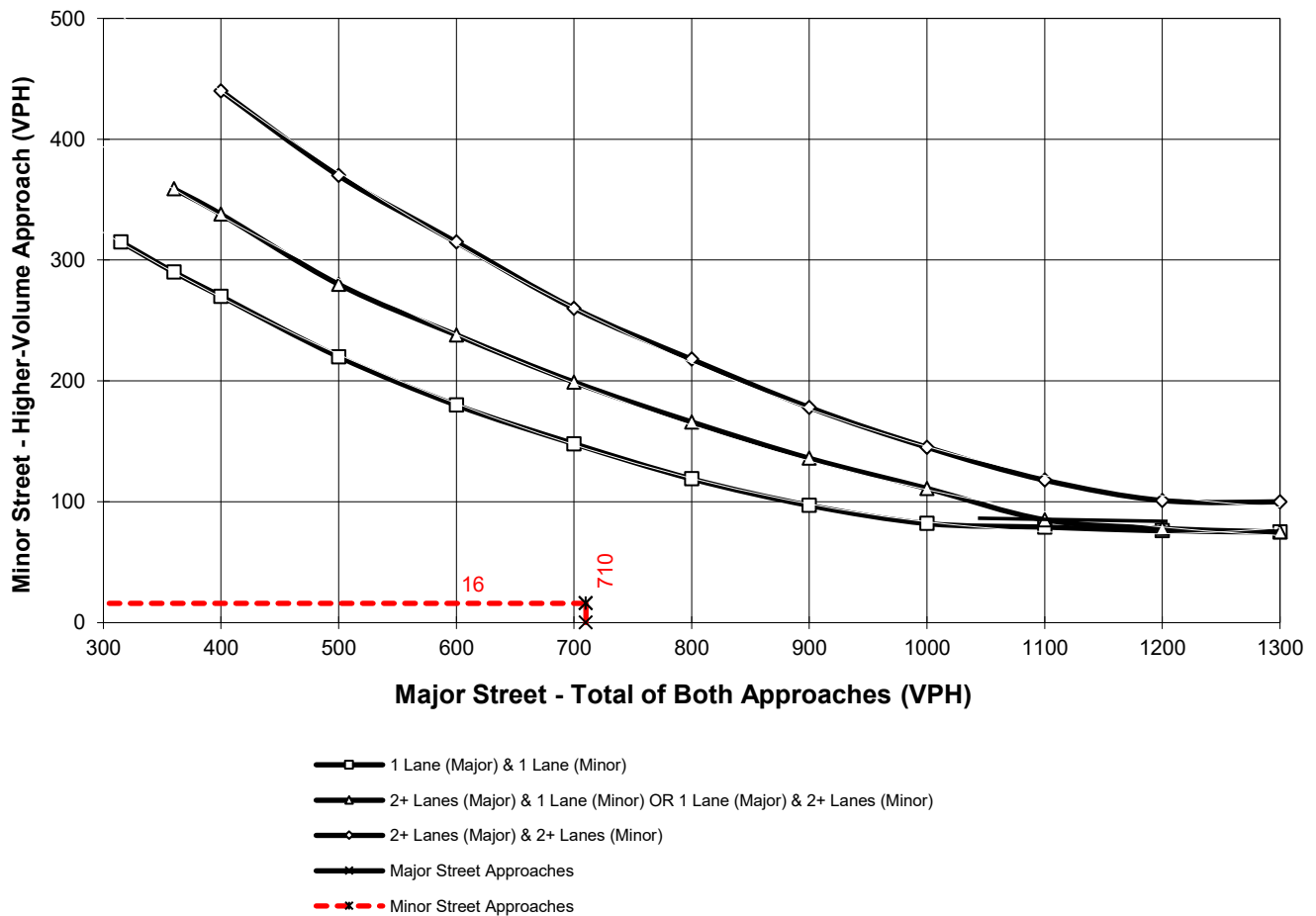
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **710**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 2**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing Conditions - Weekday PM Peak Hour**

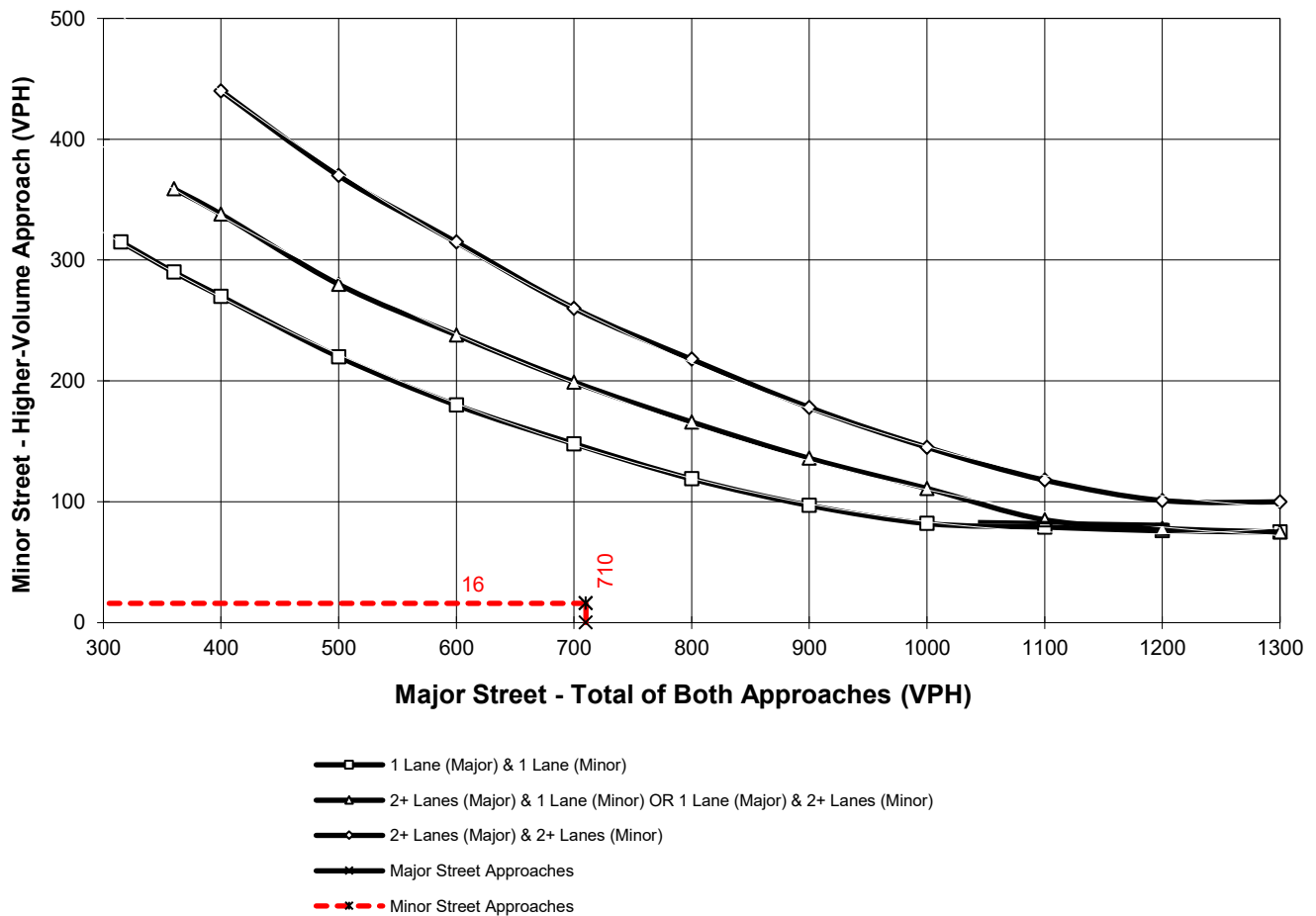
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **710**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 3**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing Conditions - Weekday PM Peak Hour**

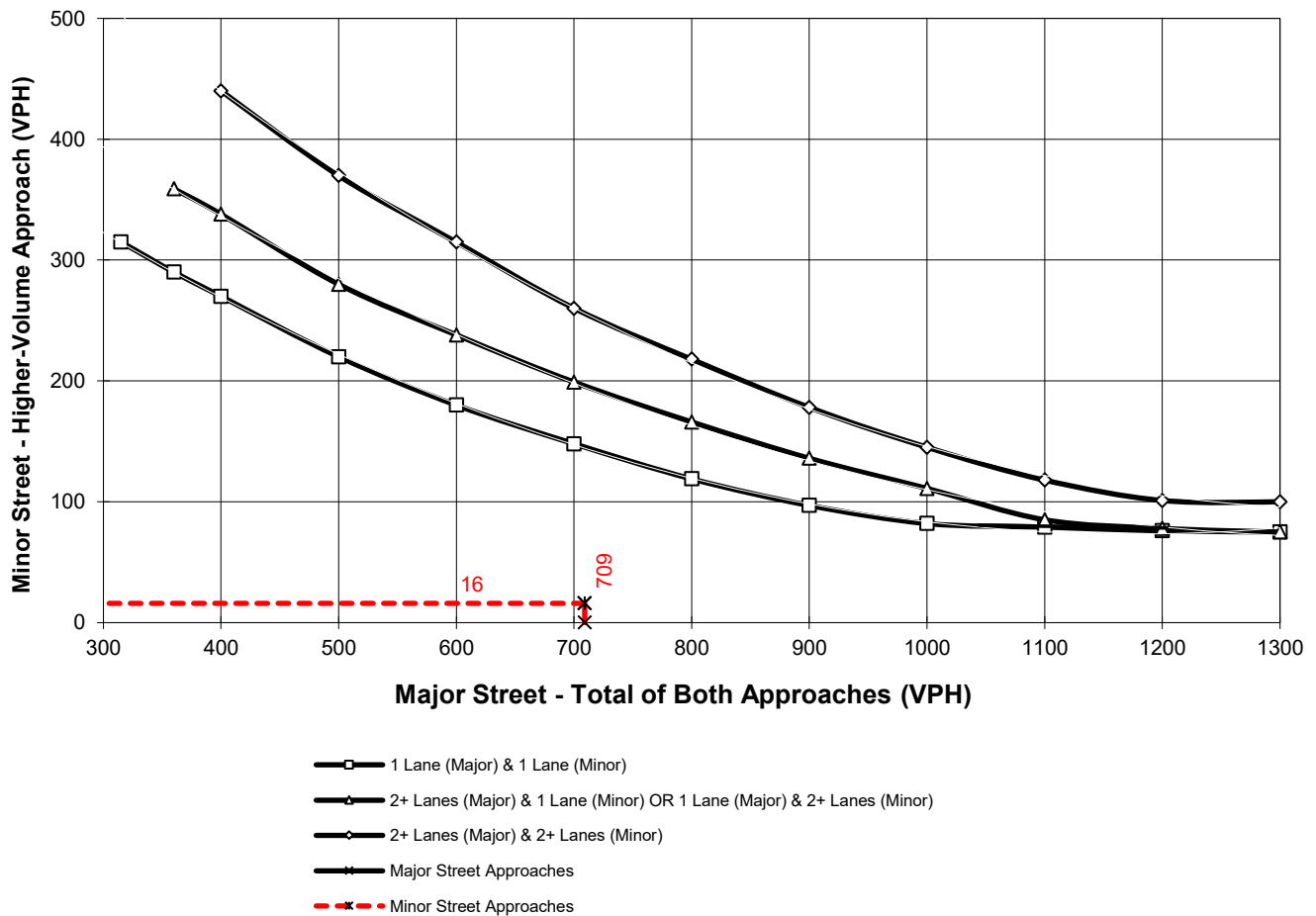
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **709**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 4**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing Conditions - Weekday PM Peak Hour**

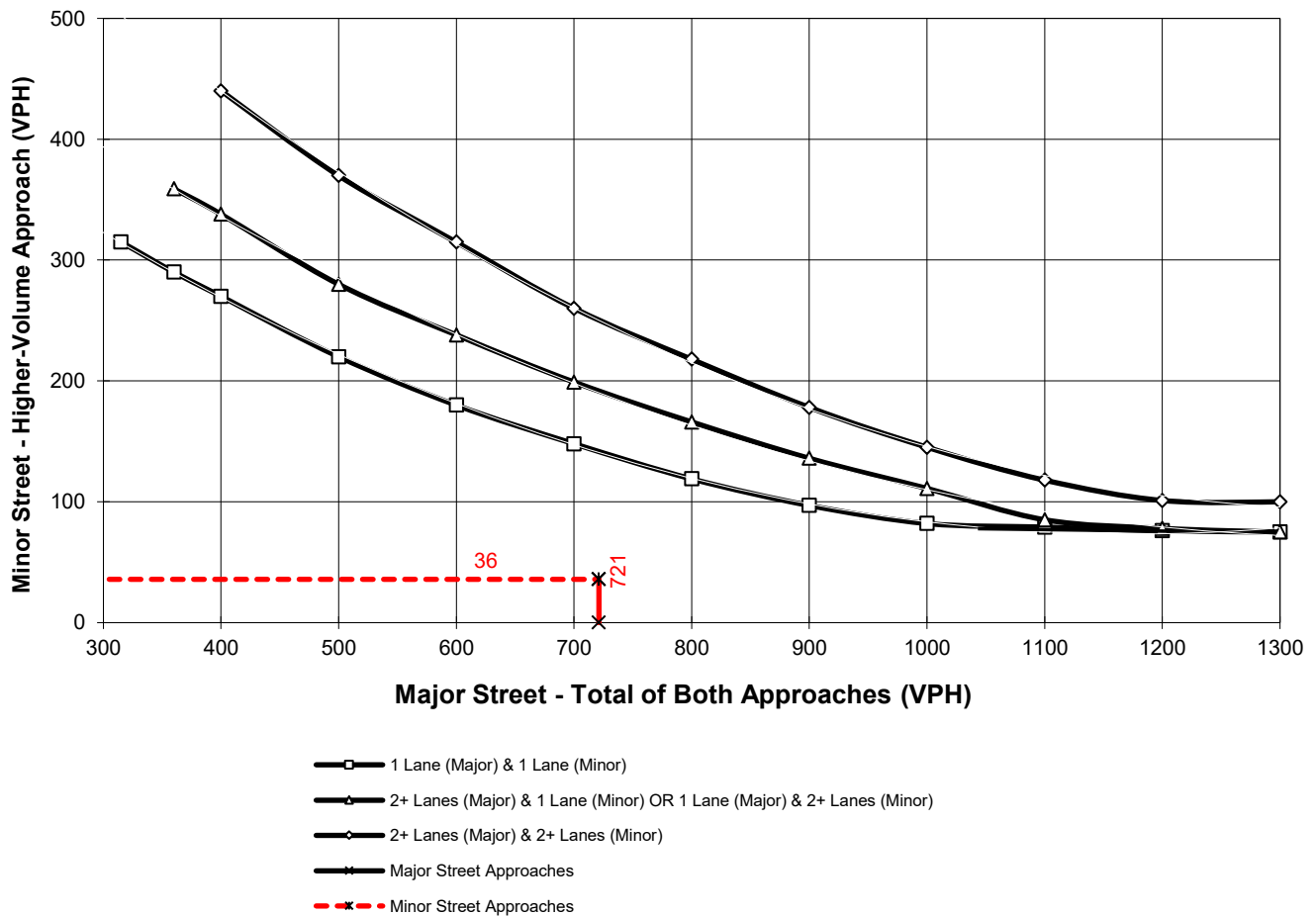
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **721**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **College Dr.**

High Volume Approach (VPH) = **36**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project: Chaffey College (Rancho Cucamonga)
 Scenario: Horizon Year (2040) Without Project

Job #: 13236
 Analyst: CS
 Date: 7/22/21

LOCATION: Haven Av. & Wilson Av.
 FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW									
APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
		EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	39	54	15	37%	71	74	3	4%
	Through	94	88	-6	-6%	185	179	-6	-3%
	Right	236	250	14	6%	143	203	60	42%
	NB Total	370	392	22	6%	399	456	57	14%
SOUTH BOUND	Left	16	13	-3	-19%	33	49	16	47%
	Through	323	344	21	6%	151	140	-11	-7%
	Right	24	26	2	9%	17	18	1	8%
	SB Total	363	383	20	6%	201	207	6	3%
EAST BOUND	Left	9	8	-1	-11%	54	63	9	16%
	Through	184	176	-8	-4%	155	268	113	72%
	Right	56	68	12	22%	67	72	5	7%
	EB Total	248	252	4	1%	277	403	126	46%
WEST BOUND	Left	74	118	44	60%	202	208	6	3%
	Through	130	210	80	62%	115	138	23	20%
	Right	31	35	4	12%	60	68	8	13%
	WB Total	235	363	128	54%	377	414	37	10%
TOTAL ENTERING VOLUME		1,216	1,390	173.8816	14%	1,254	1,480	226	18%

FORECAST PEAK HOUR TO ADT COMPARISON						
		VOLUMES		PERCENT OF ADT		ADT
		AM	PM	AM	PM	
North Leg	Inbound	383	207	8%	9%	6,077
North Leg	Outbound	131	310			
North Leg	TOTAL	514	517			
South Leg	Inbound	392	456	9%	8%	10,720
South Leg	Outbound	530	420			
South Leg	TOTAL	922	876			
East Leg	Inbound	363	414	7%	8%	12,032
East Leg	Outbound	439	520			
East Leg	TOTAL	802	934			
West Leg	Inbound	252	403	8%	10%	6,628
West Leg	Outbound	290	230			
West Leg	TOTAL	542	633			
OVERALL TOTAL		2,780	2,960	8%	8%	35,458

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Project: Chaffey College (Rancho Cucamonga)
 Scenario: Horizon Year (2040) Without Project

Job #: 13236
 Analyst: CS
 Date: 7/22/21

LOCATION: Haven Av. & Amber Ln.
 FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW									
APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
		EXISTING COUNT	FUTURE VOLUME	DIFFERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFFERENCE	% CHANGE
NORTH BOUND	Left	12	15	3	28%	18	18	0	-1%
	Through	650	672	22	3%	667	720	53	8%
	Right	1,039	1,006	-33	-3%	652	659	7	1%
	NB Total	1,701	1,693	-8	0%	1,336	1,397	61	5%
SOUTH BOUND	Left	82	84	2	2%	41	41	0	0%
	Through	398	485	87	22%	457	459	2	0%
	Right	3	5	2	49%	2	2	0	21%
	SB Total	484	574	90	19%	500	502	2	0%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	20	20	0	-1%	33	30	-3	-9%
	EB Total	20	20	0	-1%	33	30	-3	-9%
WEST BOUND	Left	320	325	5	2%	728	731	3	0%
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	9	8	-1	-11%	10	10	0	4%
	WB Total	329	333	4	1%	738	741	3	0%
TOTAL ENTERING VOLUME		2,534	2,620	86.0806117	3%	2,607	2,670	63	2%

FORECAST PEAK HOUR TO ADT COMPARISON					
		VOLUMES		PERCENT OF ADT	
		AM	PM	AM	PM
North Leg	Inbound	574	502		
North Leg	Outbound	680	730		
North Leg	TOTAL	1,254	1,232	8%	8%
South Leg	Inbound	1,693	1,397		
South Leg	Outbound	830	1,220		
South Leg	TOTAL	2,523	2,617	8%	8%
East Leg	Inbound	333	741		
East Leg	Outbound	1,090	700		
East Leg	TOTAL	1,423	1,441	14%	14%
West Leg	Inbound	20	30		
West Leg	Outbound	20	20		
West Leg	TOTAL	40	50	#DIV/0!	#DIV/0!
OVERALL TOTAL		5,240	5,340	#DIV/0!	#DIV/0!

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Project: Chaffey College (Rancho Cucamonga)
 Scenario: Horizon Year (2040) Without Project

Job #: 13236
 Analyst: CS
 Date: 7/22/21

LOCATION: Haven Av. & Lemon Av.
 FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW									
APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
		EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	83	86	3	3%	173	175	2	1%
	Through	2,032	2,034	2	0%	1,441	1,533	92	6%
	Right	94	88	-6	-6%	228	223	-5	-2%
	NB Total	2,209	2,208	-1	0%	1,842	1,931	89	5%
SOUTH BOUND	Left	9	10	1	8%	22	21	-1	-2%
	Through	727	828	101	14%	1,414	1,418	4	0%
	Right	64	73	9	14%	82	81	-1	-1%
	SB Total	800	911	111	14%	1,517	1,520	3	0%
EAST BOUND	Left	120	121	1	1%	171	220	49	29%
	Through	24	23	-1	-4%	103	122	19	18%
	Right	65	67	2	4%	111	138	27	24%
	EB Total	209	211	2	1%	385	480	95	25%
WEST BOUND	Left	292	285	-7	-3%	183	183	0	0%
	Through	51	50	-1	-2%	40	39	-1	-3%
	Right	26	25	-1	-5%	27	28	1	5%
	WB Total	370	360	-10	-3%	250	250	0	0%
TOTAL ENTERING VOLUME		3,588	3,690	102.1084	3%	3,993	4,181	188	5%

FORECAST PEAK HOUR TO ADT COMPARISON						
		VOLUMES		PERCENT OF ADT		ADT
		AM	PM	AM	PM	
North Leg	Inbound	911	1,520	8%	9%	37,230
North Leg	Outbound	2,180	1,781			
North Leg	TOTAL	3,091	3,301			
South Leg	Inbound	2,208	1,931	8%	9%	41,554
South Leg	Outbound	1,180	1,739			
South Leg	TOTAL	3,388	3,670			
East Leg	Inbound	360	250	7%	9%	6,884
East Leg	Outbound	121	366			
East Leg	TOTAL	481	616			
West Leg	Inbound	211	480	5%	8%	9,189
West Leg	Outbound	209	295			
West Leg	TOTAL	420	775			
OVERALL TOTAL		7,380	8,362	8%	9%	94,858

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Project: Chaffey College (Rancho Cucamonga)
 Scenario: Horizon Year (2040) Without Project

Job #: 13236
 Analyst: CS
 Date: 7/22/21

LOCATION: Haven Av. & I-210 Westbound Ramps
 FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW									
APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
		EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	537	517	-20	-4%	646	602	-44	-7%
	Through	1,641	1,633	-8	0%	1,548	1,558	10	1%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	NB Total	2,177	2,150	-27	-1%	2,194	2,160	-34	-2%
SOUTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	1,066	1,096	30	3%	1,390	1,400	10	1%
	Right	529	524	-5	-1%	729	720	-9	-1%
	SB Total	1,595	1,620	25	2%	2,119	2,120	1	0%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
WEST BOUND	Left	476	484	8	2%	553	521	-32	-6%
	Through	8	8	0	-5%	5	5	0	1%
	Right	865	877	12	1%	797	795	-2	0%
	WB Total	1,349	1,369	20	1%	1,355	1,321	-34	-3%
TOTAL ENTERING VOLUME		5,122	5,139	17.1369509	0%	5,669	5,601	-68	-1%

FORECAST PEAK HOUR TO ADT COMPARISON						
		VOLUMES		PERCENT OF ADT		ADT
		AM	PM	AM	PM	
North Leg	Inbound	1,620	2,120	8%	9%	51,386
North Leg	Outbound	2,510	2,353			
North Leg	TOTAL	4,130	4,473			
South Leg	Inbound	2,150	2,160	8%	9%	47,607
South Leg	Outbound	1,580	1,921			
South Leg	TOTAL	3,730	4,081			
East Leg	Inbound	1,369	1,321	10%	9%	14,150
East Leg	Outbound	0	0			
East Leg	TOTAL	1,369	1,321			
West Leg	Inbound	0	0	7%	8%	15,632
West Leg	Outbound	1,049	1,327			
West Leg	TOTAL	1,049	1,327			
OVERALL TOTAL		10,278	11,202	8%	9%	128,775

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Project: Chaffey College (Rancho Cucamonga)
 Scenario: Horizon Year (2040) Without Project

Job #: 13236
 Analyst: CS
 Date: 7/22/21

LOCATION: Haven Av. & I-210 Eastbound Ramps
 FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW									
APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
		EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	835	853	18	2%	1,583	1,633	50	3%
	Right	536	527	-9	-2%	971	1,051	80	8%
	NB Total	1,371	1,380	9	1%	2,554	2,684	130	5%
SOUTH BOUND	Left	540	549	9	2%	746	722	-24	-3%
	Through	1,001	1,041	40	4%	1,199	1,214	15	1%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	SB Total	1,541	1,590	49	3%	1,945	1,936	-9	0%
EAST BOUND	Left	1,344	1,297	-47	-3%	611	527	-84	-14%
	Through	5	5	0	-1%	8	7	-1	-15%
	Right	335	319	-16	-5%	313	296	-17	-5%
	EB Total	1,684	1,621	-63	-4%	933	830	-103	-11%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	WB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
TOTAL ENTERING VOLUME		4,597	4,591	-5.749914	0%	5,431	5,450	19	0%

FORECAST PEAK HOUR TO ADT COMPARISON						
		VOLUMES		PERCENT OF ADT		ADT
		AM	PM	AM	PM	
North Leg	Inbound	1,590	1,936	8%	9%	47,610
North Leg	Outbound	2,150	2,160			
North Leg	TOTAL	3,740	4,096			
South Leg	Inbound	1,380	2,684	6%	9%	49,009
South Leg	Outbound	1,360	1,510			
South Leg	TOTAL	2,740	4,194			
East Leg	Inbound	0	0	5%	9%	20,871
East Leg	Outbound	1,081	1,780			
East Leg	TOTAL	1,081	1,780			
West Leg	Inbound	1,621	830	19%	10%	8,433
West Leg	Outbound	0	0			
West Leg	TOTAL	1,621	830			
OVERALL TOTAL		9,182	10,900	7%	9%	125,924

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Project: Chaffey College (Rancho Cucamonga)
 Scenario: Horizon Year (2040) Without Project

Job #: 13236
 Analyst: CS
 Date: 7/22/21

LOCATION: Magnolia Wy. & Wilson Av.
 FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW									
APPROACH	TURNING MOVEMENT	AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
		EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	3	3	0	0%	8	3	-5	-63%
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	9	7	-2	-19%	28	28	0	1%
	NB Total	12	10	-2	-14%	36	31	-5	-13%
SOUTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	SB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	384	392	8	2%	314	533	219	70%
	Right	18	8	-10	-56%	10	5	-5	-50%
	EB Total	403	400	-3	-1%	324	538	214	66%
WEST BOUND	Left	33	22	-11	-34%	22	16	-6	-26%
	Through	266	397	131	50%	375	405	30	8%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	WB Total	299	419	120	40%	397	421	24	6%
TOTAL ENTERING VOLUME		713	829	115.750234	16%	757	990	233	31%

FORECAST PEAK HOUR TO ADT COMPARISON						
		VOLUMES		PERCENT OF ADT		ADT
		AM	PM	AM	PM	
North Leg	Inbound	0	0	#DIV/0!	#DIV/0!	#DIV/0!
North Leg	Outbound	0	0			
North Leg	TOTAL	0	0			
South Leg	Inbound	10	31	13%	16%	317
South Leg	Outbound	30	21			
South Leg	TOTAL	40	52			
East Leg	Inbound	419	421	4%	5%	18,475
East Leg	Outbound	399	561			
East Leg	TOTAL	818	982			
West Leg	Inbound	400	538	7%	8%	12,027
West Leg	Outbound	400	408			
West Leg	TOTAL	800	946			
OVERALL TOTAL		1,658	1,980	#DIV/0!	#DIV/0!	#DIV/0!

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	187	57	74	131	31	39	95	236	16	325	24
Future Volume (vph)	9	187	57	74	131	31	39	95	236	16	325	24
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.1	16.9	16.9	25.0	23.0	23.0	6.0	17.9	17.9	5.6	15.8	15.8
Actuated g/C Ratio	0.38	0.29	0.29	0.43	0.40	0.40	0.10	0.31	0.31	0.10	0.27	0.27
v/c Ratio	0.03	0.53	0.16	0.24	0.14	0.07	0.33	0.16	0.48	0.14	0.51	0.07
Control Delay	11.8	23.8	1.3	12.9	13.9	0.2	38.7	18.7	5.3	35.8	22.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	23.8	1.3	12.9	13.9	0.2	38.7	18.7	5.3	35.8	22.5	0.2
LOS	B	C	A	B	B	A	D	B	A	D	C	A
Approach Delay		18.3			11.8			12.3			21.6	
Approach LOS		B			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 58.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 16.2

Intersection LOS: B

Intersection Capacity Utilization 48.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	187	57	74	131	31	39	95	236	16	325	24
Future Volume (veh/h)	9	187	57	74	131	31	39	95	236	16	325	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1826	1796	1900	1856	1737	1841	1515	1885	1900	1841	1900
Adj Flow Rate, veh/h	13	279	48	110	196	0	58	142	333	24	485	17
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Percent Heavy Veh, %	0	5	7	0	3	11	4	26	1	0	4	0
Cap, veh/h	445	424	348	374	1028	429	95	773	429	51	848	389
Arrive On Green	0.02	0.23	0.23	0.08	0.29	0.00	0.05	0.27	0.27	0.03	0.24	0.24
Sat Flow, veh/h	1810	1826	1497	1810	3526	1472	1753	2878	1598	1810	3497	1604
Grp Volume(v), veh/h	13	279	48	110	196	0	58	142	333	24	485	17
Grp Sat Flow(s),veh/h/ln	1810	1826	1497	1810	1763	1472	1753	1439	1598	1810	1749	1604
Q Serve(g_s), s	0.3	7.3	1.3	2.3	2.2	0.0	1.7	2.0	10.1	0.7	6.4	0.4
Cycle Q Clear(g_c), s	0.3	7.3	1.3	2.3	2.2	0.0	1.7	2.0	10.1	0.7	6.4	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	424	348	374	1028	429	95	773	429	51	848	389
V/C Ratio(X)	0.03	0.66	0.14	0.29	0.19	0.00	0.61	0.18	0.78	0.47	0.57	0.04
Avail Cap(c_a), veh/h	587	1110	910	409	2143	895	180	1487	826	172	1781	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	18.3	16.0	13.7	14.0	0.0	24.3	14.8	17.8	25.2	17.5	15.3
Incr Delay (d2), s/veh	0.0	1.7	0.2	0.2	0.1	0.0	2.3	0.1	3.0	2.5	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.7	0.4	0.8	0.7	0.0	0.7	0.5	3.4	0.3	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	20.1	16.2	13.8	14.1	0.0	26.7	14.9	20.8	27.7	18.2	15.3
LnGrp LOS	B	C	B	B	B	A	C	B	C	C	B	B
Approach Vol, veh/h		340			306			533			526	
Approach Delay, s/veh		19.3			14.0			19.9			18.5	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	19.9	8.6	18.0	7.5	18.6	5.5	21.2				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	2.7	12.1	4.3	9.3	3.7	8.4	2.3	4.2				
Green Ext Time (p_c), s	0.0	1.7	0.0	1.6	0.0	2.8	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	3	367	77	0	456
Future Vol, veh/h	0	3	367	77	0	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	3	390	82	0	485

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	236	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	657	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	657	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	657
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			   			   
Traffic Vol, veh/h	18	4	441	0	0	456
Future Vol, veh/h	18	4	441	0	0	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	7	0	0	4
Mvmt Flow	20	4	496	0	0	512

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	701	248	0
Stage 1	496	-	-
Stage 2	205	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	442	645	-
Stage 1	490	-	-
Stage 2	749	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	442	645	-
Mov Cap-2 Maneuver	441	-	-
Stage 1	490	-	-
Stage 2	749	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 441 645	-
HCM Lane V/C Ratio	- 0.046 0.007	-
HCM Control Delay (s)	- 13.6 10.6	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.1 0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	5	361	319	0	486
Future Vol, veh/h	0	5	361	319	0	486
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	5	397	351	0	534

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	374	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	537	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	537	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	537
HCM Lane V/C Ratio	-	-	0.01
HCM Control Delay (s)	-	-	11.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↖	↔	↙	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	0	336	0	12	671	85	397
Future Volume (vph)	0	336	0	12	671	85	397
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	9.6	33.8	10.0	34.2
Total Split (%)	31.0%	31.0%	31.0%	8.3%	29.4%	8.7%	29.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.4	15.4	15.4	5.4	30.0	5.8	39.4
Actuated g/C Ratio	0.18	0.21	0.21	0.07	0.40	0.08	0.53
v/c Ratio	0.05	0.55	0.43	0.12	1.42dr	0.67	0.17
Control Delay	0.2	34.8	15.4	45.2	31.6	63.7	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	34.8	15.4	45.2	31.6	63.7	15.4
LOS	A	C	B	D	C	E	B
Approach Delay	0.2		25.2		31.7		23.8
Approach LOS	A		C		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 74.5

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 29.2

Intersection LOS: C

Intersection Capacity Utilization 71.9%

ICU Level of Service C

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

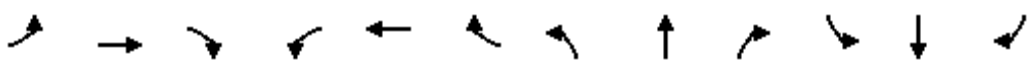
↖ Ø1	↑ Ø2	→ Ø4	↘ Ø8
10 s	33.8 s	35.6 s	35.6 s
↙ Ø5	↓ Ø6		
9.6 s	34.2 s		

HCM 6th Signalized Intersection Summary

5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑↑↑		↔	↑↑↑	
Traffic Volume (veh/h)	0	0	20	336	0	9	12	671	1090	85	397	3
Future Volume (veh/h)	0	0	20	336	0	9	12	671	1090	85	397	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1900	1900	1693	1841	1885	1900	1826	1900
Adj Flow Rate, veh/h	0	0	2	375	0	0	13	737	0	93	436	3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	2	0	0	14	4	1	0	5	0
Cap, veh/h	0	0	23	786	419	0	27	1365		136	1685	12
Arrive On Green	0.00	0.00	0.01	0.22	0.00	0.00	0.02	0.27	0.00	0.07	0.33	0.33
Sat Flow, veh/h	0	0	1606	3563	1900	0	1612	5191	0	1810	5107	35
Grp Volume(v), veh/h	0	0	2	375	0	0	13	737	0	93	284	155
Grp Sat Flow(s),veh/h/ln	0	0	1606	1781	1900	0	1612	1675	0	1810	1662	1819
Q Serve(g_s), s	0.0	0.0	0.1	4.3	0.0	0.0	0.4	5.9	0.0	2.3	2.9	2.9
Cycle Q Clear(g_c), s	0.0	0.0	0.1	4.3	0.0	0.0	0.4	5.9	0.0	2.3	2.9	2.9
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	23	786	419	0	27	1365		136	1097	600
V/C Ratio(X)	0.00	0.00	0.09	0.48	0.00	0.00	0.49	0.54		0.69	0.26	0.26
Avail Cap(c_a), veh/h	0	0	1063	2358	1258	0	172	3004		209	2015	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	22.8	15.9	0.0	0.0	22.8	14.6	0.0	21.1	11.5	11.5
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.4	0.0	0.0	5.0	0.3	0.0	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.6	0.0	0.0	0.2	1.7	0.0	0.9	0.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	24.4	16.3	0.0	0.0	27.8	14.9	0.0	23.4	11.6	11.7
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B
Approach Vol, veh/h		2			375			750	A		532	
Approach Delay, s/veh		24.4			16.3			15.1			13.7	
Approach LOS		C			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	18.5		5.3	5.4	21.3		14.9				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	5.4	28.0		31.0	5.0	28.4		31.0				
Max Q Clear Time (g_c+I1), s	4.3	7.9		2.1	2.4	4.9		6.3				
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	2.4		1.4				

Intersection Summary

HCM 6th Ctrl Delay 15.0

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	124	24	292	51	83	2094	9	741
Future Volume (vph)	124	24	292	51	83	2094	9	741
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	10.9	38.4	11.8	39.3	17.0	55.2	9.6	47.8
Total Split (%)	9.5%	33.4%	10.3%	34.2%	14.8%	48.0%	8.3%	41.6%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	18.5	13.7	19.9	14.4	8.6	50.9	5.2	41.5
Actuated g/C Ratio	0.22	0.16	0.23	0.17	0.10	0.59	0.06	0.48
v/c Ratio	0.43	0.31	0.99	0.31	0.53	0.82	0.09	0.37
Control Delay	28.9	15.0	79.7	27.8	51.7	20.1	47.1	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	15.0	79.7	27.8	51.7	20.1	47.1	17.7
LOS	C	B	E	C	D	C	D	B
Approach Delay		23.1		68.8		21.3		18.0
Approach LOS		C		E		C		B

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 85.8

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 25.4

Intersection LOS: C

Intersection Capacity Utilization 82.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	55.2 s	11.8 s	38.4 s
 Ø5	 Ø6	 Ø7	 Ø8
17 s	47.8 s	10.9 s	39.3 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	24	65	292	51	27	83	2094	94	9	741	65
Future Volume (veh/h)	124	24	65	292	51	27	83	2094	94	9	741	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1796	1900	1870	1559	1900	1841	1870	1796	1900	1870	1900
Adj Flow Rate, veh/h	139	27	0	328	57	27	93	2353	95	10	833	70
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	7	0	2	23	0	4	2	7	0	2	0
Cap, veh/h	323	228	0	385	136	65	119	2745	110	22	2351	197
Arrive On Green	0.07	0.13	0.00	0.08	0.14	0.14	0.07	0.55	0.55	0.01	0.49	0.49
Sat Flow, veh/h	1795	1796	0	1781	994	471	1753	5036	202	1810	4799	402
Grp Volume(v), veh/h	139	27	0	328	0	84	93	1586	862	10	590	313
Grp Sat Flow(s),veh/h/ln	1795	1796	0	1781	0	1464	1753	1702	1834	1810	1702	1797
Q Serve(g_s), s	5.9	1.2	0.0	7.2	0.0	4.6	4.6	34.7	35.3	0.5	9.3	9.4
Cycle Q Clear(g_c), s	5.9	1.2	0.0	7.2	0.0	4.6	4.6	34.7	35.3	0.5	9.3	9.4
Prop In Lane	1.00		0.00	1.00		0.32	1.00		0.11	1.00		0.22
Lane Grp Cap(c), veh/h	323	228	0	385	0	201	119	1856	1000	22	1667	880
V/C Ratio(X)	0.43	0.12	0.00	0.85	0.00	0.42	0.78	0.85	0.86	0.45	0.35	0.36
Avail Cap(c_a), veh/h	323	678	0	385	0	568	249	1923	1036	103	1667	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	33.8	0.0	34.8	0.0	34.5	40.1	16.9	17.1	42.9	13.8	13.8
Incr Delay (d2), s/veh	0.3	0.2	0.0	15.7	0.0	1.4	4.2	3.9	7.4	5.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.5	0.0	4.8	0.0	1.6	2.0	12.1	14.2	0.2	3.2	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	34.1	0.0	50.5	0.0	35.9	44.4	20.8	24.5	48.0	13.9	14.0
LnGrp LOS	C	C	A	D	A	D	D	C	C	D	B	B
Approach Vol, veh/h		166			412			2541			913	
Approach Delay, s/veh		31.4			47.5			22.9			14.3	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	53.5	11.8	16.5	10.5	48.6	10.9	17.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.0	49.4	7.2	33.0	12.4	42.0	6.3	33.9				
Max Q Clear Time (g_c+I1), s	2.5	37.3	9.2	3.2	6.6	11.4	7.9	6.6				
Green Ext Time (p_c), s	0.0	10.4	0.0	0.1	0.0	6.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			23.8									
HCM 6th LOS			C									

Timings 7: Haven Av. & I-210 WB Ramps

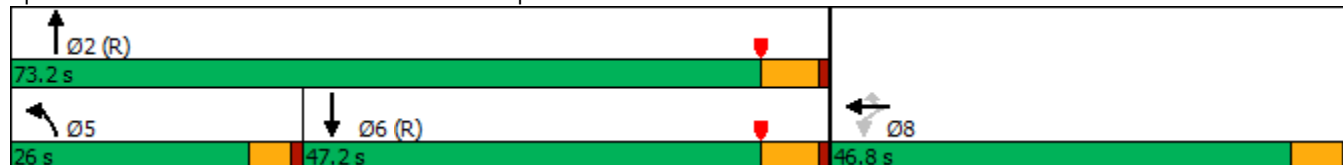
Chaffey College (JN 13236)
07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	476	8	890	537	1678	1073
Future Volume (vph)	476	8	890	537	1678	1073
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	46.8	46.8	46.8	26.0	73.2	47.2
Total Split (%)	39.0%	39.0%	39.0%	21.7%	61.0%	39.3%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	41.0	41.0	41.0	21.3	67.0	41.0
Actuated g/C Ratio	0.34	0.34	0.34	0.18	0.56	0.34
v/c Ratio	0.83	1.05	0.94	1.00	0.66	1.04
Control Delay	50.1	92.9	60.4	86.2	20.0	69.8
Queue Delay	0.0	0.0	0.0	0.0	3.9	0.0
Total Delay	50.1	92.9	60.4	86.2	23.9	69.8
LOS	D	F	E	F	C	E
Approach Delay		68.4			39.0	69.8
Approach LOS		E			D	E

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 56.3
Intersection Capacity Utilization 147.2%
Analysis Period (min) 15
Intersection LOS: E
ICU Level of Service H

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary

7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	476	8	890	537	1678	0	0	1073	537
Future Volume (veh/h)	0	0	0	476	8	890	537	1678	0	0	1073	537
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1604	1870	1856	1870	0	0	1870	1900
Adj Flow Rate, veh/h				771	0	430	603	1885	0	0	1206	475
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				1	20	2	3	2	0	0	2	0
Cap, veh/h				1083	0	478	609	3056	0	0	1376	540
Arrive On Green				0.30	0.00	0.30	0.18	0.60	0.00	0.00	0.38	0.38
Sat Flow, veh/h				3591	0	1585	3428	5274	0	0	3773	1415
Grp Volume(v), veh/h				771	0	430	603	1885	0	0	1139	542
Grp Sat Flow(s),veh/h/ln				1795	0	1585	1714	1702	0	0	1702	1616
Q Serve(g_s), s				22.9	0.0	31.2	21.1	28.2	0.0	0.0	37.3	37.5
Cycle Q Clear(g_c), s				22.9	0.0	31.2	21.1	28.2	0.0	0.0	37.3	37.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.88
Lane Grp Cap(c), veh/h				1083	0	478	609	3056	0	0	1300	617
V/C Ratio(X)				0.71	0.00	0.90	0.99	0.62	0.00	0.00	0.88	0.88
Avail Cap(c_a), veh/h				1227	0	542	609	3056	0	0	1300	617
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.83	0.83
Uniform Delay (d), s/veh				37.3	0.0	40.2	49.3	15.3	0.0	0.0	34.5	34.5
Incr Delay (d2), s/veh				1.7	0.0	16.7	9.0	0.1	0.0	0.0	7.2	14.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.9	0.0	13.9	9.5	9.8	0.0	0.0	15.9	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				39.0	0.0	56.9	58.2	15.4	0.0	0.0	41.7	48.5
LnGrp LOS				D	A	E	E	B	A	A	D	D
Approach Vol, veh/h					1201			2488			1681	
Approach Delay, s/veh					45.4			25.8			43.9	
Approach LOS					D			C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		78.0			26.0	52.0		42.0				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.8				
Max Green Setting (Gmax), s		67.0			* 21	41.0		41.0				
Max Q Clear Time (g_c+I1), s		30.2			23.1	39.5		33.2				
Green Ext Time (p_c), s		15.3			0.0	1.2		3.0				
Intersection Summary												
HCM 6th Ctrl Delay				35.8								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings 8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1377	5	335	839	546	1002
Future Volume (vph)	1377	5	335	839	546	1002
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	56.2	56.2	56.2	39.8	24.0	63.8
Total Split (%)	46.8%	46.8%	46.8%	33.2%	20.0%	53.2%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	50.4	50.4	50.4	33.6	19.3	57.6
Actuated g/C Ratio	0.42	0.42	0.42	0.28	0.16	0.48
v/c Ratio	1.07	1.09	0.50	1.05dr	1.04	0.44
Control Delay	87.9	96.9	22.5	69.9	98.6	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	96.9	22.5	69.9	98.6	21.3
LOS	F	F	C	E	F	C
Approach Delay		80.1		69.9		48.6
Approach LOS		F		E		D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 66.6

Intersection LOS: E

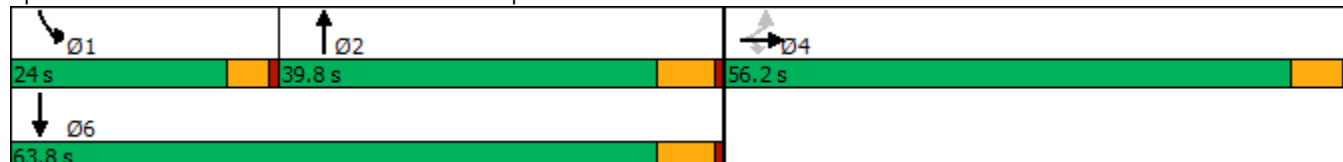
Intersection Capacity Utilization 147.2%

ICU Level of Service H

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1377	5	335	0	0	0	0	839	536	546	1002	0
Future Volume (veh/h)	1377	5	335	0	0	0	0	839	536	546	1002	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1885	1411	1796				0	1856	1856	1885	1856	0
Adj Flow Rate, veh/h	1478	0	26				0	893	488	581	1066	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	33	7				0	3	3	1	3	0
Cap, veh/h	1508	0	639				0	946	440	560	2431	0
Arrive On Green	0.42	0.00	0.42				0.00	0.28	0.28	0.16	0.48	0.00
Sat Flow, veh/h	3591	0	1522				0	3544	1572	3483	5233	0
Grp Volume(v), veh/h	1478	0	26				0	893	488	581	1066	0
Grp Sat Flow(s),veh/h/ln	1795	0	1522				0	1689	1572	1742	1689	0
Q Serve(g_s), s	48.7	0.0	1.2				0.0	31.1	33.6	19.3	16.6	0.0
Cycle Q Clear(g_c), s	48.7	0.0	1.2				0.0	31.1	33.6	19.3	16.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1508	0	639				0	946	440	560	2431	0
V/C Ratio(X)	0.98	0.00	0.04				0.00	0.94	1.11	1.04	0.44	0.00
Avail Cap(c_a), veh/h	1508	0	639				0	946	440	560	2431	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.3	0.0	20.5				0.0	42.3	43.2	50.3	20.5	0.0
Incr Delay (d2), s/veh	18.5	0.0	0.0				0.0	17.3	75.7	48.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.7	0.0	0.4				0.0	14.7	21.8	11.9	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	0.0	20.6				0.0	59.6	118.9	98.3	20.6	0.0
LnGrp LOS	D	A	C				A	E	F	F	C	A
Approach Vol, veh/h	1504						1381			1647		
Approach Delay, s/veh	52.3						80.6			48.0		
Approach LOS	D						F			D		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	24.0	39.8		56.2			63.8					
Change Period (Y+Rc), s	* 4.7	6.2		5.8			6.2					
Max Green Setting (Gmax), s	* 19	33.6		50.4			57.6					
Max Q Clear Time (g_c+I1), s	21.3	35.6		50.7			18.6					
Green Ext Time (p_c), s	0.0	0.0		0.0			6.6					

Intersection Summary

HCM 6th Ctrl Delay 59.4

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	423	16	16	232	3	3
Future Vol, veh/h	423	16	16	232	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	0	0	3	0	0
Mvmt Flow	572	22	22	314	4	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	597
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	989
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	986
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	12.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	476	513	-	-	986	-
HCM Lane V/C Ratio	0.009	0.008	-	-	0.022	-
HCM Control Delay (s)	12.6	12.1	-	-	8.7	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	412	16	16	245	3	3
Future Vol, veh/h	412	16	16	245	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	0	0	3	0	0
Mvmt Flow	549	21	21	327	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	573	0	932	563
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1010	-	298	530
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	704	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1007	-	291	528
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	689	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		12.3	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	504	-	-	1007	-	
HCM Lane V/C Ratio	0.016	-	-	0.021	-	
HCM Control Delay (s)	12.3	-	-	8.7	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	400	16	16	256	3	3
Future Vol, veh/h	400	16	16	256	3	3
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	588	24	24	376	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	614	0	1026	602
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	975	-	262	503
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	973	-	255	502
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	647	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		12.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	477	-	-	973	-	
HCM Lane V/C Ratio	0.018	-	-	0.024	-	
HCM Control Delay (s)	12.7	-	-	8.8	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	385	19	35	268	3	9
Future Vol, veh/h	385	19	35	268	3	9
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	566	28	51	394	4	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	596
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	990
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	988
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	516	-	-	988	-
HCM Lane V/C Ratio	0.01	0.026	-	-	0.052	-
HCM Control Delay (s)	13.4	12.2	-	-	8.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	157	68	202	117	60	71	186	143	33	153	17
Future Volume (vph)	54	157	68	202	117	60	71	186	143	33	153	17
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	20.7	14.0	14.0	23.0	18.9	18.9	5.8	17.4	17.4	5.3	12.8	12.8
Actuated g/C Ratio	0.36	0.24	0.24	0.40	0.33	0.33	0.10	0.30	0.30	0.09	0.22	0.22
v/c Ratio	0.13	0.42	0.17	0.49	0.12	0.11	0.47	0.21	0.28	0.23	0.24	0.04
Control Delay	11.5	22.4	1.2	16.8	17.3	0.4	40.7	17.6	5.5	34.0	20.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	22.4	1.2	16.8	17.3	0.4	40.7	17.6	5.5	34.0	20.8	0.2
LOS	B	C	A	B	B	A	D	B	A	C	C	A
Approach Delay		15.1			14.4			17.4			21.2	
Approach LOS		B			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 57.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 49.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	157	68	202	117	60	71	186	143	33	153	17
Future Volume (veh/h)	54	157	68	202	117	60	71	186	143	33	153	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1826	1841	1885	1856	1900	1900	1870	1900	1900	1841	1900
Adj Flow Rate, veh/h	64	187	36	240	139	17	85	221	150	39	182	14
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	5	4	1	3	0	0	2	0	0	4	0
Cap, veh/h	507	370	316	459	864	395	126	821	372	76	711	327
Arrive On Green	0.06	0.20	0.20	0.10	0.25	0.25	0.07	0.23	0.23	0.04	0.20	0.20
Sat Flow, veh/h	1810	1826	1560	1795	3526	1610	1810	3554	1610	1810	3497	1610
Grp Volume(v), veh/h	64	187	36	240	139	17	85	221	150	39	182	14
Grp Sat Flow(s),veh/h/ln	1810	1826	1560	1795	1763	1610	1810	1777	1610	1810	1749	1610
Q Serve(g_s), s	1.3	4.5	0.9	5.0	1.5	0.4	2.3	2.5	3.9	1.0	2.2	0.3
Cycle Q Clear(g_c), s	1.3	4.5	0.9	5.0	1.5	0.4	2.3	2.5	3.9	1.0	2.2	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	507	370	316	459	864	395	126	821	372	76	711	327
V/C Ratio(X)	0.13	0.51	0.11	0.52	0.16	0.04	0.67	0.27	0.40	0.51	0.26	0.04
Avail Cap(c_a), veh/h	584	1187	1014	459	2292	1047	199	1964	890	184	1905	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	17.4	16.0	14.2	14.6	14.2	22.3	15.5	16.0	23.1	16.5	15.8
Incr Delay (d2), s/veh	0.0	1.1	0.2	0.5	0.1	0.0	2.3	0.2	0.7	2.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.6	0.3	1.7	0.5	0.1	0.9	0.8	1.2	0.4	0.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	18.5	16.2	14.7	14.7	14.2	24.7	15.7	16.7	25.1	16.7	15.8
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h	287			396			456			235		
Approach Delay, s/veh	17.2			14.7			17.7			18.0		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	17.2	9.6	15.8	8.0	15.8	7.5	17.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	3.0	5.9	7.0	6.5	4.3	4.2	3.3	3.5				
Green Ext Time (p_c), s	0.0	1.7	0.0	1.0	0.0	1.0	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay	16.8											
HCM 6th LOS	B											

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	8	392	54	0	422
Future Vol, veh/h	0	8	392	54	0	422
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	8	400	55	0	431
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	228	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	664	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	664	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.5	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	664		-		
HCM Lane V/C Ratio	-	0.012		-		
HCM Control Delay (s)	-	10.5		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0		-		

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	8	439	0	0	421
Future Vol, veh/h	42	8	439	0	0	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	43	8	448	0	0	430

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	620	224	0
Stage 1	448	-	-
Stage 2	172	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	484	668	-
Stage 1	523	-	-
Stage 2	778	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	484	668	-
Mov Cap-2 Maneuver	473	-	-
Stage 1	523	-	-
Stage 2	778	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 473 668	-
HCM Lane V/C Ratio	- 0.091 0.012	-
HCM Control Delay (s)	- 13.4 10.5	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.3 0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	23	469	221	0	505
Future Vol, veh/h	0	23	469	221	0	505
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	24	499	235	0	537

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	367	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	542	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	542	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	542
HCM Lane V/C Ratio	-	-	0.045
HCM Control Delay (s)	-	-	12
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↖	↔	↙	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	0	765	0	18	681	43	459
Future Volume (vph)	0	765	0	18	681	43	459
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	10.1	34.2	9.6	33.7
Total Split (%)	31.0%	31.0%	31.0%	8.8%	29.7%	8.3%	29.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.7	29.9	29.9	5.5	29.7	5.2	33.5
Actuated g/C Ratio	0.15	0.34	0.34	0.06	0.33	0.06	0.38
v/c Ratio	0.11	0.77	0.67	0.18	1.16dr	0.46	0.27
Control Delay	0.6	40.4	27.3	50.9	35.5	61.6	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.6	40.4	27.3	50.9	35.5	61.6	23.8
LOS	A	D	C	D	D	E	C
Approach Delay	0.6		33.9		35.7		27.0
Approach LOS	A		C		D		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 88.7

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.1

Intersection LOS: C

Intersection Capacity Utilization 72.6%

ICU Level of Service C

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

↖ Ø1	↑ Ø2	↗ Ø4	↘ Ø8
9.6 s	34.2 s	35.6 s	35.6 s
↙ Ø5	↓ Ø6		
10.1 s	33.7 s		

HCM 6th Signalized Intersection Summary

5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	33	765	0	10	18	681	687	43	459	2	
Future Volume (veh/h)	0	0	33	765	0	10	18	681	687	43	459	2	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1900	1900	1885	1885	1900	1870	1900	
Adj Flow Rate, veh/h	0	0	6	879	0	0	20	774	0	49	522	2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Percent Heavy Veh, %	0	0	0	1	0	0	0	1	1	0	2	0	
Cap, veh/h	0	0	26	1146	606	0	43	1327		87	1480	6	
Arrive On Green	0.00	0.00	0.02	0.32	0.00	0.00	0.02	0.26	0.00	0.05	0.28	0.28	
Sat Flow, veh/h	0	0	1610	3591	1900	0	1810	5316	0	1810	5250	20	
Grp Volume(v), veh/h	0	0	6	879	0	0	20	774	0	49	338	186	
Grp Sat Flow(s),veh/h/ln	0	0	1610	1795	1900	0	1810	1716	0	1810	1702	1866	
Q Serve(g_s), s	0.0	0.0	0.2	12.0	0.0	0.0	0.6	7.2	0.0	1.4	4.3	4.3	
Cycle Q Clear(g_c), s	0.0	0.0	0.2	12.0	0.0	0.0	0.6	7.2	0.0	1.4	4.3	4.3	
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.01	
Lane Grp Cap(c), veh/h	0	0	26	1146	606	0	43	1327		87	959	526	
V/C Ratio(X)	0.00	0.00	0.23	0.77	0.00	0.00	0.46	0.58		0.56	0.35	0.35	
Avail Cap(c_a), veh/h	0	0	915	2040	1079	0	182	2678		166	1740	954	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	26.5	16.7	0.0	0.0	26.3	17.7	0.0	25.4	15.6	15.6	
Incr Delay (d2), s/veh	0.0	0.0	4.6	1.1	0.0	0.0	2.8	0.4	0.0	2.1	0.2	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	4.6	0.0	0.0	0.3	2.4	0.0	0.6	1.4	1.6	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	0.0	31.1	17.9	0.0	0.0	29.1	18.1	0.0	27.5	15.8	16.0	
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B	
Approach Vol, veh/h	6			879			794			A			573
Approach Delay, s/veh	31.1			17.9			18.4			16.9			
Approach LOS	C			B			B			B			
Timer - Assigned Phs	1	2	4		5	6	8						
Phs Duration (G+Y+Rc), s	7.2	19.9	5.5		5.9	21.2	22.0						
Change Period (Y+Rc), s	4.6	5.8	4.6		4.6	5.8	4.6						
Max Green Setting (Gmax), s	5.0	28.4	31.0		5.5	27.9	31.0						
Max Q Clear Time (g_c+I1), s	3.4	9.2	2.2		2.6	6.3	14.0						
Green Ext Time (p_c), s	0.0	4.7	0.0		0.0	2.9	3.4						

Intersection Summary

HCM 6th Ctrl Delay 17.8

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	174	103	183	40	173	1484	22	1448
Future Volume (vph)	174	103	183	40	173	1484	22	1448
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	12.0	38.4	11.4	37.8	20.4	55.5	9.7	44.8
Total Split (%)	10.4%	33.4%	9.9%	32.9%	17.7%	48.3%	8.4%	39.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	26.6	17.2	21.8	16.8	13.3	51.6	5.1	37.0
Actuated g/C Ratio	0.28	0.18	0.23	0.18	0.14	0.54	0.05	0.39
v/c Ratio	0.49	0.65	0.66	0.22	0.73	0.65	0.26	0.81
Control Delay	31.6	37.4	40.0	23.6	59.1	18.6	55.9	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	37.4	40.0	23.6	59.1	18.6	55.9	31.0
LOS	C	D	D	C	E	B	E	C
Approach Delay		34.8		35.6		22.3		31.3
Approach LOS		C		D		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 95.3

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 85.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

			
Ø1	Ø2	Ø3	Ø4
9.7 s	55.5 s	11.4 s	38.4 s
			
Ø5	Ø6	Ø7	Ø8
20.4 s	44.8 s	12 s	37.8 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	103	111	183	40	28	173	1484	228	22	1448	84
Future Volume (veh/h)	174	103	111	183	40	28	173	1484	228	22	1448	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.98		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1841	1900	1870	1900	1885	1781	1885	1900
Adj Flow Rate, veh/h	181	107	54	191	42	26	180	1546	201	23	1508	88
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	0	4	1	4	0	2	0	1	8	1	0
Cap, veh/h	405	196	99	330	169	105	217	2260	293	42	1940	113
Arrive On Green	0.09	0.17	0.17	0.08	0.16	0.16	0.12	0.49	0.49	0.02	0.39	0.39
Sat Flow, veh/h	1767	1179	595	1795	1064	658	1781	4638	602	1697	4972	290
Grp Volume(v), veh/h	181	0	161	191	0	68	180	1152	595	23	1041	555
Grp Sat Flow(s),veh/h/ln	1767	0	1773	1795	0	1722	1781	1729	1782	1697	1716	1831
Q Serve(g_s), s	7.3	0.0	7.0	6.8	0.0	2.9	8.3	21.6	21.7	1.1	22.4	22.4
Cycle Q Clear(g_c), s	7.3	0.0	7.0	6.8	0.0	2.9	8.3	21.6	21.7	1.1	22.4	22.4
Prop In Lane	1.00		0.34	1.00		0.38	1.00		0.34	1.00		0.16
Lane Grp Cap(c), veh/h	405	0	295	330	0	274	217	1685	868	42	1339	714
V/C Ratio(X)	0.45	0.00	0.55	0.58	0.00	0.25	0.83	0.68	0.69	0.55	0.78	0.78
Avail Cap(c_a), veh/h	405	0	692	330	0	660	333	2033	1048	102	1583	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	32.3	28.3	0.0	31.1	36.3	16.7	16.7	40.8	22.6	22.6
Incr Delay (d2), s/veh	0.3	0.0	1.6	1.7	0.0	0.5	5.8	0.7	1.4	4.1	2.1	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	3.0	3.3	0.0	1.2	3.8	7.5	7.9	0.5	8.4	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	0.0	33.9	30.0	0.0	31.6	42.1	17.4	18.1	44.9	24.7	26.5
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	C	C
Approach Vol, veh/h		342			259			1927			1619	
Approach Delay, s/veh		30.3			30.4			19.9			25.6	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	47.0	11.4	19.5	14.9	38.8	12.0	18.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.1	49.7	6.8	33.0	15.8	39.0	7.4	32.4				
Max Q Clear Time (g_c+I1), s	3.1	23.7	8.8	9.0	10.3	24.4	9.3	4.9				
Green Ext Time (p_c), s	0.0	13.5	0.0	0.8	0.1	8.5	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			23.6									
HCM 6th LOS			C									

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	553	5	814	646	1574	1406
Future Volume (vph)	553	5	814	646	1574	1406
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	38.0	38.0	38.0	26.0	82.0	56.0
Total Split (%)	31.7%	31.7%	31.7%	21.7%	68.3%	46.7%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	32.2	32.2	32.2	21.3	75.8	49.8
Actuated g/C Ratio	0.27	0.27	0.27	0.18	0.63	0.42
v/c Ratio	1.11	1.15	1.02	1.12	0.52	1.10
Control Delay	117.5	131.1	83.7	118.1	12.8	83.9
Queue Delay	0.0	0.0	0.0	0.0	0.9	0.0
Total Delay	117.5	131.1	83.7	118.1	13.7	83.9
LOS	F	F	F	F	B	F
Approach Delay		111.2			44.1	83.9
Approach LOS		F			D	F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 75.0

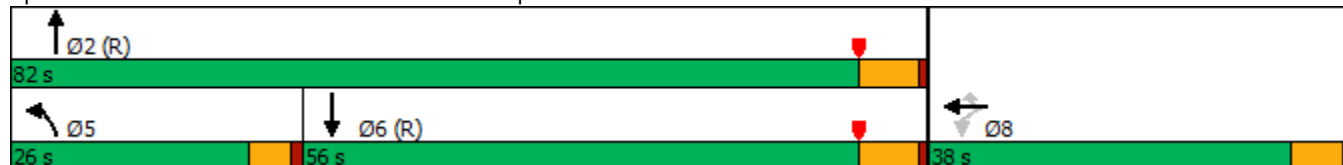
Intersection LOS: E

Intersection Capacity Utilization 109.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary

7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	553	5	814	646	1574	0	0	1406	747
Future Volume (veh/h)	0	0	0	553	5	814	646	1574	0	0	1406	747
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1411	1885	1885	1885	0	0	1885	1885
Adj Flow Rate, veh/h				770	0	388	687	1674	0	0	1496	636
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				1	33	1	1	1	0	0	1	1
Cap, veh/h				938	0	417	618	3288	0	0	1509	623
Arrive On Green				0.26	0.00	0.26	0.18	0.64	0.00	0.00	0.42	0.42
Sat Flow, veh/h				3591	0	1598	3483	5316	0	0	3743	1475
Grp Volume(v), veh/h				770	0	388	687	1674	0	0	1435	697
Grp Sat Flow(s),veh/h/ln				1795	0	1598	1742	1716	0	0	1716	1617
Q Serve(g_s), s				24.2	0.0	28.4	21.3	20.9	0.0	0.0	49.8	50.7
Cycle Q Clear(g_c), s				24.2	0.0	28.4	21.3	20.9	0.0	0.0	49.8	50.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.91
Lane Grp Cap(c), veh/h				938	0	417	618	3288	0	0	1449	683
V/C Ratio(X)				0.82	0.00	0.93	1.11	0.51	0.00	0.00	0.99	1.02
Avail Cap(c_a), veh/h				964	0	429	618	3288	0	0	1449	683
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.52	0.52
Uniform Delay (d), s/veh				41.7	0.0	43.3	49.4	11.6	0.0	0.0	34.4	34.7
Incr Delay (d2), s/veh				5.6	0.0	26.5	52.5	0.1	0.0	0.0	15.0	30.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.1	0.0	13.9	13.5	7.0	0.0	0.0	22.4	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				47.3	0.0	69.8	101.9	11.6	0.0	0.0	49.4	65.0
LnGrp LOS				D	A	E	F	B	A	A	D	F
Approach Vol, veh/h					1158			2361			2132	
Approach Delay, s/veh					54.8			37.9			54.5	
Approach LOS					D			D			D	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	82.9			26.0			56.9			37.1		
Change Period (Y+Rc), s	6.2			* 4.7			6.2			5.8		
Max Green Setting (Gmax), s	75.8			* 21			49.8			32.2		
Max Q Clear Time (g_c+I1), s	22.9			23.3			52.7			30.4		
Green Ext Time (p_c), s	13.7			0.0			0.0			0.9		
Intersection Summary												
HCM 6th Ctrl Delay				47.6								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings 8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	634	8	313	1586	760	1201
Future Volume (vph)	634	8	313	1586	760	1201
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	27.0	27.0	27.0	65.0	28.0	93.0
Total Split (%)	22.5%	22.5%	22.5%	54.2%	23.3%	77.5%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.2	21.2	21.2	58.8	23.3	86.8
Actuated g/C Ratio	0.18	0.18	0.18	0.49	0.19	0.72
v/c Ratio	1.18	1.23	0.86	1.17dr	1.20	0.34
Control Delay	153.9	172.6	55.3	84.5	146.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	153.9	172.6	55.3	84.5	146.6	6.8
LOS	F	F	E	F	F	A
Approach Delay		131.4		84.5		61.0
Approach LOS		F		F		E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 84.2

Intersection LOS: F

Intersection Capacity Utilization 109.0%

ICU Level of Service H

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  		  	  	
Traffic Volume (veh/h)	634	8	313	0	0	0	0	1586	971	760	1201	0
Future Volume (veh/h)	634	8	313	0	0	0	0	1586	971	760	1201	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1856				0	1885	1885	1885	1885	0
Adj Flow Rate, veh/h	703	0	57				0	1687	733	809	1278	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3				0	1	1	1	1	0
Cap, veh/h	639	0	278				0	1752	713	676	3723	0
Arrive On Green	0.18	0.00	0.18				0.00	0.49	0.49	0.19	0.72	0.00
Sat Flow, veh/h	3619	0	1572				0	3744	1455	3483	5316	0
Grp Volume(v), veh/h	703	0	57				0	1615	805	809	1278	0
Grp Sat Flow(s),veh/h/ln	1810	0	1572				0	1716	1599	1742	1716	0
Q Serve(g_s), s	21.2	0.0	3.7				0.0	54.4	58.8	23.3	11.0	0.0
Cycle Q Clear(g_c), s	21.2	0.0	3.7				0.0	54.4	58.8	23.3	11.0	0.0
Prop In Lane	1.00		1.00				0.00		0.91	1.00		0.00
Lane Grp Cap(c), veh/h	639	0	278				0	1681	783	676	3723	0
V/C Ratio(X)	1.10	0.00	0.21				0.00	0.96	1.03	1.20	0.34	0.00
Avail Cap(c_a), veh/h	639	0	278				0	1681	783	676	3723	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.4	0.0	42.2				0.0	29.5	30.6	48.3	6.1	0.0
Incr Delay (d2), s/veh	65.9	0.0	0.4				0.0	13.7	39.5	102.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	0.0	1.4				0.0	23.7	29.3	19.4	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.3	0.0	42.6				0.0	43.2	70.1	150.7	6.2	0.0
LnGrp LOS	F	A	D				A	D	F	F	A	A
Approach Vol, veh/h	760						2420			2087		
Approach Delay, s/veh	109.9						52.1			62.2		
Approach LOS	F						D			E		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	28.0	65.0		27.0		93.0						
Change Period (Y+Rc), s	* 4.7	6.2		5.8		6.2						
Max Green Setting (Gmax), s	* 23	58.8		21.2		86.8						
Max Q Clear Time (g_c+I1), s	25.3	60.8		23.2		13.0						
Green Ext Time (p_c), s	0.0	0.0		0.0		8.9						
Intersection Summary												
HCM 6th Ctrl Delay	64.4											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	322	11	11	371	8	8
Future Vol, veh/h	322	11	11	371	8	8
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	393	13	13	452	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	409	0	881	403
Stage 1	-	-	-	-	403	-
Stage 2	-	-	-	-	478	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1161	-	320	652
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1158	-	316	650
Mov Cap-2 Maneuver	-	-	-	-	509	-
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	621	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	509	650	-	-	1158	-
HCM Lane V/C Ratio	0.019	0.015	-	-	0.012	-
HCM Control Delay (s)	12.2	10.6	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	320	11	11	373	8	8
Future Vol, veh/h	320	11	11	373	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	0	0	1	0	0
Mvmt Flow	386	13	13	449	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	399	0	868	393
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	475	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1171	-	325	660
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1171	-	321	660
Mov Cap-2 Maneuver	-	-	-	-	513	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	623	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	577	-	-	1171	-	
HCM Lane V/C Ratio	0.033	-	-	0.011	-	
HCM Control Delay (s)	11.5	-	-	8.1	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	317	11	11	375	8	8
Future Vol, veh/h	317	11	11	375	8	8
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	0	1	0	0
Mvmt Flow	364	13	13	431	9	9

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	379	0	830	373
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	457	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1191	-	343	678
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1189	-	339	677
Mov Cap-2 Maneuver	-	-	-	-	527	-
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	593	-	-	1189	-
HCM Lane V/C Ratio	0.031	-	-	0.011	-
HCM Control Delay (s)	11.3	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	315	11	23	377	8	29
Future Vol, veh/h	315	11	23	377	8	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	1	0	0
Mvmt Flow	342	12	25	410	9	32

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	354
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1216
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1216
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	530	700	-	-	1216	-
HCM Lane V/C Ratio	0.016	0.045	-	-	0.021	-
HCM Control Delay (s)	11.9	10.4	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

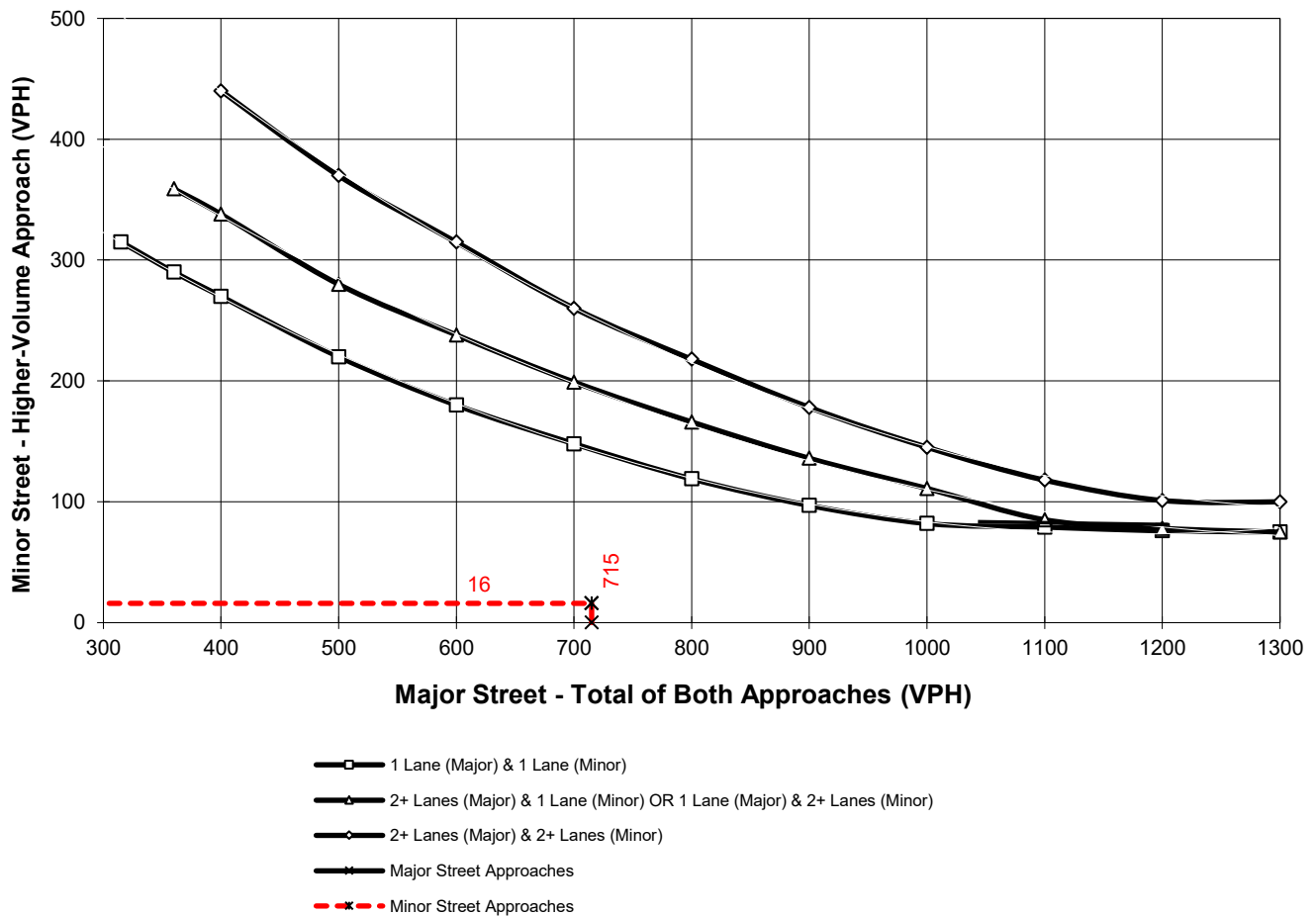
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **715**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 2**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

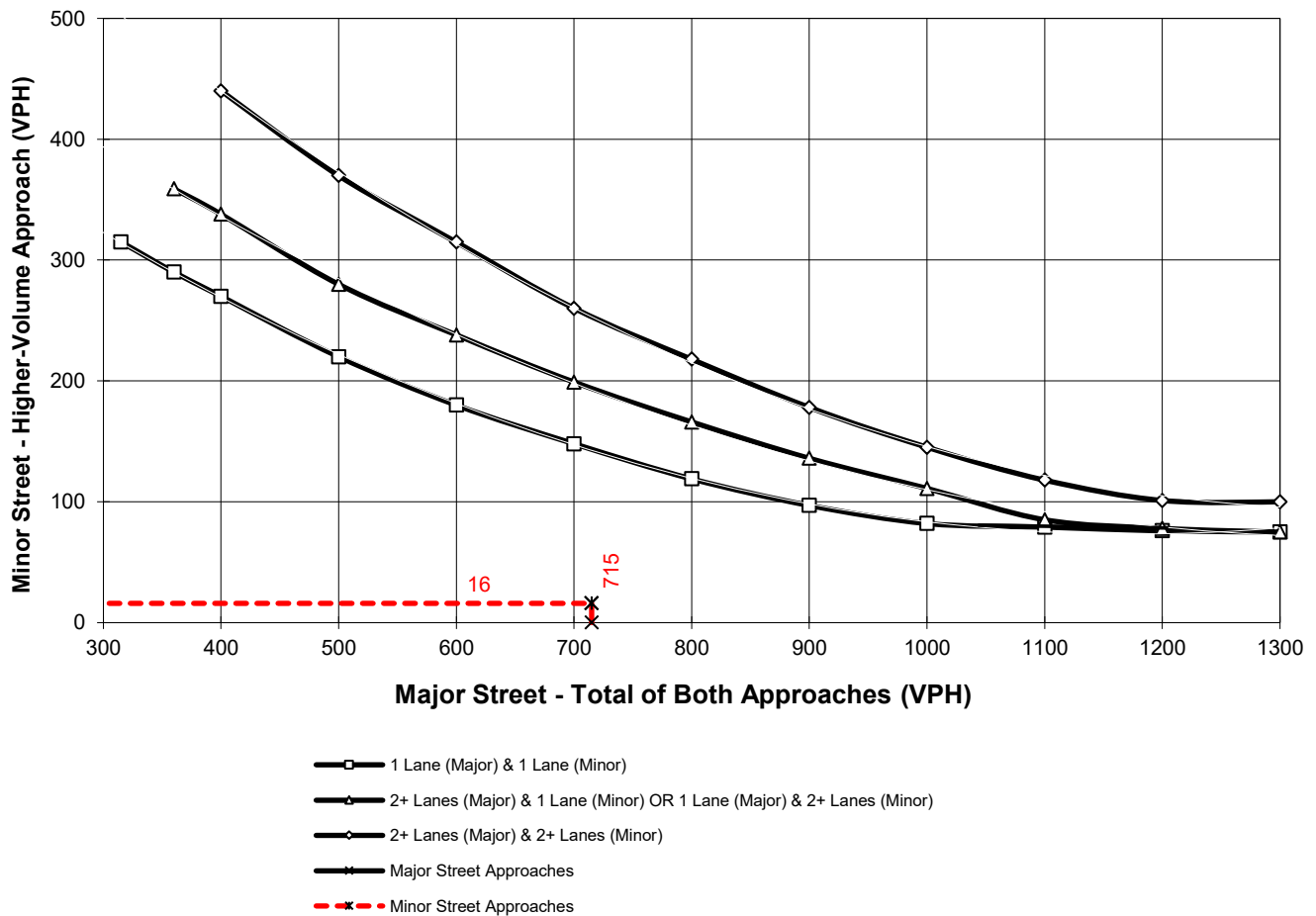
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **715**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 3**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

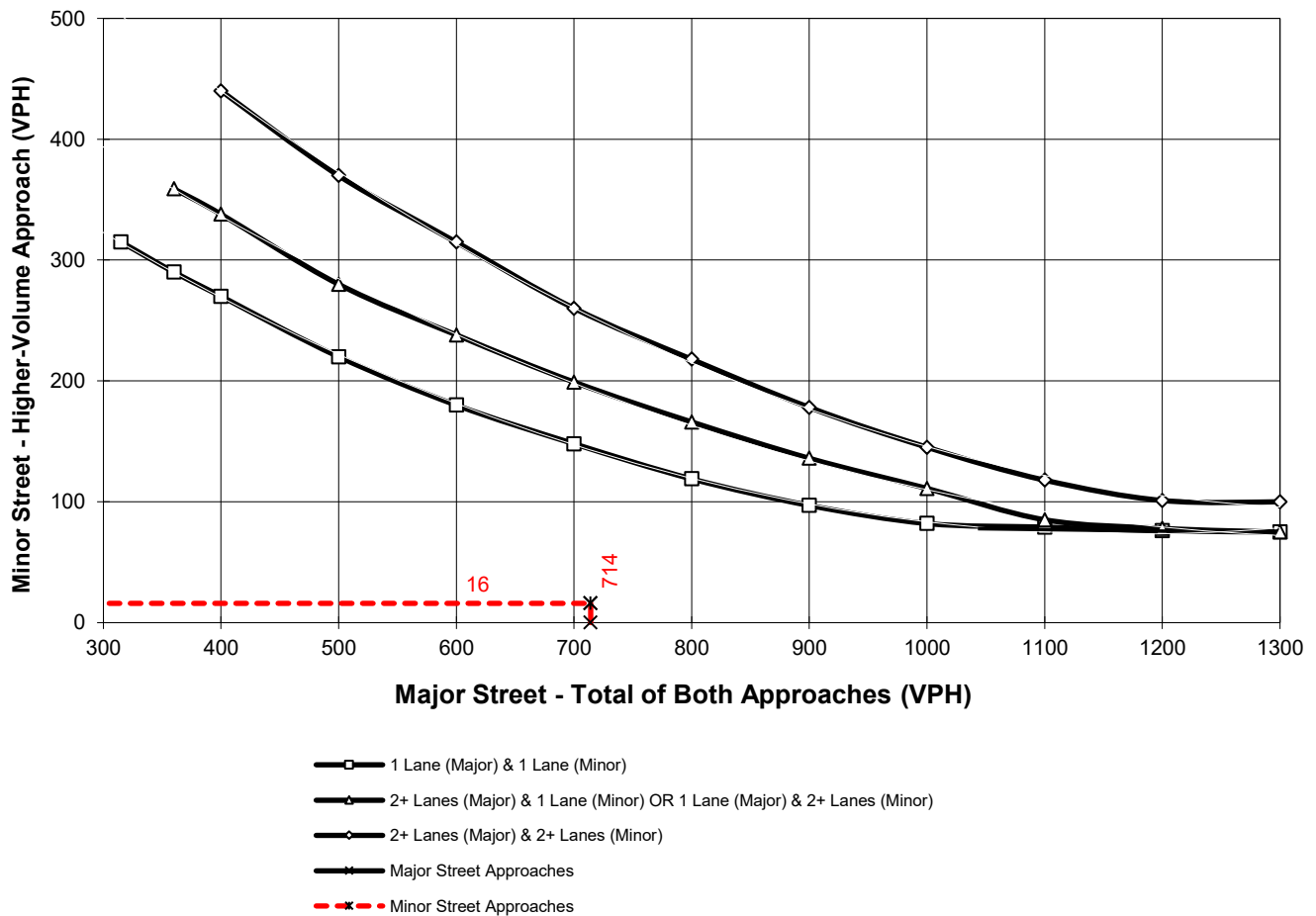
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **714**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 4**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

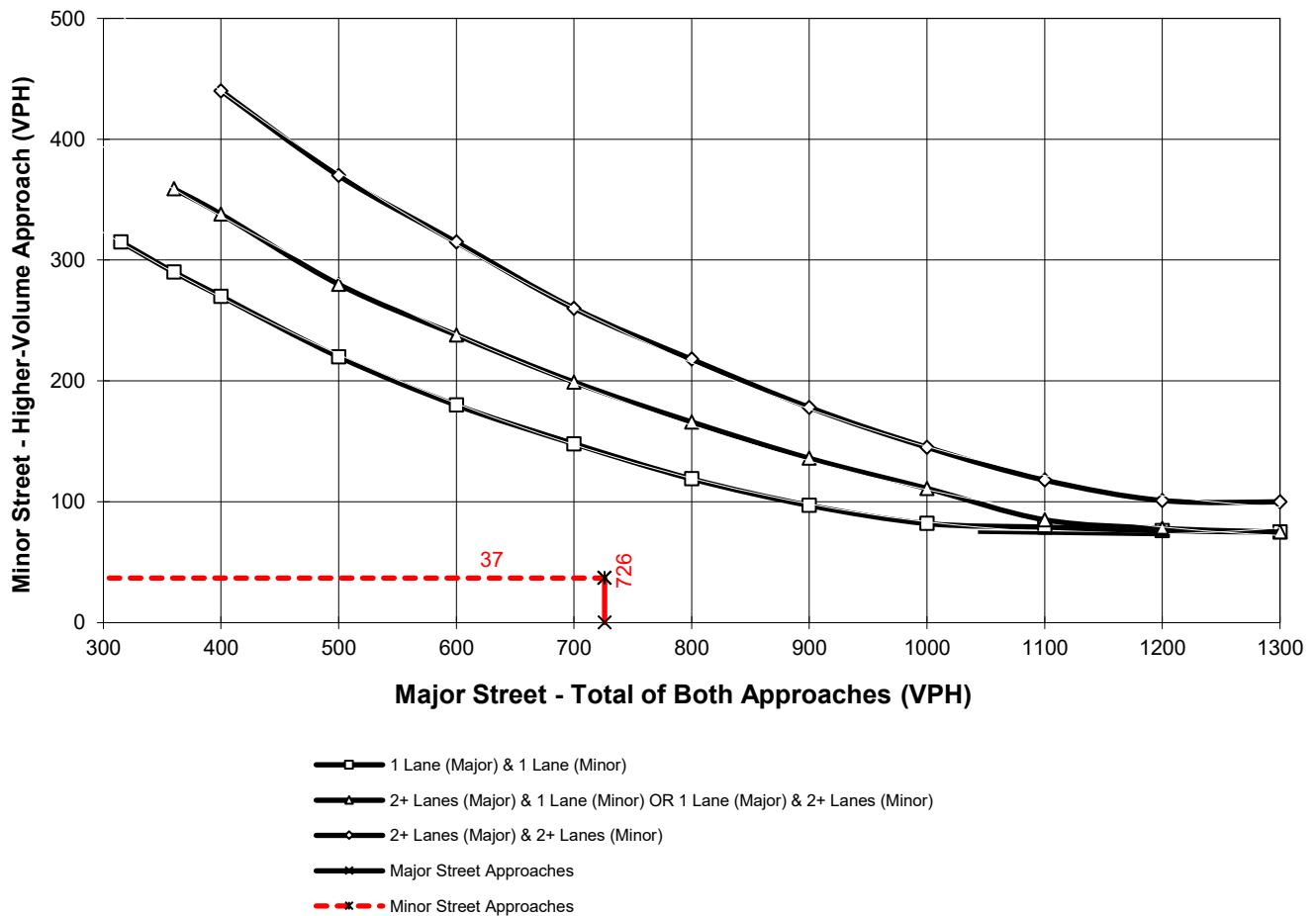
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **726**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **College Dr.**

High Volume Approach (VPH) = **37**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.3:

E+P INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Timings 8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1377	5	335	839	536	546	1002
Future Volume (vph)	1377	5	335	839	536	546	1002
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	30.2	9.7	31.2
Total Split (s)	55.4	55.4	55.4	39.4	39.4	25.2	64.6
Total Split (%)	46.2%	46.2%	46.2%	32.8%	32.8%	21.0%	53.8%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2	4.7	6.2
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None
Act Effect Green (s)	49.6	49.6	49.6	33.1	33.1	20.5	58.3
Actuated g/C Ratio	0.41	0.41	0.41	0.28	0.28	0.17	0.49
v/c Ratio	0.98	0.96	0.41	0.94	0.62	0.95	0.40
Control Delay	63.0	58.5	20.8	60.7	6.0	75.7	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	58.5	20.8	60.7	6.0	75.7	20.1
LOS	E	E	C	E	A	E	C
Approach Delay		53.7		39.4			39.8
Approach LOS		D		D			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.9

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 44.8

Intersection LOS: D

Intersection Capacity Utilization 152.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Haven Av. & I-210 EB Ramps

		
Ø1	Ø2	Ø4
25.2 s	39.4 s	55.4 s
		
Ø6		
64.6 s		

HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1377	5	335	0	0	0	0	839	536	546	1002	0
Future Volume (veh/h)	1377	5	335	0	0	0	0	839	536	546	1002	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1885	1411	1796				0	1856	1856	1885	1856	0
Adj Flow Rate, veh/h	1478	0	26				0	893	275	581	1066	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	33	7				0	3	3	1	3	0
Cap, veh/h	1506	0	639				0	987	418	623	2667	0
Arrive On Green	0.42	0.00	0.42				0.00	0.27	0.27	0.17	0.48	0.00
Sat Flow, veh/h	3591	0	1522				0	3711	1572	3591	5567	0
Grp Volume(v), veh/h	1478	0	26				0	893	275	581	1066	0
Grp Sat Flow(s),veh/h/ln	1795	0	1522				0	1856	1572	1795	1856	0
Q Serve(g_s), s	48.0	0.0	1.2				0.0	27.5	18.4	18.9	14.6	0.0
Cycle Q Clear(g_c), s	48.0	0.0	1.2				0.0	27.5	18.4	18.9	14.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1506	0	639				0	987	418	623	2667	0
V/C Ratio(X)	0.98	0.00	0.04				0.00	0.90	0.66	0.93	0.40	0.00
Avail Cap(c_a), veh/h	1506	0	639				0	1042	442	623	2749	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.9	0.0	20.3				0.0	42.0	38.6	48.2	19.8	0.0
Incr Delay (d2), s/veh	18.8	0.0	0.0				0.0	10.6	3.0	20.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.4	0.0	0.4				0.0	13.5	7.2	10.0	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	20.3				0.0	52.5	41.6	69.1	19.9	0.0
LnGrp LOS	D	A	C				A	D	D	E	B	A
Approach Vol, veh/h	1504						1168			1647		
Approach Delay, s/veh	52.1						50.0			37.3		
Approach LOS	D						D			D		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	25.2	37.6		55.4			62.8					
Change Period (Y+Rc), s	* 4.7	6.2		5.8			6.2					
Max Green Setting (Gmax), s	* 21	33.2		49.6			58.4					
Max Q Clear Time (g_c+I1), s	20.9	29.5		50.0			16.6					
Green Ext Time (p_c), s	0.0	1.9		0.0			6.7					

Intersection Summary

HCM 6th Ctrl Delay	45.9
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	634	8	313	1586	971	760	1201
Future Volume (vph)	634	8	313	1586	971	760	1201
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	30.2	9.7	31.2
Total Split (s)	27.1	27.1	27.1	61.9	61.9	31.0	92.9
Total Split (%)	22.6%	22.6%	22.6%	51.6%	51.6%	25.8%	77.4%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2	4.7	6.2
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None
Act Effect Green (s)	21.3	21.3	21.3	55.7	55.7	26.3	86.7
Actuated g/C Ratio	0.18	0.18	0.18	0.46	0.46	0.22	0.72
v/c Ratio	1.06	1.06	0.73	1.03	0.93	1.03	0.31
Control Delay	112.9	112.2	41.3	64.0	32.5	86.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	112.9	112.2	41.3	64.0	32.5	86.9	6.6
LOS	F	F	D	E	C	F	A
Approach Delay		91.5		52.0			37.7
Approach LOS		F		D			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 53.8

Intersection LOS: D

Intersection Capacity Utilization 116.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	634	8	313	0	0	0	0	1586	971	760	1201	0
Future Volume (veh/h)	634	8	313	0	0	0	0	1586	971	760	1201	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1856				0	1885	1885	1885	1885	0
Adj Flow Rate, veh/h	703	0	57				0	1687	520	809	1278	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3				0	1	1	1	1	0
Cap, veh/h	644	0	280				0	1746	729	788	4083	0
Arrive On Green	0.18	0.00	0.18				0.00	0.46	0.46	0.22	0.72	0.00
Sat Flow, veh/h	3619	0	1572				0	3770	1575	3591	5656	0
Grp Volume(v), veh/h	703	0	57				0	1687	520	809	1278	0
Grp Sat Flow(s),veh/h/ln	1810	0	1572				0	1885	1575	1795	1885	0
Q Serve(g_s), s	21.3	0.0	3.7				0.0	52.1	31.7	26.3	9.7	0.0
Cycle Q Clear(g_c), s	21.3	0.0	3.7				0.0	52.1	31.7	26.3	9.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	644	0	280				0	1746	729	788	4083	0
V/C Ratio(X)	1.09	0.00	0.20				0.00	0.97	0.71	1.03	0.31	0.00
Avail Cap(c_a), veh/h	644	0	280				0	1753	732	788	4093	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.2	0.0	42.0				0.0	31.2	25.8	46.7	6.0	0.0
Incr Delay (d2), s/veh	63.3	0.0	0.4				0.0	14.2	3.1	38.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.0	0.0	1.4				0.0	25.3	11.7	15.6	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.5	0.0	42.4				0.0	45.4	28.8	85.6	6.0	0.0
LnGrp LOS	F	A	D				A	D	C	F	A	A
Approach Vol, veh/h	760						2207			2087		
Approach Delay, s/veh	107.3						41.5			36.9		
Approach LOS	F						D			D		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	31.0	61.7		27.1			92.7					
Change Period (Y+Rc), s	* 4.7	6.2		5.8			6.2					
Max Green Setting (Gmax), s	* 26	55.7		21.3			86.7					
Max Q Clear Time (g_c+I1), s	28.3	54.1		23.3			11.7					
Green Ext Time (p_c), s	0.0	1.4		0.0			8.9					
Intersection Summary												
HCM 6th Ctrl Delay	49.5											
HCM 6th LOS	D											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

APPENDIX 6.1:

HORIZON YEAR (2051) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	230	72	125	225	37	57	111	265	14	365	28
Future Volume (vph)	8	230	72	125	225	37	57	111	265	14	365	28
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	25.0	18.6	18.6	29.0	27.0	27.0	5.6	23.9	23.9	5.2	16.8	16.8
Actuated g/C Ratio	0.37	0.28	0.28	0.43	0.40	0.40	0.08	0.35	0.35	0.08	0.25	0.25
v/c Ratio	0.03	0.68	0.21	0.52	0.24	0.08	0.59	0.16	0.48	0.15	0.64	0.08
Control Delay	12.0	29.7	2.7	19.2	15.2	0.2	53.6	18.6	4.9	37.9	26.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	29.7	2.7	19.2	15.2	0.2	53.6	18.6	4.9	37.9	26.9	0.3
LOS	B	C	A	B	B	A	D	B	A	D	C	A
Approach Delay		23.0			15.1			14.8			25.5	
Approach LOS		C			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 67.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 19.4

Intersection LOS: B

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary

Chaffey College (JN 13236)

07/29/2021

1: Haven Av. & Wilson Av.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	230	72	125	225	37	57	111	265	14	365	28
Future Volume (veh/h)	8	230	72	125	225	37	57	111	265	14	365	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1796	1900	1870	1737	1856	1515	1885	1900	1826	1900
Adj Flow Rate, veh/h	12	343	70	187	336	9	85	166	377	21	545	23
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Percent Heavy Veh, %	0	4	7	0	2	11	3	26	1	0	5	0
Cap, veh/h	415	475	386	357	1158	470	112	829	460	45	865	400
Arrive On Green	0.02	0.26	0.26	0.08	0.33	0.33	0.06	0.29	0.29	0.02	0.25	0.25
Sat Flow, veh/h	1810	1841	1498	1810	3554	1442	1767	2878	1598	1810	3469	1604
Grp Volume(v), veh/h	12	343	70	187	336	9	85	166	377	21	545	23
Grp Sat Flow(s),veh/h/ln	1810	1841	1498	1810	1777	1442	1767	1439	1598	1810	1735	1604
Q Serve(g_s), s	0.3	10.2	2.2	4.4	4.2	0.3	2.8	2.6	13.2	0.7	8.4	0.7
Cycle Q Clear(g_c), s	0.3	10.2	2.2	4.4	4.2	0.3	2.8	2.6	13.2	0.7	8.4	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	475	386	357	1158	470	112	829	460	45	865	400
V/C Ratio(X)	0.03	0.72	0.18	0.52	0.29	0.02	0.76	0.20	0.82	0.47	0.63	0.06
Avail Cap(c_a), veh/h	538	981	798	357	1894	769	159	1304	724	151	1548	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	20.3	17.3	14.9	15.1	13.7	27.7	16.2	19.9	28.9	20.1	17.2
Incr Delay (d2), s/veh	0.0	2.1	0.2	0.7	0.1	0.0	7.0	0.1	4.2	2.9	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.0	0.7	1.5	1.4	0.1	1.3	0.7	4.6	0.3	3.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	22.4	17.6	15.5	15.2	13.7	34.7	16.3	24.1	31.8	20.8	17.2
LnGrp LOS	B	C	B	B	B	B	C	B	C	C	C	B
Approach Vol, veh/h	425			532			628			589		
Approach Delay, s/veh	21.4			15.3			23.5			21.1		
Approach LOS	C			B			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	23.1	9.6	21.3	8.4	20.8	5.5	25.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	2.7	15.2	6.4	12.2	4.8	10.4	2.3	6.2				
Green Ext Time (p_c), s	0.0	1.8	0.0	2.0	0.0	3.1	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay	20.4											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	3	430	73	0	562
Future Vol, veh/h	0	3	430	73	0	562
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	3	457	78	0	598

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	268	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	627	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	627	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	627
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	10.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			  
Traffic Vol, veh/h	17	4	500	0	0	562
Future Vol, veh/h	17	4	500	0	0	562
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	7	0	0	3
Mvmt Flow	19	4	562	0	0	631

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	814	281	0
Stage 1	562	-	-
Stage 2	252	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	389	615	-
Stage 1	448	-	-
Stage 2	709	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	389	615	-
Mov Cap-2 Maneuver	401	-	-
Stage 1	448	-	-
Stage 2	709	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 401 615	-
HCM Lane V/C Ratio	- 0.048 0.007	-
HCM Control Delay (s)	- 14.4 10.9	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.1 0	-

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	5	419	302	0	565
Future Vol, veh/h	0	5	419	302	0	565
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	5	460	332	0	621

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	396	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	520	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	520	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	520
HCM Lane V/C Ratio	-	-	0.011
HCM Control Delay (s)	-	-	12
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↕	↖	↕	↙	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	0	320	0	16	711	82	477
Future Volume (vph)	0	320	0	16	711	82	477
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	9.6	33.8	10.0	34.2
Total Split (%)	31.0%	31.0%	31.0%	8.3%	29.4%	8.7%	29.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.4	15.1	15.1	5.4	30.0	5.8	39.5
Actuated g/C Ratio	0.18	0.20	0.20	0.07	0.40	0.08	0.53
v/c Ratio	0.05	0.54	0.42	0.16	1.38dr	0.64	0.20
Control Delay	0.2	34.5	14.8	45.4	32.1	61.4	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	34.5	14.8	45.4	32.1	61.4	15.4
LOS	A	C	B	D	C	E	B
Approach Delay	0.2		24.8		32.3		22.1
Approach LOS	A		C		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 74.3

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

↙ Ø1	↑ Ø2	→ Ø4	↘ Ø8
10 s	33.8 s	35.6 s	35.6 s
↖ Ø5	↓ Ø6		
9.6 s	34.2 s		

HCM 6th Signalized Intersection Summary

5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	21	320	0	9	16	711	1039	82	477	5
Future Volume (veh/h)	0	0	21	320	0	9	16	711	1039	82	477	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1900	1900	1722	1826	1885	1900	1826	1900
Adj Flow Rate, veh/h	0	0	3	358	0	0	18	781	0	90	524	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	3	0	0	12	5	1	0	5	0
Cap, veh/h	0	0	27	766	412	0	36	1406		132	1695	16
Arrive On Green	0.00	0.00	0.02	0.22	0.00	0.00	0.02	0.28	0.00	0.07	0.33	0.33
Sat Flow, veh/h	0	0	1606	3534	1900	0	1640	5149	0	1810	5091	49
Grp Volume(v), veh/h	0	0	3	358	0	0	18	781	0	90	342	187
Grp Sat Flow(s),veh/h/ln	0	0	1606	1767	1900	0	1640	1662	0	1810	1662	1816
Q Serve(g_s), s	0.0	0.0	0.1	4.2	0.0	0.0	0.5	6.4	0.0	2.3	3.6	3.7
Cycle Q Clear(g_c), s	0.0	0.0	0.1	4.2	0.0	0.0	0.5	6.4	0.0	2.3	3.6	3.7
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	0	0	27	766	412	0	36	1406		132	1106	605
V/C Ratio(X)	0.00	0.00	0.11	0.47	0.00	0.00	0.49	0.56		0.68	0.31	0.31
Avail Cap(c_a), veh/h	0	0	1044	2299	1236	0	172	2928		205	1980	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	23.1	16.3	0.0	0.0	23.0	14.6	0.0	21.5	11.8	11.8
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.4	0.0	0.0	3.8	0.3	0.0	2.3	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.6	0.0	0.0	0.2	1.9	0.0	0.9	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	24.9	16.7	0.0	0.0	26.8	14.9	0.0	23.8	12.0	12.1
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B
Approach Vol, veh/h	3		358			799			A	619		
Approach Delay, s/veh	24.9		16.7			15.2			13.7			
Approach LOS	C		B			B			B			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	19.2		5.4	5.7	21.7		14.9				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	5.4	28.0		31.0	5.0	28.4		31.0				
Max Q Clear Time (g_c+I1), s	4.3	8.4		2.1	2.5	5.7		6.2				
Green Ext Time (p_c), s	0.0	4.8		0.0	0.0	3.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay	15.0											
HCM 6th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	128	24	302	53	91	2156	11	878
Future Volume (vph)	128	24	302	53	91	2156	11	878
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	10.9	38.4	11.8	39.3	17.0	55.2	9.6	47.8
Total Split (%)	9.5%	33.4%	10.3%	34.2%	14.8%	48.0%	8.3%	41.6%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	18.5	13.7	19.9	14.4	9.0	50.9	5.2	41.2
Actuated g/C Ratio	0.22	0.16	0.23	0.17	0.10	0.59	0.06	0.48
v/c Ratio	0.45	0.33	1.03	0.33	0.56	0.84	0.11	0.44
Control Delay	29.5	14.6	89.8	28.7	52.2	20.9	47.5	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	14.6	89.8	28.7	52.2	20.9	47.5	18.8
LOS	C	B	F	C	D	C	D	B
Approach Delay		23.2		76.9		22.1		19.1
Approach LOS		C		E		C		B

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 85.8

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 26.8

Intersection LOS: C

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	55.2 s	11.8 s	38.4 s
 Ø5	 Ø6	 Ø7	 Ø8
17 s	47.8 s	10.9 s	39.3 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	24	71	302	53	27	91	2156	93	11	878	77
Future Volume (veh/h)	128	24	71	302	53	27	91	2156	93	11	878	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1781	1900	1870	1515	1900	1841	1870	1781	1900	1870	1900
Adj Flow Rate, veh/h	144	27	7	339	60	27	102	2422	93	12	987	84
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	8	0	2	26	0	4	2	8	0	2	0
Cap, veh/h	313	172	44	375	134	60	129	2760	105	26	2336	198
Arrive On Green	0.07	0.13	0.13	0.08	0.14	0.14	0.07	0.55	0.55	0.01	0.49	0.49
Sat Flow, veh/h	1781	1363	353	1781	983	442	1753	5047	193	1810	4793	407
Grp Volume(v), veh/h	144	0	34	339	0	87	102	1628	887	12	700	371
Grp Sat Flow(s),veh/h/ln	1781	0	1716	1781	0	1426	1753	1702	1836	1810	1702	1796
Q Serve(g_s), s	6.2	0.0	1.6	7.2	0.0	5.0	5.0	36.7	37.4	0.6	11.7	11.8
Cycle Q Clear(g_c), s	6.2	0.0	1.6	7.2	0.0	5.0	5.0	36.7	37.4	0.6	11.7	11.8
Prop In Lane	1.00		0.21	1.00		0.31	1.00		0.10	1.00		0.23
Lane Grp Cap(c), veh/h	313	0	216	375	0	194	129	1861	1004	26	1659	875
V/C Ratio(X)	0.46	0.00	0.16	0.90	0.00	0.45	0.79	0.87	0.88	0.46	0.42	0.42
Avail Cap(c_a), veh/h	313	0	642	375	0	548	246	1906	1028	103	1659	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	0.0	34.4	35.7	0.0	35.1	40.2	17.4	17.5	43.1	14.6	14.6
Incr Delay (d2), s/veh	0.4	0.0	0.3	23.9	0.0	1.6	4.0	4.8	9.1	4.6	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.6	6.1	0.0	1.7	2.2	13.0	15.5	0.3	4.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	34.7	59.6	0.0	36.7	44.2	22.2	26.6	47.7	14.8	14.9
LnGrp LOS	C	A	C	E	A	D	D	C	C	D	B	B
Approach Vol, veh/h		178			426			2617			1083	
Approach Delay, s/veh		32.0			54.9			24.5			15.2	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	54.0	11.8	16.5	11.1	48.8	10.9	17.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.0	49.4	7.2	33.0	12.4	42.0	6.3	33.9				
Max Q Clear Time (g_c+I1), s	2.6	39.4	9.2	3.6	7.0	13.8	8.2	7.0				
Green Ext Time (p_c), s	0.0	8.9	0.0	0.1	0.0	7.3	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			25.5									
HCM 6th LOS			C									

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	513	8	930	548	1731	1162
Future Volume (vph)	513	8	930	548	1731	1162
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	46.8	46.8	46.8	26.0	73.2	47.2
Total Split (%)	39.0%	39.0%	39.0%	21.7%	61.0%	39.3%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	41.0	41.0	41.0	21.3	67.0	41.0
Actuated g/C Ratio	0.34	0.34	0.34	0.18	0.56	0.34
v/c Ratio	0.90	1.11	0.99	1.02	0.69	1.11
Control Delay	58.4	109.8	69.8	90.9	20.5	95.2
Queue Delay	0.0	0.0	0.0	0.0	5.7	0.0
Total Delay	58.4	109.8	69.8	90.9	26.2	95.2
LOS	E	F	E	F	C	F
Approach Delay		79.9			41.8	95.2
Approach LOS		E			D	F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 68.8

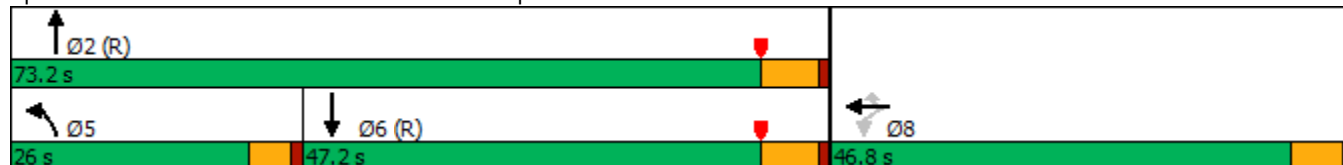
Intersection LOS: E

Intersection Capacity Utilization 152.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary 7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	513	8	930	548	1731	0	0	1162	556
Future Volume (veh/h)	0	0	0	513	8	930	548	1731	0	0	1162	556
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1559	1870	1856	1870	0	0	1870	1900
Adj Flow Rate, veh/h				827	0	460	616	1945	0	0	1306	497
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	23	2	3	2	0	0	2	0
Cap, veh/h				1129	0	502	609	2977	0	0	1336	505
Arrive On Green				0.32	0.00	0.32	0.18	0.58	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3563	0	1585	3428	5274	0	0	3816	1379
Grp Volume(v), veh/h				827	0	460	616	1945	0	0	1218	585
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1714	1702	0	0	1702	1622
Q Serve(g_s), s				24.8	0.0	33.5	21.3	30.8	0.0	0.0	42.4	42.9
Cycle Q Clear(g_c), s				24.8	0.0	33.5	21.3	30.8	0.0	0.0	42.4	42.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.85
Lane Grp Cap(c), veh/h				1129	0	502	609	2977	0	0	1247	594
V/C Ratio(X)				0.73	0.00	0.92	1.01	0.65	0.00	0.00	0.98	0.98
Avail Cap(c_a), veh/h				1217	0	542	609	2977	0	0	1247	594
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.78	0.78
Uniform Delay (d), s/veh				36.5	0.0	39.4	49.3	16.9	0.0	0.0	37.5	37.7
Incr Delay (d2), s/veh				2.1	0.0	19.6	14.1	0.1	0.0	0.0	17.6	29.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.7	0.0	15.2	10.0	10.9	0.0	0.0	19.7	20.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				38.6	0.0	59.0	63.5	17.0	0.0	0.0	55.1	66.6
LnGrp LOS				D	A	E	F	B	A	A	E	E
Approach Vol, veh/h					1287			2561			1803	
Approach Delay, s/veh					45.9			28.1			58.9	
Approach LOS					D			C			E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		76.2			26.0	50.2		43.8				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.8				
Max Green Setting (Gmax), s		67.0			* 21	41.0		41.0				
Max Q Clear Time (g_c+I1), s		32.8			23.3	44.9		35.5				
Green Ext Time (p_c), s		15.6			0.0	0.0		2.5				
Intersection Summary												
HCM 6th Ctrl Delay				42.0								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1375	5	338	904	582	1093
Future Volume (vph)	1375	5	338	904	582	1093
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	56.2	56.2	56.2	39.8	24.0	63.8
Total Split (%)	46.8%	46.8%	46.8%	33.2%	20.0%	53.2%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	50.4	50.4	50.4	33.6	19.3	57.6
Actuated g/C Ratio	0.42	0.42	0.42	0.28	0.16	0.48
v/c Ratio	1.08	1.10	0.51	1.10	1.11	0.48
Control Delay	91.0	100.4	22.8	94.0	118.6	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	91.0	100.4	22.8	94.0	118.6	22.4
LOS	F	F	C	F	F	C
Approach Delay		82.8		94.0		55.9
Approach LOS		F		F		E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 76.9

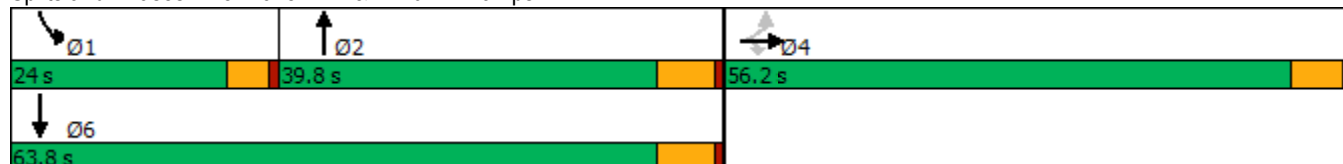
Intersection LOS: E

Intersection Capacity Utilization 152.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1375	5	338	0	0	0	0	904	559	582	1093	0
Future Volume (veh/h)	1375	5	338	0	0	0	0	904	559	582	1093	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1352	1781				0	1841	1856	1885	1856	0
Adj Flow Rate, veh/h	1477	0	28				0	962	513	619	1163	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	37	8				0	4	3	1	3	0
Cap, veh/h	1496	0	634				0	938	437	560	2431	0
Arrive On Green	0.42	0.00	0.42				0.00	0.28	0.28	0.16	0.48	0.00
Sat Flow, veh/h	3563	0	1510				0	3516	1560	3483	5233	0
Grp Volume(v), veh/h	1477	0	28				0	962	513	619	1163	0
Grp Sat Flow(s),veh/h/ln	1781	0	1510				0	1675	1560	1742	1689	0
Q Serve(g_s), s	49.3	0.0	1.3				0.0	33.6	33.6	19.3	18.6	0.0
Cycle Q Clear(g_c), s	49.3	0.0	1.3				0.0	33.6	33.6	19.3	18.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1496	0	634				0	938	437	560	2431	0
V/C Ratio(X)	0.99	0.00	0.04				0.00	1.03	1.17	1.10	0.48	0.00
Avail Cap(c_a), veh/h	1496	0	634				0	938	437	560	2431	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.5	0.0	20.6				0.0	43.2	43.2	50.3	21.1	0.0
Incr Delay (d2), s/veh	20.2	0.0	0.0				0.0	36.1	100.3	70.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.1	0.0	0.5				0.0	18.0	24.6	13.6	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	0.0	20.6				0.0	79.3	143.5	120.4	21.2	0.0
LnGrp LOS	D	A	C				A	F	F	F	C	A
Approach Vol, veh/h	1505						1475			1782		
Approach Delay, s/veh	54.0						101.6			55.6		
Approach LOS	D						F			E		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	24.0	39.8		56.2			63.8					
Change Period (Y+Rc), s	* 4.7	6.2		5.8			6.2					
Max Green Setting (Gmax), s	* 19	33.6		50.4			57.6					
Max Q Clear Time (g_c+I1), s	21.3	35.6		51.3			20.6					
Green Ext Time (p_c), s	0.0	0.0		0.0			7.4					

Intersection Summary

HCM 6th Ctrl Delay 69.4

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	493	15	15	384	3	3
Future Vol, veh/h	493	15	15	384	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	666	20	20	519	4	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	689	0	1238	679
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	559	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	915	-	196	455
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	576	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	912	-	191	454
Mov Cap-2 Maneuver	-	-	-	-	396	-
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	563	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.3		13.6		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	396	454	-	-	912	-
HCM Lane V/C Ratio	0.01	0.009	-	-	0.022	-
HCM Control Delay (s)	14.2	13	-	-	9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	481	15	15	397	3	3
Future Vol, veh/h	481	15	15	397	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	641	20	20	529	4	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	664	0	1223	654
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	935	-	200	470
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	932	-	195	469
Mov Cap-2 Maneuver	-	-	-	-	401	-
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	558	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.3		13.5		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	432	-	-	932	-	
HCM Lane V/C Ratio	0.019	-	-	0.021	-	
HCM Control Delay (s)	13.5	-	-	8.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	468	15	15	409	3	3
Future Vol, veh/h	468	15	15	409	3	3
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	688	22	22	601	4	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	712	0	1346	701
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	645	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	897	-	169	442
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	895	-	164	441
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	513	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.3		14.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	403	-	-	895	-	
HCM Lane V/C Ratio	0.022	-	-	0.025	-	
HCM Control Delay (s)	14.1	-	-	9.1	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	453	18	33	421	3	9
Future Vol, veh/h	453	18	33	421	3	9
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	666	26	49	619	4	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	694
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	911
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	909
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	351	453	-	-	909	-
HCM Lane V/C Ratio	0.013	0.029	-	-	0.053	-
HCM Control Delay (s)	15.4	13.2	-	-	9.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	313	76	221	149	72	78	190	215	52	195	19
Future Volume (vph)	67	313	76	221	149	72	78	190	215	52	195	19
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.7	18.3	18.3	25.9	20.6	20.6	5.6	15.7	15.7	5.2	12.9	12.9
Actuated g/C Ratio	0.39	0.29	0.29	0.41	0.32	0.32	0.09	0.25	0.25	0.08	0.20	0.20
v/c Ratio	0.15	0.70	0.16	0.74	0.15	0.14	0.59	0.26	0.43	0.42	0.33	0.05
Control Delay	11.2	28.2	1.6	28.2	17.1	1.2	49.8	22.3	6.0	42.9	23.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	28.2	1.6	28.2	17.1	1.2	49.8	22.3	6.0	42.9	23.6	0.2
LOS	B	C	A	C	B	A	D	C	A	D	C	A
Approach Delay		21.3			20.0			19.5			25.7	
Approach LOS		C			C			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 63.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 21.1

Intersection LOS: C

Intersection Capacity Utilization 58.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary

Chaffey College (JN 13236)

07/29/2021

1: Haven Av. & Wilson Av.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	313	76	221	149	72	78	190	215	52	195	19
Future Volume (veh/h)	67	313	76	221	149	72	78	190	215	52	195	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1826	1885	1870	1900	1900	1870	1900	1900	1856	1900
Adj Flow Rate, veh/h	80	373	45	263	177	32	93	226	236	62	232	17
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	3	5	1	2	0	0	2	0	0	3	0
Cap, veh/h	549	484	403	371	1025	464	126	739	335	101	685	313
Arrive On Green	0.06	0.26	0.26	0.09	0.29	0.29	0.07	0.21	0.21	0.06	0.19	0.19
Sat Flow, veh/h	1810	1856	1547	1795	3554	1610	1810	3554	1610	1810	3526	1610
Grp Volume(v), veh/h	80	373	45	263	177	32	93	226	236	62	232	17
Grp Sat Flow(s),veh/h/ln	1810	1856	1547	1795	1777	1610	1810	1777	1610	1810	1763	1610
Q Serve(g_s), s	1.7	10.1	1.2	5.0	2.0	0.8	2.7	2.9	7.4	1.8	3.1	0.5
Cycle Q Clear(g_c), s	1.7	10.1	1.2	5.0	2.0	0.8	2.7	2.9	7.4	1.8	3.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	549	484	403	371	1025	464	126	739	335	101	685	313
V/C Ratio(X)	0.15	0.77	0.11	0.71	0.17	0.07	0.74	0.31	0.71	0.61	0.34	0.05
Avail Cap(c_a), veh/h	598	1094	912	371	2095	949	180	1781	807	167	1741	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	18.6	15.3	16.1	14.5	14.0	24.8	18.2	19.9	25.0	18.9	17.8
Incr Delay (d2), s/veh	0.0	2.6	0.1	5.3	0.1	0.1	4.3	0.2	2.7	2.2	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.9	0.4	2.4	0.7	0.2	1.2	1.0	2.6	0.7	1.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	21.2	15.4	21.4	14.5	14.1	29.1	18.4	22.7	27.3	19.1	17.9
LnGrp LOS	B	C	B	C	B	B	C	B	C	C	B	B
Approach Vol, veh/h		498			472			555			311	
Approach Delay, s/veh		19.4			18.3			22.0			20.7	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	17.1	9.6	20.0	8.4	16.3	8.1	21.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	3.8	9.4	7.0	12.1	4.7	5.1	3.7	4.0				
Green Ext Time (p_c), s	0.0	1.9	0.0	2.1	0.0	1.3	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			20.1									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	8	475	51	0	492
Future Vol, veh/h	0	8	475	51	0	492
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	8	485	52	0	502

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	269	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	626	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	626	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	626
HCM Lane V/C Ratio	-	-	0.013
HCM Control Delay (s)	-	-	10.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	8	518	0	0	492
Future Vol, veh/h	40	8	518	0	0	492
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	41	8	529	0	0	502

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	730	265	0
Stage 1	529	-	-
Stage 2	201	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	428	630	-
Stage 1	469	-	-
Stage 2	752	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	428	630	-
Mov Cap-2 Maneuver	424	-	-
Stage 1	469	-	-
Stage 2	752	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 424 630	-
HCM Lane V/C Ratio	- 0.096 0.013	-
HCM Control Delay (s)	- 14.4 10.8	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.3 0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	23	547	210	0	587
Future Vol, veh/h	0	23	547	210	0	587
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	24	582	223	0	624

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	403	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	515	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	515	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 515	-
HCM Lane V/C Ratio	-	- 0.048	-
HCM Control Delay (s)	-	- 12.3	-
HCM Lane LOS	-	- B	-
HCM 95th %tile Q(veh)	-	- 0.1	-

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↖	↔	↙	↑↑↑	↘	↓↓↓
Traffic Volume (vph)	0	728	0	19	747	41	544
Future Volume (vph)	0	728	0	19	747	41	544
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	10.1	34.2	9.6	33.7
Total Split (%)	31.0%	31.0%	31.0%	8.8%	29.7%	8.3%	29.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.8	28.0	28.0	5.6	30.0	5.3	33.9
Actuated g/C Ratio	0.16	0.32	0.32	0.06	0.34	0.06	0.39
v/c Ratio	0.10	0.77	0.67	0.19	1.11dr	0.43	0.31
Control Delay	0.6	40.8	26.8	51.0	35.8	59.5	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.6	40.8	26.8	51.0	35.8	59.5	23.7
LOS	A	D	C	D	D	E	C
Approach Delay	0.6		33.8		36.0		26.2
Approach LOS	A		C		D		C

Intersection Summary

Cycle Length: 115	
Actuated Cycle Length: 87.1	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 32.9	Intersection LOS: C
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	
dr Defacto Right Lane. Recode with 1 though lane as a right lane.	

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

↙ Ø1	↑ Ø2	↘ Ø4	↙ Ø8
9.6 s	34.2 s	35.6 s	35.6 s
↙ Ø5	↓ Ø6		
10.1 s	33.7 s		

HCM 6th Signalized Intersection Summary

5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	32	728	0	10	19	747	652	41	544	2
Future Volume (veh/h)	0	0	32	728	0	10	19	747	652	41	544	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1900	1900	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	0	0	4	837	0	0	22	849	0	47	618	2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	1	0	0	0	1	1	0	2	0
Cap, veh/h	0	0	17	1100	582	0	47	1424		85	1562	5
Arrive On Green	0.00	0.00	0.01	0.31	0.00	0.00	0.03	0.28	0.00	0.05	0.30	0.30
Sat Flow, veh/h	0	0	1610	3591	1900	0	1810	5316	0	1810	5254	17
Grp Volume(v), veh/h	0	0	4	837	0	0	22	849	0	47	400	220
Grp Sat Flow(s),veh/h/ln	0	0	1610	1795	1900	0	1810	1716	0	1810	1702	1867
Q Serve(g_s), s	0.0	0.0	0.1	11.5	0.0	0.0	0.7	7.8	0.0	1.4	5.1	5.1
Cycle Q Clear(g_c), s	0.0	0.0	0.1	11.5	0.0	0.0	0.7	7.8	0.0	1.4	5.1	5.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	17	1100	582	0	47	1424		85	1012	555
V/C Ratio(X)	0.00	0.00	0.23	0.76	0.00	0.00	0.47	0.60		0.56	0.40	0.40
Avail Cap(c_a), veh/h	0	0	915	2042	1080	0	183	2681		166	1742	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	26.7	17.1	0.0	0.0	26.2	17.1	0.0	25.4	15.3	15.3
Incr Delay (d2), s/veh	0.0	0.0	6.6	1.1	0.0	0.0	2.7	0.4	0.0	2.1	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	4.5	0.0	0.0	0.3	2.6	0.0	0.6	1.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	33.3	18.2	0.0	0.0	28.9	17.5	0.0	27.6	15.5	15.7
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B
Approach Vol, veh/h	4			837			871			A		
Approach Delay, s/veh	33.3			18.2			17.8			16.4		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.1	20.9	5.2		6.0	22.0	21.3					
Change Period (Y+Rc), s	4.6	5.8	4.6		4.6	5.8	4.6					
Max Green Setting (Gmax), s	5.0	28.4	31.0		5.5	27.9	31.0					
Max Q Clear Time (g_c+I1), s	3.4	9.8	2.1		2.7	7.1	13.5					
Green Ext Time (p_c), s	0.0	5.2	0.0		0.0	3.5	3.2					

Intersection Summary

HCM 6th Ctrl Delay 17.6

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	233	129	194	41	186	1625	22	1503
Future Volume (vph)	233	129	194	41	186	1625	22	1503
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	12.0	38.4	11.4	37.8	20.4	55.5	9.7	44.8
Total Split (%)	10.4%	33.4%	9.9%	32.9%	17.7%	48.3%	8.4%	39.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	29.5	20.2	24.5	19.4	14.1	53.4	5.1	38.2
Actuated g/C Ratio	0.30	0.20	0.24	0.19	0.14	0.53	0.05	0.38
v/c Ratio	0.62	0.75	0.80	0.21	0.78	0.72	0.27	0.85
Control Delay	36.3	43.7	53.1	22.7	65.0	21.3	58.3	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	43.7	53.1	22.7	65.0	21.3	58.3	34.6
LOS	D	D	D	C	E	C	E	C
Approach Delay		40.3		44.9		25.3		34.9
Approach LOS		D		D		C		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 100

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 31.7

Intersection LOS: C

Intersection Capacity Utilization 89.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

 Ø1	 Ø2	 Ø3	 Ø4
9.7 s	55.5 s	11.4 s	38.4 s
 Ø5	 Ø6	 Ø7	 Ø8
20.4 s	44.8 s	12 s	37.8 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	129	146	194	41	30	186	1625	236	22	1503	86
Future Volume (veh/h)	233	129	146	194	41	30	186	1625	236	22	1503	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1841	1885	1826	1900	1870	1900	1885	1767	1885	1900
Adj Flow Rate, veh/h	243	134	90	202	43	28	194	1693	209	23	1566	90
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	4	1	5	0	2	0	1	9	1	0
Cap, veh/h	419	199	134	294	189	123	229	2283	281	41	1913	110
Arrive On Green	0.08	0.19	0.19	0.07	0.18	0.18	0.13	0.49	0.49	0.02	0.38	0.38
Sat Flow, veh/h	1781	1049	704	1795	1033	672	1781	4671	574	1682	4977	286
Grp Volume(v), veh/h	243	0	224	202	0	71	194	1252	650	23	1079	577
Grp Sat Flow(s),veh/h/ln	1781	0	1753	1795	0	1705	1781	1729	1787	1682	1716	1832
Q Serve(g_s), s	7.4	0.0	10.9	6.8	0.0	3.2	9.7	26.5	26.8	1.2	25.8	25.9
Cycle Q Clear(g_c), s	7.4	0.0	10.9	6.8	0.0	3.2	9.7	26.5	26.8	1.2	25.8	25.9
Prop In Lane	1.00		0.40	1.00		0.39	1.00		0.32	1.00		0.16
Lane Grp Cap(c), veh/h	419	0	333	294	0	312	229	1690	874	41	1319	704
V/C Ratio(X)	0.58	0.00	0.67	0.69	0.00	0.23	0.85	0.74	0.74	0.57	0.82	0.82
Avail Cap(c_a), veh/h	419	0	632	294	0	604	308	1879	971	94	1463	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	34.4	31.1	0.0	31.8	39.0	18.7	18.8	44.2	25.3	25.3
Incr Delay (d2), s/veh	1.3	0.0	2.4	5.5	0.0	0.4	11.9	1.4	2.8	4.5	3.5	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	4.7	1.3	0.0	1.3	4.8	9.6	10.3	0.5	10.2	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	36.8	36.6	0.0	32.2	50.9	20.2	21.6	48.7	28.8	31.6
LnGrp LOS	C	A	D	D	A	C	D	C	C	D	C	C
Approach Vol, veh/h		467			273			2096			1679	
Approach Delay, s/veh		33.9			35.5			23.5			30.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	50.5	11.4	22.8	16.4	41.0	12.0	22.2				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.1	49.7	6.8	33.0	15.8	39.0	7.4	32.4				
Max Q Clear Time (g_c+I1), s	3.2	28.8	8.8	12.9	11.7	27.9	9.4	5.2				
Green Ext Time (p_c), s	0.0	13.1	0.0	1.1	0.1	7.3	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			27.7									
HCM 6th LOS			C									

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	552	5	843	638	1652	1484
Future Volume (vph)	552	5	843	638	1652	1484
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	38.0	38.0	38.0	26.0	82.0	56.0
Total Split (%)	31.7%	31.7%	31.7%	21.7%	68.3%	46.7%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	32.2	32.2	32.2	21.3	75.8	49.8
Actuated g/C Ratio	0.27	0.27	0.27	0.18	0.63	0.42
v/c Ratio	1.14	1.18	1.05	1.10	0.54	1.14
Control Delay	125.5	140.4	93.0	113.8	13.1	103.0
Queue Delay	0.0	0.0	0.0	0.0	1.1	0.0
Total Delay	125.5	140.4	93.0	113.8	14.3	103.0
LOS	F	F	F	F	B	F
Approach Delay		119.8			42.0	103.0
Approach LOS		F			D	F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 83.4

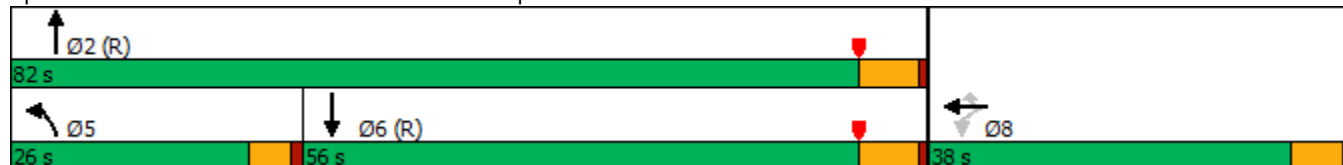
Intersection LOS: F

Intersection Capacity Utilization 113.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary

7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	552	5	843	638	1652	0	0	1484	763
Future Volume (veh/h)	0	0	0	552	5	843	638	1652	0	0	1484	763
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1352	1885	1885	1885	0	0	1885	1885
Adj Flow Rate, veh/h				782	0	404	679	1757	0	0	1579	653
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				1	37	1	1	1	0	0	1	1
Cap, veh/h				958	0	426	618	3259	0	0	1506	600
Arrive On Green				0.27	0.00	0.27	0.18	0.63	0.00	0.00	0.42	0.42
Sat Flow, veh/h				3591	0	1598	3483	5316	0	0	3785	1440
Grp Volume(v), veh/h				782	0	404	679	1757	0	0	1496	736
Grp Sat Flow(s),veh/h/ln				1795	0	1598	1742	1716	0	0	1716	1624
Q Serve(g_s), s				24.5	0.0	29.8	21.3	22.8	0.0	0.0	50.0	50.0
Cycle Q Clear(g_c), s				24.5	0.0	29.8	21.3	22.8	0.0	0.0	50.0	50.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				958	0	426	618	3259	0	0	1429	676
V/C Ratio(X)				0.82	0.00	0.95	1.10	0.54	0.00	0.00	1.05	1.09
Avail Cap(c_a), veh/h				964	0	429	618	3259	0	0	1429	676
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.42	0.42
Uniform Delay (d), s/veh				41.2	0.0	43.2	49.4	12.3	0.0	0.0	35.0	35.0
Incr Delay (d2), s/veh				5.5	0.0	30.4	47.0	0.1	0.0	0.0	29.4	50.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.2	0.0	14.9	13.0	7.7	0.0	0.0	25.3	28.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.7	0.0	73.6	96.3	12.3	0.0	0.0	64.4	85.8
LnGrp LOS				D	A	E	F	B	A	A	F	F
Approach Vol, veh/h					1186			2436			2232	
Approach Delay, s/veh					55.9			35.7			71.5	
Approach LOS					E			D			E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		82.2			26.0	56.2		37.8				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.8				
Max Green Setting (Gmax), s		75.8			* 21	49.8		32.2				
Max Q Clear Time (g_c+I1), s		24.8			23.3	52.0		31.8				
Green Ext Time (p_c), s		14.8			0.0	0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				53.4								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	559	7	314	1731	765	1271
Future Volume (vph)	559	7	314	1731	765	1271
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	27.0	27.0	27.0	65.0	28.0	93.0
Total Split (%)	22.5%	22.5%	22.5%	54.2%	23.3%	77.5%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.2	21.2	21.2	58.8	23.3	86.8
Actuated g/C Ratio	0.18	0.18	0.18	0.49	0.19	0.72
v/c Ratio	1.08	1.09	0.86	1.33dr	1.21	0.36
Control Delay	122.2	125.2	57.9	137.5	149.4	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	122.2	125.2	57.9	137.5	149.4	7.0
LOS	F	F	E	F	F	A
Approach Delay		103.3		137.5		60.5
Approach LOS		F		F		E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 105.0

Intersection LOS: F

Intersection Capacity Utilization 113.1%

ICU Level of Service H

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	559	7	314	0	0	0	0	1731	1114	765	1271	0
Future Volume (veh/h)	559	7	314	0	0	0	0	1731	1114	765	1271	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1856				0	1885	1885	1885	1885	0
Adj Flow Rate, veh/h	623	0	57				0	1841	885	814	1352	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3				0	1	1	1	1	0
Cap, veh/h	639	0	278				0	1726	734	676	3723	0
Arrive On Green	0.18	0.00	0.18				0.00	0.49	0.49	0.19	0.72	0.00
Sat Flow, veh/h	3619	0	1572				0	3692	1499	3483	5316	0
Grp Volume(v), veh/h	623	0	57				0	1787	939	814	1352	0
Grp Sat Flow(s),veh/h/ln	1810	0	1572				0	1716	1590	1742	1716	0
Q Serve(g_s), s	20.5	0.0	3.7				0.0	58.8	58.8	23.3	11.8	0.0
Cycle Q Clear(g_c), s	20.5	0.0	3.7				0.0	58.8	58.8	23.3	11.8	0.0
Prop In Lane	1.00		1.00				0.00		0.94	1.00		0.00
Lane Grp Cap(c), veh/h	639	0	278				0	1681	779	676	3723	0
V/C Ratio(X)	0.97	0.00	0.21				0.00	1.06	1.21	1.20	0.36	0.00
Avail Cap(c_a), veh/h	639	0	278				0	1681	779	676	3723	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.1	0.0	42.2				0.0	30.6	30.6	48.3	6.2	0.0
Incr Delay (d2), s/veh	29.1	0.0	0.4				0.0	40.9	104.3	105.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	0.0	1.4				0.0	31.7	43.1	19.7	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.3	0.0	42.6				0.0	71.5	134.9	153.7	6.3	0.0
LnGrp LOS	E	A	D				A	F	F	F	A	A
Approach Vol, veh/h	680						2726			2166		
Approach Delay, s/veh	75.3						93.3			61.7		
Approach LOS	E						F			E		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	28.0	65.0	27.0		93.0							
Change Period (Y+Rc), s	* 4.7	6.2	5.8		6.2							
Max Green Setting (Gmax), s	* 23	58.8	21.2		86.8							
Max Q Clear Time (g_c+I1), s	25.3	60.8	22.5		13.8							
Green Ext Time (p_c), s	0.0	0.0	0.0		9.7							
Intersection Summary												
HCM 6th Ctrl Delay	78.8											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	571	10	10	434	8	8
Future Vol, veh/h	571	10	10	434	8	8
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	696	12	12	529	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	711	0	1258	705
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	553	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	898	-	190	440
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	580	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	895	-	187	439
Mov Cap-2 Maneuver	-	-	-	-	392	-
Stage 1	-	-	-	-	493	-
Stage 2	-	-	-	-	572	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		13.9	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	392	439	-	-	895	-
HCM Lane V/C Ratio	0.025	0.022	-	-	0.014	-
HCM Control Delay (s)	14.4	13.4	-	-	9.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	569	10	10	436	8	8
Future Vol, veh/h	569	10	10	436	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	686	12	12	525	10	10
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	698	0	1241	692
Stage 1	-	-	-	-	692	-
Stage 2	-	-	-	-	549	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	908	-	195	447
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	908	-	192	447
Mov Cap-2 Maneuver	-	-	-	-	397	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	575	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		14		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	421	-	-	908	-	
HCM Lane V/C Ratio	0.046	-	-	0.013	-	
HCM Control Delay (s)	14	-	-	9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	567	10	10	438	8	8
Future Vol, veh/h	567	10	10	438	8	8
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	652	11	11	503	9	9
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	665	0	1185	660
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	525	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	934	-	211	467
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	598	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	932	-	208	466
Mov Cap-2 Maneuver	-	-	-	-	413	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	591	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		13.6		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	438	-	-	932	-	
HCM Lane V/C Ratio	0.042	-	-	0.012	-	
HCM Control Delay (s)	13.6	-	-	8.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	565	10	22	440	8	28
Future Vol, veh/h	565	10	22	440	8	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	614	11	24	478	9	30

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	625
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	966
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	966
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	422	492	-	-	966	-
HCM Lane V/C Ratio	0.021	0.062	-	-	0.025	-
HCM Control Delay (s)	13.7	12.8	-	-	8.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

APPENDIX 6.2:

HORIZON YEAR (2051) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	233	73	125	226	37	57	112	265	14	367	28
Future Volume (vph)	8	233	73	125	226	37	57	112	265	14	367	28
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	25.3	18.9	18.9	29.4	27.4	27.4	5.6	24.0	24.0	5.2	17.0	17.0
Actuated g/C Ratio	0.37	0.28	0.28	0.43	0.40	0.40	0.08	0.35	0.35	0.08	0.25	0.25
v/c Ratio	0.03	0.69	0.21	0.52	0.24	0.08	0.59	0.17	0.48	0.15	0.64	0.08
Control Delay	12.0	29.8	2.8	19.3	15.2	0.2	54.3	18.8	5.0	38.3	27.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	29.8	2.8	19.3	15.2	0.2	54.3	18.8	5.0	38.3	27.2	0.3
LOS	B	C	A	B	B	A	D	B	A	D	C	A
Approach Delay		23.1			15.1			15.0			25.7	
Approach LOS		C			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 68.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary

Chaffey College (JN 13236)

07/29/2021

1: Haven Av. & Wilson Av.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	233	73	125	226	37	57	112	265	14	367	28
Future Volume (veh/h)	8	233	73	125	226	37	57	112	265	14	367	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1796	1900	1870	1737	1856	1515	1885	1900	1826	1900
Adj Flow Rate, veh/h	12	348	72	187	337	9	85	167	377	21	548	23
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Percent Heavy Veh, %	0	4	7	0	2	11	3	26	1	0	5	0
Cap, veh/h	416	479	390	355	1165	473	111	828	460	44	865	400
Arrive On Green	0.02	0.26	0.26	0.08	0.33	0.33	0.06	0.29	0.29	0.02	0.25	0.25
Sat Flow, veh/h	1810	1841	1498	1810	3554	1442	1767	2878	1598	1810	3469	1604
Grp Volume(v), veh/h	12	348	72	187	337	9	85	167	377	21	548	23
Grp Sat Flow(s),veh/h/ln	1810	1841	1498	1810	1777	1442	1767	1439	1598	1810	1735	1604
Q Serve(g_s), s	0.3	10.4	2.3	4.4	4.2	0.3	2.9	2.6	13.3	0.7	8.5	0.7
Cycle Q Clear(g_c), s	0.3	10.4	2.3	4.4	4.2	0.3	2.9	2.6	13.3	0.7	8.5	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	416	479	390	355	1165	473	111	828	460	44	865	400
V/C Ratio(X)	0.03	0.73	0.18	0.53	0.29	0.02	0.76	0.20	0.82	0.47	0.63	0.06
Avail Cap(c_a), veh/h	539	976	794	355	1885	765	158	1297	720	150	1541	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	20.4	17.3	14.9	15.1	13.7	27.8	16.3	20.0	29.0	20.2	17.2
Incr Delay (d2), s/veh	0.0	2.1	0.2	0.7	0.1	0.0	7.3	0.1	4.3	2.9	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.1	0.7	1.5	1.5	0.1	1.3	0.8	4.7	0.3	3.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	22.5	17.6	15.6	15.2	13.7	35.2	16.4	24.3	31.9	21.0	17.3
LnGrp LOS	B	C	B	B	B	B	D	B	C	C	C	B
Approach Vol, veh/h	432			533			629			592		
Approach Delay, s/veh	21.5			15.3			23.7			21.2		
Approach LOS	C			B			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	23.2	9.6	21.5	8.4	20.8	5.5	25.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	2.7	15.3	6.4	12.4	4.9	10.5	2.3	6.2				
Green Ext Time (p_c), s	0.0	1.8	0.0	2.0	0.0	3.1	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay	20.5											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	3	431	77	0	565
Future Vol, veh/h	0	3	431	77	0	565
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	3	459	82	0	601

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	271	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	624	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	624	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	624
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	10.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	4	505	0	0	565
Future Vol, veh/h	18	4	505	0	0	565
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	7	0	0	3
Mvmt Flow	20	4	567	0	0	635

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	821	284	0
Stage 1	567	-	-
Stage 2	254	-	-
Critical Hdwy	5.7	7.1	-
Critical Hdwy Stg 1	6.6	-	-
Critical Hdwy Stg 2	6	-	-
Follow-up Hdwy	3.8	3.9	-
Pot Cap-1 Maneuver	386	612	-
Stage 1	445	-	-
Stage 2	707	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	386	612	-
Mov Cap-2 Maneuver	398	-	-
Stage 1	445	-	-
Stage 2	707	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 398 612	-
HCM Lane V/C Ratio	- 0.051 0.007	-
HCM Control Delay (s)	- 14.5 10.9	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.2 0	-

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	5	423	319	0	569
Future Vol, veh/h	0	5	423	319	0	569
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	8	0	0	4
Mvmt Flow	0	5	465	351	0	625

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	408	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	511	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	511	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	511
HCM Lane V/C Ratio	-	-	0.011
HCM Control Delay (s)	-	-	12.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↕	↖	↕	↙	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	0	336	0	16	732	85	478
Future Volume (vph)	0	336	0	16	732	85	478
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	9.6	33.8	10.0	34.2
Total Split (%)	31.0%	31.0%	31.0%	8.3%	29.4%	8.7%	29.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.4	15.4	15.4	5.4	30.0	5.8	39.5
Actuated g/C Ratio	0.18	0.21	0.21	0.07	0.40	0.08	0.53
v/c Ratio	0.05	0.56	0.43	0.16	1.45dr	0.67	0.20
Control Delay	0.2	34.9	15.5	45.6	38.9	63.7	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	34.9	15.5	45.6	38.9	63.7	15.5
LOS	A	C	B	D	D	E	B
Approach Delay	0.2		25.3		39.0		22.7
Approach LOS	A		C		D		C

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 74.6
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 33.6
 Intersection LOS: C
 Intersection Capacity Utilization 73.1%
 ICU Level of Service D
 Analysis Period (min) 15
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

↙ Ø1	↑ Ø2	→ Ø4	↘ Ø8
10 s	33.8 s	35.6 s	35.6 s
↖ Ø5	↓ Ø6		
9.6 s	34.2 s		

HCM 6th Signalized Intersection Summary

5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑↑↑		↔	↑↑↑	
Traffic Volume (veh/h)	0	0	21	336	0	9	16	732	1090	85	478	5
Future Volume (veh/h)	0	0	21	336	0	9	16	732	1090	85	478	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1900	1900	1722	1826	1885	1900	1826	1900
Adj Flow Rate, veh/h	0	0	3	375	0	0	18	804	0	93	525	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	3	0	0	12	5	1	0	5	0
Cap, veh/h	0	0	27	761	409	0	36	1430		134	1724	16
Arrive On Green	0.00	0.00	0.02	0.22	0.00	0.00	0.02	0.29	0.00	0.07	0.34	0.34
Sat Flow, veh/h	0	0	1605	3534	1900	0	1640	5149	0	1810	5091	48
Grp Volume(v), veh/h	0	0	3	375	0	0	18	804	0	93	342	188
Grp Sat Flow(s),veh/h/ln	0	0	1606	1767	1900	0	1640	1662	0	1810	1662	1816
Q Serve(g_s), s	0.0	0.0	0.1	4.5	0.0	0.0	0.5	6.6	0.0	2.4	3.7	3.7
Cycle Q Clear(g_c), s	0.0	0.0	0.1	4.5	0.0	0.0	0.5	6.6	0.0	2.4	3.7	3.7
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	0	0	27	761	409	0	36	1430		134	1125	615
V/C Ratio(X)	0.00	0.00	0.11	0.49	0.00	0.00	0.49	0.56		0.70	0.30	0.31
Avail Cap(c_a), veh/h	0	0	1034	2276	1224	0	170	2900		203	1961	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	23.3	16.6	0.0	0.0	23.3	14.6	0.0	21.8	11.7	11.7
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.5	0.0	0.0	3.8	0.3	0.0	2.4	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.7	0.0	0.0	0.2	2.0	0.0	1.0	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	25.1	17.1	0.0	0.0	27.1	14.9	0.0	24.2	11.9	12.0
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B
Approach Vol, veh/h	3			375			822			623		
Approach Delay, s/veh	25.1			17.1			15.2			13.8		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	19.6		5.4	5.7	22.1		15.0				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	5.4	28.0		31.0	5.0	28.4		31.0				
Max Q Clear Time (g_c+I1), s	4.4	8.6		2.1	2.5	5.7		6.5				
Green Ext Time (p_c), s	0.0	5.0		0.0	0.0	3.0		1.4				

Intersection Summary

HCM 6th Ctrl Delay 15.1

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	132	24	302	53	91	2218	11	892
Future Volume (vph)	132	24	302	53	91	2218	11	892
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	10.9	38.4	11.8	39.3	17.0	55.2	9.6	47.8
Total Split (%)	9.5%	33.4%	10.3%	34.2%	14.8%	48.0%	8.3%	41.6%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	18.5	13.7	19.9	14.4	9.0	50.9	5.2	41.2
Actuated g/C Ratio	0.22	0.16	0.23	0.17	0.10	0.59	0.06	0.48
v/c Ratio	0.47	0.33	1.03	0.33	0.56	0.87	0.11	0.45
Control Delay	29.9	14.6	89.8	28.5	52.2	21.8	47.5	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	14.6	89.8	28.5	52.2	21.8	47.5	18.8
LOS	C	B	F	C	D	C	D	B
Approach Delay		23.5		76.8		23.0		19.1
Approach LOS		C		E		C		B

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 85.8

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	55.2 s	11.8 s	38.4 s
 Ø5	 Ø6	 Ø7	 Ø8
17 s	47.8 s	10.9 s	39.3 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	24	71	302	53	28	91	2218	93	11	892	78
Future Volume (veh/h)	132	24	71	302	53	28	91	2218	93	11	892	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1781	1900	1870	1515	1900	1841	1870	1781	1900	1870	1900
Adj Flow Rate, veh/h	148	27	7	339	60	28	102	2492	93	12	1002	85
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	8	0	2	26	0	4	2	8	0	2	0
Cap, veh/h	310	171	44	373	131	61	129	2774	103	26	2348	199
Arrive On Green	0.07	0.13	0.13	0.08	0.14	0.14	0.07	0.55	0.55	0.01	0.49	0.49
Sat Flow, veh/h	1781	1363	353	1781	970	453	1753	5053	187	1810	4794	406
Grp Volume(v), veh/h	148	0	34	339	0	88	102	1673	912	12	711	376
Grp Sat Flow(s),veh/h/ln	1781	0	1716	1781	0	1423	1753	1702	1837	1810	1702	1796
Q Serve(g_s), s	6.3	0.0	1.6	7.2	0.0	5.1	5.1	38.6	39.5	0.6	11.9	12.0
Cycle Q Clear(g_c), s	6.3	0.0	1.6	7.2	0.0	5.1	5.1	38.6	39.5	0.6	11.9	12.0
Prop In Lane	1.00		0.21	1.00		0.32	1.00		0.10	1.00		0.23
Lane Grp Cap(c), veh/h	310	0	215	373	0	193	129	1869	1008	26	1667	880
V/C Ratio(X)	0.48	0.00	0.16	0.91	0.00	0.46	0.79	0.90	0.90	0.46	0.43	0.43
Avail Cap(c_a), veh/h	310	0	638	373	0	544	245	1896	1023	102	1667	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	34.6	36.0	0.0	35.3	40.4	17.7	17.9	43.4	14.6	14.6
Incr Delay (d2), s/veh	0.4	0.0	0.3	24.8	0.0	1.7	4.0	5.9	11.2	4.6	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.7	6.2	0.0	1.8	2.2	13.9	16.8	0.3	4.1	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	0.0	34.9	60.8	0.0	37.0	44.4	23.7	29.1	48.0	14.8	14.9
LnGrp LOS	C	A	C	E	A	D	D	C	C	D	B	B
Approach Vol, veh/h	182			427			2687			1099		
Approach Delay, s/veh	32.4			55.9			26.3			15.2		
Approach LOS	C			E			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	54.5	11.8	16.5	11.1	49.2	10.9	17.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.0	49.4	7.2	33.0	12.4	42.0	6.3	33.9				
Max Q Clear Time (g_c+I1), s	2.6	41.5	9.2	3.6	7.1	14.0	8.3	7.1				
Green Ext Time (p_c), s	0.0	7.2	0.0	0.1	0.0	7.4	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	26.7											
HCM 6th LOS	C											

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	513	8	955	548	1768	1169
Future Volume (vph)	513	8	955	548	1768	1169
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	46.8	46.8	46.8	26.0	73.2	47.2
Total Split (%)	39.0%	39.0%	39.0%	21.7%	61.0%	39.3%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	41.0	41.0	41.0	21.3	67.0	41.0
Actuated g/C Ratio	0.34	0.34	0.34	0.18	0.56	0.34
v/c Ratio	0.90	1.14	1.01	1.02	0.70	1.12
Control Delay	58.4	119.5	76.4	90.9	20.9	98.5
Queue Delay	0.0	0.0	0.0	0.0	7.7	0.0
Total Delay	58.4	119.5	76.4	90.9	28.6	98.5
LOS	E	F	E	F	C	F
Approach Delay		85.6			43.3	98.5
Approach LOS		F			D	F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 71.9

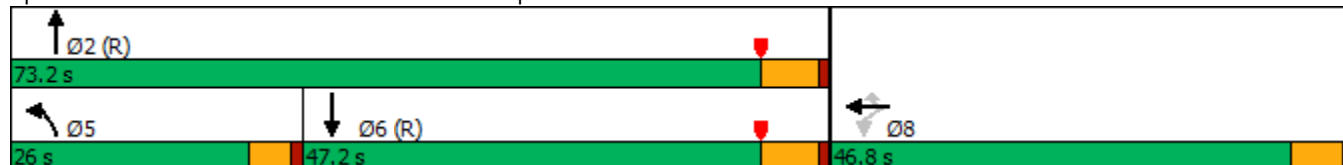
Intersection LOS: E

Intersection Capacity Utilization 155.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary 7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	513	8	955	548	1768	0	0	1169	564
Future Volume (veh/h)	0	0	0	513	8	955	548	1768	0	0	1169	564
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1559	1870	1856	1870	0	0	1870	1900
Adj Flow Rate, veh/h				840	0	474	616	1987	0	0	1313	506
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	23	2	3	2	0	0	2	0
Cap, veh/h				1152	0	513	609	2944	0	0	1308	500
Arrive On Green				0.32	0.00	0.32	0.18	0.58	0.00	0.00	0.36	0.36
Sat Flow, veh/h				3563	0	1585	3428	5274	0	0	3803	1390
Grp Volume(v), veh/h				840	0	474	616	1987	0	0	1229	590
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1714	1702	0	0	1702	1620
Q Serve(g_s), s				25.1	0.0	34.6	21.3	32.4	0.0	0.0	43.2	43.2
Cycle Q Clear(g_c), s				25.1	0.0	34.6	21.3	32.4	0.0	0.0	43.2	43.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.86
Lane Grp Cap(c), veh/h				1152	0	513	609	2944	0	0	1225	583
V/C Ratio(X)				0.73	0.00	0.92	1.01	0.67	0.00	0.00	1.00	1.01
Avail Cap(c_a), veh/h				1217	0	542	609	2944	0	0	1225	583
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.78	0.78
Uniform Delay (d), s/veh				35.9	0.0	39.2	49.3	17.6	0.0	0.0	38.4	38.4
Incr Delay (d2), s/veh				2.1	0.0	21.3	14.1	0.1	0.0	0.0	23.5	35.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.8	0.0	15.9	10.0	11.5	0.0	0.0	21.0	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				38.1	0.0	60.5	63.5	17.7	0.0	0.0	61.9	74.2
LnGrp LOS				D	A	E	F	B	A	A	F	F
Approach Vol, veh/h					1314			2603			1819	
Approach Delay, s/veh					46.2			28.5			65.9	
Approach LOS					D			C			E	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	75.4			26.0			49.4			44.6		
Change Period (Y+Rc), s	6.2			* 4.7			6.2			5.8		
Max Green Setting (Gmax), s	67.0			* 21			41.0			41.0		
Max Q Clear Time (g_c+I1), s	34.4			23.3			45.2			36.6		
Green Ext Time (p_c), s	15.8			0.0			0.0			2.2		

Intersection Summary

HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1408	5	338	908	588	1094
Future Volume (vph)	1408	5	338	908	588	1094
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	56.2	56.2	56.2	39.8	24.0	63.8
Total Split (%)	46.8%	46.8%	46.8%	33.2%	20.0%	53.2%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	50.4	50.4	50.4	33.6	19.3	57.6
Actuated g/C Ratio	0.42	0.42	0.42	0.28	0.16	0.48
v/c Ratio	1.10	1.13	0.51	1.10	1.12	0.48
Control Delay	99.6	109.4	22.8	95.1	122.8	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	99.6	109.4	22.8	95.1	122.8	22.5
LOS	F	F	C	F	F	C
Approach Delay		90.3		95.1		57.5
Approach LOS		F		F		E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 80.5

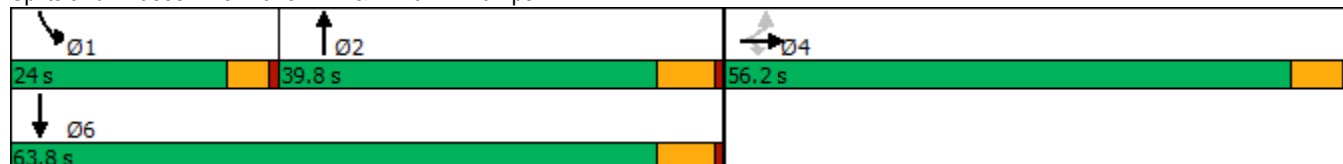
Intersection LOS: F

Intersection Capacity Utilization 155.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  		  	  	
Traffic Volume (veh/h)	1408	5	338	0	0	0	0	908	559	588	1094	0
Future Volume (veh/h)	1408	5	338	0	0	0	0	908	559	588	1094	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1352	1781				0	1841	1856	1885	1856	0
Adj Flow Rate, veh/h	1512	0	28				0	966	513	626	1164	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	37	8				0	4	3	1	3	0
Cap, veh/h	1496	0	634				0	938	437	560	2431	0
Arrive On Green	0.42	0.00	0.42				0.00	0.28	0.28	0.16	0.48	0.00
Sat Flow, veh/h	3563	0	1510				0	3516	1560	3483	5233	0
Grp Volume(v), veh/h	1512	0	28				0	966	513	626	1164	0
Grp Sat Flow(s),veh/h/ln	1781	0	1510				0	1675	1560	1742	1689	0
Q Serve(g_s), s	50.4	0.0	1.3				0.0	33.6	33.6	19.3	18.6	0.0
Cycle Q Clear(g_c), s	50.4	0.0	1.3				0.0	33.6	33.6	19.3	18.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1496	0	634				0	938	437	560	2431	0
V/C Ratio(X)	1.01	0.00	0.04				0.00	1.03	1.17	1.12	0.48	0.00
Avail Cap(c_a), veh/h	1496	0	634				0	938	437	560	2431	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.8	0.0	20.6				0.0	43.2	43.2	50.3	21.1	0.0
Incr Delay (d2), s/veh	25.9	0.0	0.0				0.0	37.3	100.3	74.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.7	0.0	0.5				0.0	18.2	24.6	13.9	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	0.0	20.6				0.0	80.5	143.5	124.9	21.2	0.0
LnGrp LOS	F	A	C				A	F	F	F	C	A
Approach Vol, veh/h	1540						1479			1790		
Approach Delay, s/veh	59.9						102.3			57.4		
Approach LOS	E						F			E		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	24.0	39.8		56.2		63.8						
Change Period (Y+Rc), s	* 4.7	6.2		5.8		6.2						
Max Green Setting (Gmax), s	* 19	33.6		50.4		57.6						
Max Q Clear Time (g_c+I1), s	21.3	35.6		52.4		20.6						
Green Ext Time (p_c), s	0.0	0.0		0.0		7.4						
Intersection Summary												
HCM 6th Ctrl Delay	72.0											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	495	16	16	385	3	3
Future Vol, veh/h	495	16	16	385	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	669	22	22	520	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	694	0	1247	683
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	564	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	911	-	193	453
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	573	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	908	-	188	452
Mov Cap-2 Maneuver	-	-	-	-	394	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	559	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		13.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	394	452	-	-	908	-
HCM Lane V/C Ratio	0.01	0.009	-	-	0.024	-
HCM Control Delay (s)	14.2	13	-	-	9.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	483	16	16	398	3	3
Future Vol, veh/h	483	16	16	398	3	3
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	644	21	21	531	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	668	0	1231	658
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	573	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	931	-	198	468
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	928	-	193	467
Mov Cap-2 Maneuver	-	-	-	-	399	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	555	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		13.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	430	-	-	928	-	
HCM Lane V/C Ratio	0.019	-	-	0.023	-	
HCM Control Delay (s)	13.5	-	-	9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	469	16	16	411	3	3
Future Vol, veh/h	469	16	16	411	3	3
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	690	24	24	604	4	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	716	0	1356	704
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	652	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	894	-	166	440
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	892	-	161	439
Mov Cap-2 Maneuver	-	-	-	-	367	-
Stage 1	-	-	-	-	493	-
Stage 2	-	-	-	-	508	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.3		14.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	400	-	-	892	-	
HCM Lane V/C Ratio	0.022	-	-	0.026	-	
HCM Control Delay (s)	14.2	-	-	9.1	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	454	19	35	423	3	9
Future Vol, veh/h	454	19	35	423	3	9
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	668	28	51	622	4	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	698
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	908
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	906
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	349	451	-	-	906	-
HCM Lane V/C Ratio	0.013	0.029	-	-	0.057	-
HCM Control Delay (s)	15.4	13.2	-	-	9.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

Timings
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	315	77	221	151	72	78	191	215	52	197	19
Future Volume (vph)	67	315	77	221	151	72	78	191	215	52	197	19
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	9.6	32.8	32.8	9.6	31.8	31.8
Total Split (s)	9.6	37.8	37.8	9.6	37.8	37.8	10.0	33.0	33.0	9.6	32.6	32.6
Total Split (%)	10.7%	42.0%	42.0%	10.7%	42.0%	42.0%	11.1%	36.7%	36.7%	10.7%	36.2%	36.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.8	18.4	18.4	26.0	20.7	20.7	5.6	15.7	15.7	5.2	12.9	12.9
Actuated g/C Ratio	0.39	0.29	0.29	0.41	0.32	0.32	0.09	0.25	0.25	0.08	0.20	0.20
v/c Ratio	0.15	0.70	0.17	0.74	0.16	0.14	0.59	0.26	0.43	0.42	0.33	0.05
Control Delay	11.2	28.3	1.7	28.3	17.1	1.2	49.8	22.3	6.0	43.0	23.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	28.3	1.7	28.3	17.1	1.2	49.8	22.3	6.0	43.0	23.6	0.2
LOS	B	C	A	C	B	A	D	C	A	D	C	A
Approach Delay		21.3			20.1			19.5			25.7	
Approach LOS		C			C			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 63.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 58.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Haven Av. & Wilson Av.

			
9.6 s	33 s	9.6 s	37.8 s
			
10 s	32.6 s	9.6 s	37.8 s

HCM 6th Signalized Intersection Summary
1: Haven Av. & Wilson Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	315	77	221	151	72	78	191	215	52	197	19
Future Volume (veh/h)	67	315	77	221	151	72	78	191	215	52	197	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1856	1826	1885	1870	1900	1900	1870	1900	1900	1856	1900
Adj Flow Rate, veh/h	80	375	47	263	180	32	93	227	236	62	235	17
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	3	5	1	2	0	0	2	0	0	3	0
Cap, veh/h	548	486	405	370	1028	466	126	739	335	101	685	313
Arrive On Green	0.06	0.26	0.26	0.09	0.29	0.29	0.07	0.21	0.21	0.06	0.19	0.19
Sat Flow, veh/h	1810	1856	1547	1795	3554	1610	1810	3554	1610	1810	3526	1610
Grp Volume(v), veh/h	80	375	47	263	180	32	93	227	236	62	235	17
Grp Sat Flow(s),veh/h/ln	1810	1856	1547	1795	1777	1610	1810	1777	1610	1810	1763	1610
Q Serve(g_s), s	1.7	10.2	1.3	5.0	2.1	0.8	2.7	2.9	7.4	1.8	3.1	0.5
Cycle Q Clear(g_c), s	1.7	10.2	1.3	5.0	2.1	0.8	2.7	2.9	7.4	1.8	3.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	548	486	405	370	1028	466	126	739	335	101	685	313
V/C Ratio(X)	0.15	0.77	0.12	0.71	0.18	0.07	0.74	0.31	0.71	0.61	0.34	0.05
Avail Cap(c_a), veh/h	597	1092	910	370	2091	947	180	1777	805	166	1737	793
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	18.6	15.3	16.1	14.5	14.0	24.8	18.2	20.0	25.1	18.9	17.8
Incr Delay (d2), s/veh	0.0	2.6	0.1	5.3	0.1	0.1	4.4	0.2	2.7	2.2	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.9	0.4	2.4	0.7	0.2	1.2	1.0	2.6	0.7	1.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	21.2	15.4	21.5	14.5	14.1	29.3	18.5	22.7	27.3	19.2	17.9
LnGrp LOS	B	C	B	C	B	B	C	B	C	C	B	B
Approach Vol, veh/h	502				475				556			
Approach Delay, s/veh	19.3				18.3				22.1			
Approach LOS	B				B				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	17.1	9.6	20.0	8.4	16.4	8.1	21.5				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	5.0	27.2	5.0	32.0	5.4	26.8	5.0	32.0				
Max Q Clear Time (g_c+I1), s	3.8	9.4	7.0	12.2	4.7	5.1	3.7	4.1				
Green Ext Time (p_c), s	0.0	1.9	0.0	2.1	0.0	1.3	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	20.1											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	8	476	54	0	494
Future Vol, veh/h	0	8	476	54	0	494
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	8	486	55	0	504

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	271	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	624	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	624	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	624
HCM Lane V/C Ratio	-	-	0.013
HCM Control Delay (s)	-	-	10.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	8	522	0	0	494
Future Vol, veh/h	42	8	522	0	0	494
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	43	8	533	0	0	504

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	735	267	0	-	-	-
Stage 1	533	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Critical Hdwy	5.7	7.1	-	-	-	-
Critical Hdwy Stg 1	6.6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.8	3.9	-	-	-	-
Pot Cap-1 Maneuver	425	628	-	0	0	-
Stage 1	466	-	-	0	0	-
Stage 2	751	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	425	628	-	-	-	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	751	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 421 628	-
HCM Lane V/C Ratio	- 0.102 0.013	-
HCM Control Delay (s)	- 14.5 10.8	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.3 0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	23	550	221	0	592
Future Vol, veh/h	0	23	550	221	0	592
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	24	585	235	0	630
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	410	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	509	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	509	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.4	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	509		-		
HCM Lane V/C Ratio	-	0.048		-		
HCM Control Delay (s)	-	12.4		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.2		-		

Timings
5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

	→	↖	←	↙	↑	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↖	↔	↙	↑↑↑	↘	↓↓↓
Traffic Volume (vph)	0	765	0	19	761	43	546
Future Volume (vph)	0	765	0	19	761	43	546
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	35.6	35.6	35.6	9.6	23.8	9.6	23.8
Total Split (s)	35.6	35.6	35.6	10.1	34.2	9.6	33.7
Total Split (%)	31.0%	31.0%	31.0%	8.8%	29.7%	8.3%	29.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	13.7	29.9	29.9	5.5	29.7	5.2	33.5
Actuated g/C Ratio	0.15	0.34	0.34	0.06	0.33	0.06	0.38
v/c Ratio	0.10	0.77	0.67	0.20	1.19dr	0.46	0.32
Control Delay	0.6	40.4	27.3	51.3	42.7	61.6	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.6	40.4	27.3	51.3	42.7	61.6	24.2
LOS	A	D	C	D	D	E	C
Approach Delay	0.6		33.9		42.9		26.9
Approach LOS	A		C		D		C

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 88.7

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 36.7

Intersection LOS: D

Intersection Capacity Utilization 72.6%

ICU Level of Service C

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: Haven Av. & Amber Ln./College Dr.

↙ Ø1	↑ Ø2	↘ Ø4	↙ Ø8
9.6 s	34.2 s	35.6 s	35.6 s
↙ Ø5	↓ Ø6		
10.1 s	33.7 s		

HCM 6th Signalized Intersection Summary 5: Haven Av. & Amber Ln./College Dr.

Chaffey College (JN 13236)

07/29/2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								  			  		
Traffic Volume (veh/h)	0	0	32	765	0	10	19	761	687	43	546	2	
Future Volume (veh/h)	0	0	32	765	0	10	19	761	687	43	546	2	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1900	1900	1885	1885	1900	1870	1900	
Adj Flow Rate, veh/h	0	0	4	879	0	0	22	865	0	49	620	2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Percent Heavy Veh, %	0	0	0	1	0	0	0	1	1	0	2	0	
Cap, veh/h	0	0	17	1137	602	0	47	1423		86	1567	5	
Arrive On Green	0.00	0.00	0.01	0.32	0.00	0.00	0.03	0.28	0.00	0.05	0.30	0.30	
Sat Flow, veh/h	0	0	1610	3591	1900	0	1810	5316	0	1810	5254	17	
Grp Volume(v), veh/h	0	0	4	879	0	0	22	865	0	49	402	220	
Grp Sat Flow(s),veh/h/ln	0	0	1610	1795	1900	0	1810	1716	0	1810	1702	1867	
Q Serve(g_s), s	0.0	0.0	0.1	12.5	0.0	0.0	0.7	8.2	0.0	1.5	5.3	5.3	
Cycle Q Clear(g_c), s	0.0	0.0	0.1	12.5	0.0	0.0	0.7	8.2	0.0	1.5	5.3	5.3	
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.00	1.00		0.01	
Lane Grp Cap(c), veh/h	0	0	17	1137	602	0	47	1423		86	1015	557	
V/C Ratio(X)	0.00	0.00	0.23	0.77	0.00	0.00	0.47	0.61		0.57	0.40	0.40	
Avail Cap(c_a), veh/h	0	0	888	1979	1047	0	177	2599		161	1689	926	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	27.6	17.4	0.0	0.0	27.0	17.7	0.0	26.2	15.7	15.7	
Incr Delay (d2), s/veh	0.0	0.0	6.6	1.2	0.0	0.0	2.7	0.4	0.0	2.2	0.3	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	4.8	0.0	0.0	0.3	2.7	0.0	0.6	1.7	1.9	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	0.0	34.2	18.5	0.0	0.0	29.7	18.1	0.0	28.4	16.0	16.2	
LnGrp LOS	A	A	C	B	A	A	C	B		C	B	B	
Approach Vol, veh/h	4			879			887			A			671
Approach Delay, s/veh	34.2			18.5			18.4			16.9			
Approach LOS	C			B			B			B			
Timer - Assigned Phs	1	2	4		5	6	8						
Phs Duration (G+Y+Rc), s	7.3	21.3	5.2		6.1	22.6	22.4						
Change Period (Y+Rc), s	4.6	5.8	4.6		4.6	5.8	4.6						
Max Green Setting (Gmax), s	5.0	28.4	31.0		5.5	27.9	31.0						
Max Q Clear Time (g_c+I1), s	3.5	10.2	2.1		2.7	7.3	14.5						
Green Ext Time (p_c), s	0.0	5.2	0.0		0.0	3.5	3.4						

Intersection Summary

HCM 6th Ctrl Delay 18.1

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	236	129	194	41	186	1668	22	1537
Future Volume (vph)	236	129	194	41	186	1668	22	1537
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.4	9.6	36.4	9.6	24.8	9.6	23.8
Total Split (s)	12.0	38.4	11.4	37.8	20.4	55.5	9.7	44.8
Total Split (%)	10.4%	33.4%	9.9%	32.9%	17.7%	48.3%	8.4%	39.0%
Yellow Time (s)	3.6	4.4	3.6	4.4	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	4.6	5.4	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	29.5	20.2	24.6	19.4	14.1	54.1	5.1	38.9
Actuated g/C Ratio	0.29	0.20	0.24	0.19	0.14	0.54	0.05	0.39
v/c Ratio	0.63	0.75	0.81	0.21	0.79	0.73	0.27	0.86
Control Delay	36.9	44.1	55.2	22.4	65.8	21.6	58.5	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	44.1	55.2	22.4	65.8	21.6	58.5	35.0
LOS	D	D	E	C	E	C	E	D
Approach Delay		40.8		46.3		25.6		35.3
Approach LOS		D		D		C		D

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 100.7

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 32.1

Intersection LOS: C

Intersection Capacity Utilization 90.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Haven Av. & Lemon Av.

			
Ø1	Ø2	Ø3	Ø4
9.7 s	55.5 s	11.4 s	38.4 s
			
Ø5	Ø6	Ø7	Ø8
20.4 s	44.8 s	12 s	37.8 s

HCM 6th Signalized Intersection Summary
6: Haven Av. & Lemon Av.

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	129	146	194	41	31	186	1668	236	22	1537	88
Future Volume (veh/h)	236	129	146	194	41	31	186	1668	236	22	1537	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1841	1885	1826	1900	1870	1900	1885	1767	1885	1900
Adj Flow Rate, veh/h	246	134	90	202	43	29	194	1738	209	23	1601	92
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	4	1	5	0	2	0	1	9	1	0
Cap, veh/h	416	198	133	292	186	125	229	2305	276	41	1929	111
Arrive On Green	0.08	0.19	0.19	0.07	0.18	0.18	0.13	0.49	0.49	0.02	0.39	0.39
Sat Flow, veh/h	1781	1049	704	1795	1017	686	1781	4687	561	1682	4977	286
Grp Volume(v), veh/h	246	0	224	202	0	72	194	1280	667	23	1104	589
Grp Sat Flow(s),veh/h/ln	1781	0	1753	1795	0	1702	1781	1729	1790	1682	1716	1832
Q Serve(g_s), s	7.4	0.0	11.0	6.8	0.0	3.3	9.8	27.6	27.8	1.2	26.8	26.8
Cycle Q Clear(g_c), s	7.4	0.0	11.0	6.8	0.0	3.3	9.8	27.6	27.8	1.2	26.8	26.8
Prop In Lane	1.00		0.40	1.00		0.40	1.00		0.31	1.00		0.16
Lane Grp Cap(c), veh/h	416	0	332	292	0	311	229	1701	880	41	1330	710
V/C Ratio(X)	0.59	0.00	0.68	0.69	0.00	0.23	0.85	0.75	0.76	0.57	0.83	0.83
Avail Cap(c_a), veh/h	416	0	627	292	0	598	305	1863	964	93	1450	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	34.8	31.6	0.0	32.2	39.3	18.9	19.0	44.5	25.5	25.5
Incr Delay (d2), s/veh	1.5	0.0	2.4	5.8	0.0	0.4	12.3	1.6	3.2	4.5	3.9	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	4.7	1.4	0.0	1.4	4.9	10.0	10.8	0.6	10.6	11.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	0.0	37.2	37.4	0.0	32.5	51.7	20.5	22.2	49.1	29.4	32.6
LnGrp LOS	C	A	D	D	A	C	D	C	C	D	C	C
Approach Vol, veh/h		470			274			2141			1716	
Approach Delay, s/veh		34.4			36.1			23.9			30.8	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	51.2	11.4	22.9	16.4	41.6	12.0	22.3				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	5.4				
Max Green Setting (Gmax), s	5.1	49.7	6.8	33.0	15.8	39.0	7.4	32.4				
Max Q Clear Time (g_c+I1), s	3.2	29.8	8.8	13.0	11.8	28.8	9.4	5.3				
Green Ext Time (p_c), s	0.0	12.9	0.0	1.1	0.1	6.9	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			28.3									
HCM 6th LOS			C									

Timings
7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	552	5	860	638	1678	1500
Future Volume (vph)	552	5	860	638	1678	1500
Turn Type	Perm	NA	Perm	Prot	NA	NA
Protected Phases		8		5	2	6
Permitted Phases	8		8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	9.7	31.2	31.2
Total Split (s)	37.0	37.0	37.0	25.0	83.0	58.0
Total Split (%)	30.8%	30.8%	30.8%	20.8%	69.2%	48.3%
Yellow Time (s)	4.8	4.8	4.8	3.7	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	4.7	6.2	6.2
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	31.2	31.2	31.2	20.3	76.8	51.8
Actuated g/C Ratio	0.26	0.26	0.26	0.17	0.64	0.43
v/c Ratio	1.18	1.25	1.08	1.16	0.54	1.12
Control Delay	143.3	166.8	102.9	133.6	12.7	91.2
Queue Delay	0.0	0.0	0.0	0.0	1.2	0.0
Total Delay	143.3	166.8	102.9	133.6	13.8	91.2
LOS	F	F	F	F	B	F
Approach Delay		138.1			46.8	91.2
Approach LOS		F			D	F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 85.2

Intersection LOS: F

Intersection Capacity Utilization 114.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 7: Haven Av. & I-210 WB Ramps



HCM 6th Signalized Intersection Summary

7: Haven Av. & I-210 WB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	552	5	860	638	1678	0	0	1500	781
Future Volume (veh/h)	0	0	0	552	5	860	638	1678	0	0	1500	781
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1352	1885	1885	1885	0	0	1885	1885
Adj Flow Rate, veh/h				791	0	413	679	1785	0	0	1596	672
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				1	37	1	1	1	0	0	1	1
Cap, veh/h				934	0	415	589	3294	0	0	1554	627
Arrive On Green				0.26	0.00	0.26	0.17	0.64	0.00	0.00	0.43	0.43
Sat Flow, veh/h				3591	0	1598	3483	5316	0	0	3769	1453
Grp Volume(v), veh/h				791	0	413	679	1785	0	0	1518	750
Grp Sat Flow(s),veh/h/ln				1795	0	1598	1742	1716	0	0	1716	1621
Q Serve(g_s), s				25.1	0.0	31.0	20.3	22.9	0.0	0.0	51.8	51.8
Cycle Q Clear(g_c), s				25.1	0.0	31.0	20.3	22.9	0.0	0.0	51.8	51.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.90
Lane Grp Cap(c), veh/h				934	0	415	589	3294	0	0	1481	700
V/C Ratio(X)				0.85	0.00	0.99	1.15	0.54	0.00	0.00	1.03	1.07
Avail Cap(c_a), veh/h				934	0	415	589	3294	0	0	1481	700
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.40	0.40
Uniform Delay (d), s/veh				42.1	0.0	44.3	49.9	11.9	0.0	0.0	34.1	34.1
Incr Delay (d2), s/veh				7.3	0.0	42.6	70.6	0.1	0.0	0.0	21.7	43.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.7	0.0	16.6	14.3	7.7	0.0	0.0	24.5	27.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.5	0.0	86.9	120.4	12.0	0.0	0.0	55.8	77.6
LnGrp LOS				D	A	F	F	B	A	A	F	F
Approach Vol, veh/h					1204			2464			2268	
Approach Delay, s/veh					62.3			41.9			63.0	
Approach LOS					E			D			E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		83.0			25.0	58.0		37.0				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.8				
Max Green Setting (Gmax), s		76.8			* 20	51.8		31.2				
Max Q Clear Time (g_c+I1), s		24.9			22.3	53.8		33.0				
Green Ext Time (p_c), s		15.3			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				54.1								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings 8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

						
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	582	7	314	1734	779	1273
Future Volume (vph)	582	7	314	1734	779	1273
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	9.7	31.2
Total Split (s)	27.0	27.0	27.0	65.0	28.0	93.0
Total Split (%)	22.5%	22.5%	22.5%	54.2%	23.3%	77.5%
Yellow Time (s)	4.8	4.8	4.8	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	4.7	6.2
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.2	21.2	21.2	58.8	23.3	86.8
Actuated g/C Ratio	0.18	0.18	0.18	0.49	0.19	0.72
v/c Ratio	1.11	1.13	0.88	1.33dr	1.23	0.36
Control Delay	129.1	138.3	60.6	138.2	158.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	129.1	138.3	60.6	138.2	158.0	7.0
LOS	F	F	E	F	F	A
Approach Delay		111.0		138.2		64.3
Approach LOS		F		F		E

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 107.8
 Intersection LOS: F
 Intersection Capacity Utilization 114.2%
 ICU Level of Service H
 Analysis Period (min) 15
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	582	7	314	0	0	0	0	1734	1114	779	1273	0
Future Volume (veh/h)	582	7	314	0	0	0	0	1734	1114	779	1273	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1856				0	1885	1885	1885	1885	0
Adj Flow Rate, veh/h	647	0	57				0	1845	885	829	1354	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3				0	1	1	1	1	0
Cap, veh/h	639	0	278				0	1727	733	676	3723	0
Arrive On Green	0.18	0.00	0.18				0.00	0.49	0.49	0.19	0.72	0.00
Sat Flow, veh/h	3619	0	1572				0	3695	1496	3483	5316	0
Grp Volume(v), veh/h	647	0	57				0	1789	941	829	1354	0
Grp Sat Flow(s),veh/h/ln	1810	0	1572				0	1716	1591	1742	1716	0
Q Serve(g_s), s	21.2	0.0	3.7				0.0	58.8	58.8	23.3	11.9	0.0
Cycle Q Clear(g_c), s	21.2	0.0	3.7				0.0	58.8	58.8	23.3	11.9	0.0
Prop In Lane	1.00		1.00				0.00		0.94	1.00		0.00
Lane Grp Cap(c), veh/h	639	0	278				0	1681	779	676	3723	0
V/C Ratio(X)	1.01	0.00	0.21				0.00	1.06	1.21	1.23	0.36	0.00
Avail Cap(c_a), veh/h	639	0	278				0	1681	779	676	3723	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.4	0.0	42.2				0.0	30.6	30.6	48.3	6.2	0.0
Incr Delay (d2), s/veh	38.6	0.0	0.4				0.0	41.3	105.2	114.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	0.0	1.4				0.0	31.8	43.3	20.5	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.0	0.0	42.6				0.0	71.9	135.8	162.8	6.3	0.0
LnGrp LOS	F	A	D				A	F	F	F	A	A
Approach Vol, veh/h	704						2730			2183		
Approach Delay, s/veh	84.3						93.9			65.7		
Approach LOS	F						F			E		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	28.0	65.0		27.0		93.0						
Change Period (Y+Rc), s	* 4.7	6.2		5.8		6.2						
Max Green Setting (Gmax), s	* 23	58.8		21.2		86.8						
Max Q Clear Time (g_c+I1), s	25.3	60.8		23.2		13.9						
Green Ext Time (p_c), s	0.0	0.0		0.0		9.7						

Intersection Summary

HCM 6th Ctrl Delay	81.7
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	573	11	11	435	8	8
Future Vol, veh/h	573	11	11	435	8	8
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	699	13	13	530	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	715	0	1265	709
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	556	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	895	-	189	438
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	892	-	186	437
Mov Cap-2 Maneuver	-	-	-	-	390	-
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	569	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		14	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	390	437	-	-	892	-
HCM Lane V/C Ratio	0.025	0.022	-	-	0.015	-
HCM Control Delay (s)	14.5	13.4	-	-	9.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	571	11	11	437	8	8
Future Vol, veh/h	571	11	11	437	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	688	13	13	527	10	10

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	701	0	1248
Stage 1	-	-	-	-	695
Stage 2	-	-	-	-	553
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	905	-	193
Stage 1	-	-	-	-	499
Stage 2	-	-	-	-	580
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	905	-	190
Mov Cap-2 Maneuver	-	-	-	-	396
Stage 1	-	-	-	-	499
Stage 2	-	-	-	-	572

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	420	-	-	905	-
HCM Lane V/C Ratio	0.046	-	-	0.015	-
HCM Control Delay (s)	14	-	-	9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	568	11	11	440	8	8
Future Vol, veh/h	568	11	11	440	8	8
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	653	13	13	506	9	9

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	668	0	1194
Stage 1	-	-	-	-	662
Stage 2	-	-	-	-	532
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	931	-	208
Stage 1	-	-	-	-	517
Stage 2	-	-	-	-	593
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	929	-	205
Mov Cap-2 Maneuver	-	-	-	-	410
Stage 1	-	-	-	-	516
Stage 2	-	-	-	-	585

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	929	-
HCM Lane V/C Ratio	0.042	-	-	0.014	-
HCM Control Delay (s)	13.6	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰		↰	↰	↰	↰
Traffic Vol, veh/h	566	11	23	442	8	29
Future Vol, veh/h	566	11	23	442	8	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	50
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	615	12	25	480	9	32

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	627
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	965
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	965
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	421	491	-	-	965	-
HCM Lane V/C Ratio	0.021	0.064	-	-	0.026	-
HCM Control Delay (s)	13.7	12.8	-	-	8.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

APPENDIX 6.3:

HORIZON YEAR (2051) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 Without Project Conditions - Weekday PM Peak Hour**

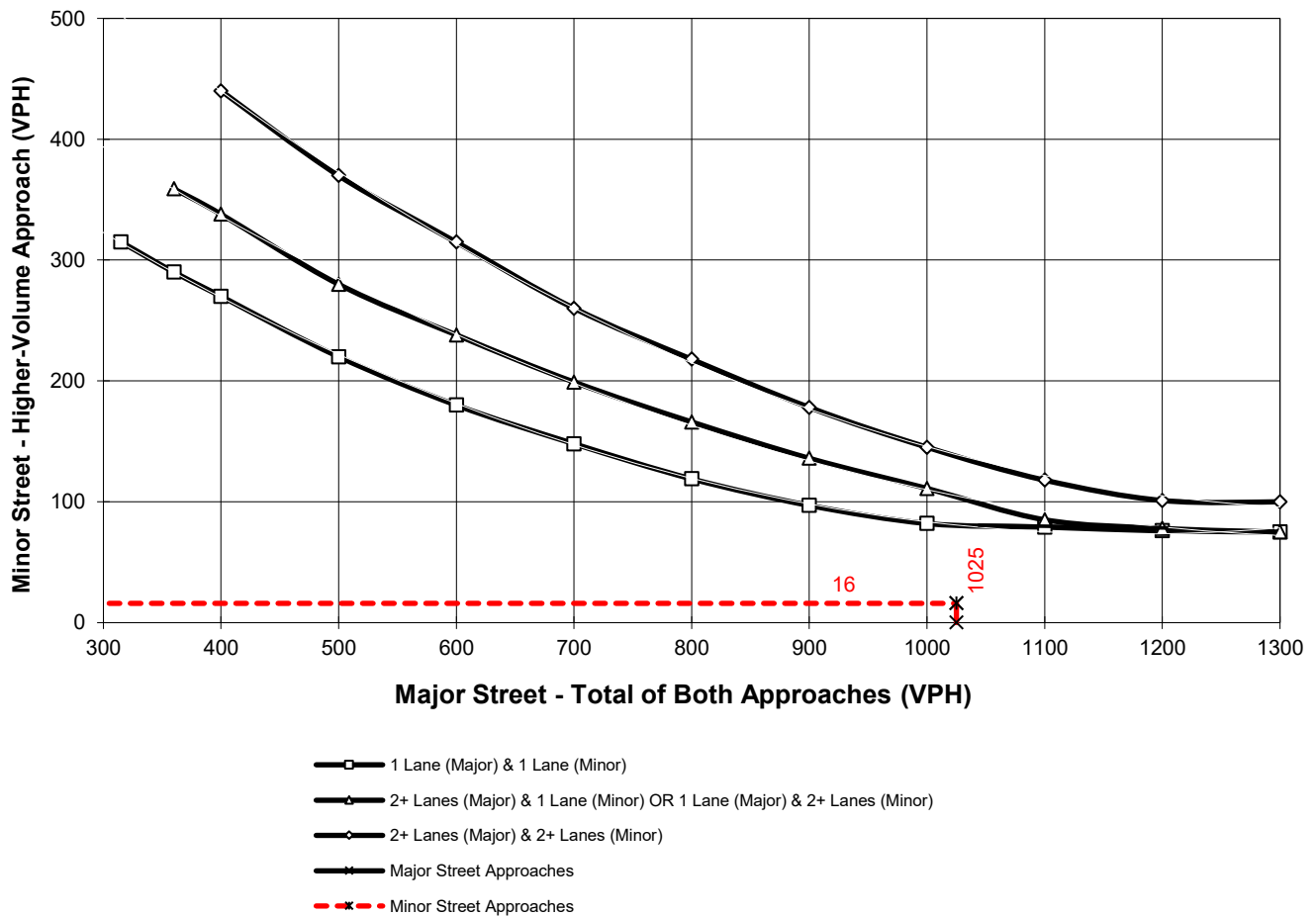
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1025**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 2**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 Without Project Conditions - Weekday PM Peak Hour**

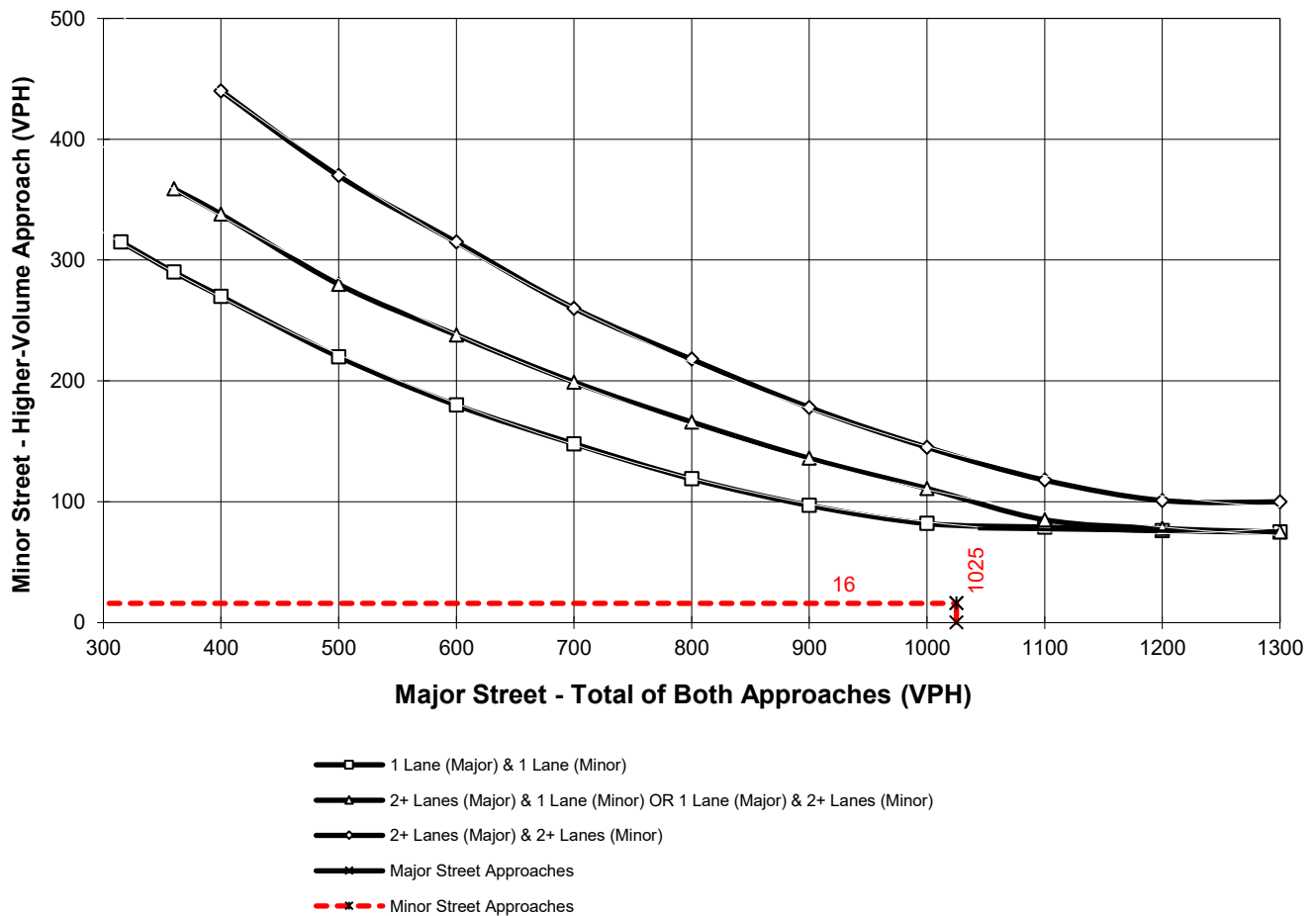
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1025**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 3**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 Without Project Conditions - Weekday PM Peak Hour**

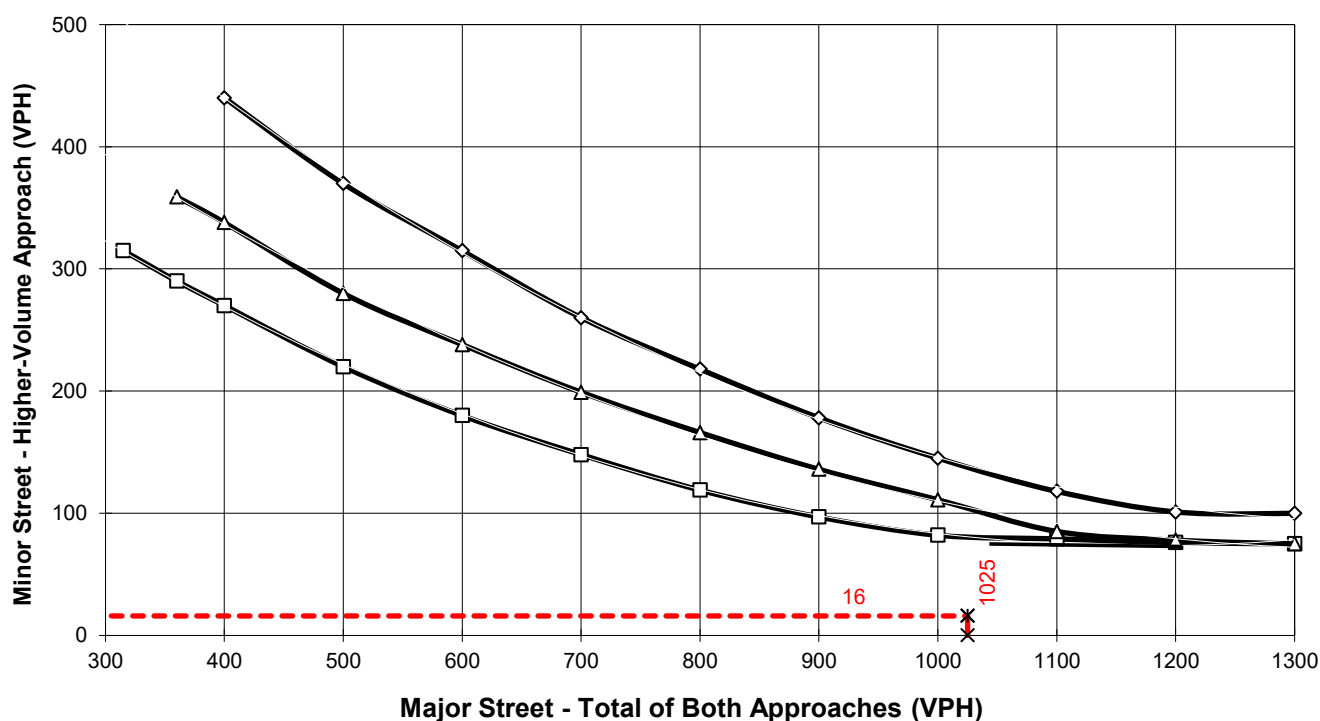
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1025**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 4**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 Without Project Conditions - Weekday PM Peak Hour**

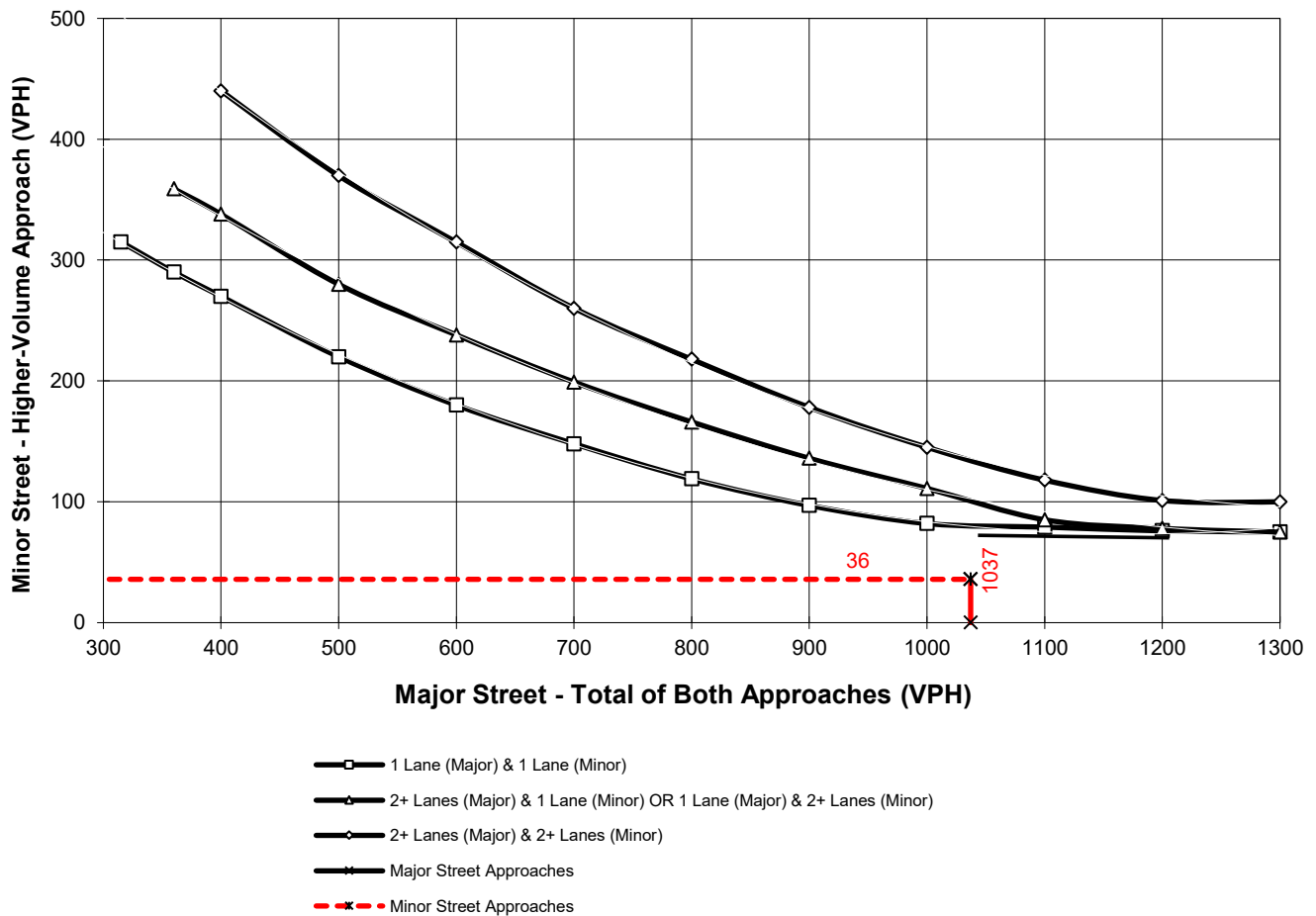
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1037**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **College Dr.**

High Volume Approach (VPH) = **36**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.4:

HORIZON YEAR (2051) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 With Project Conditions - Weekday PM Peak Hour**

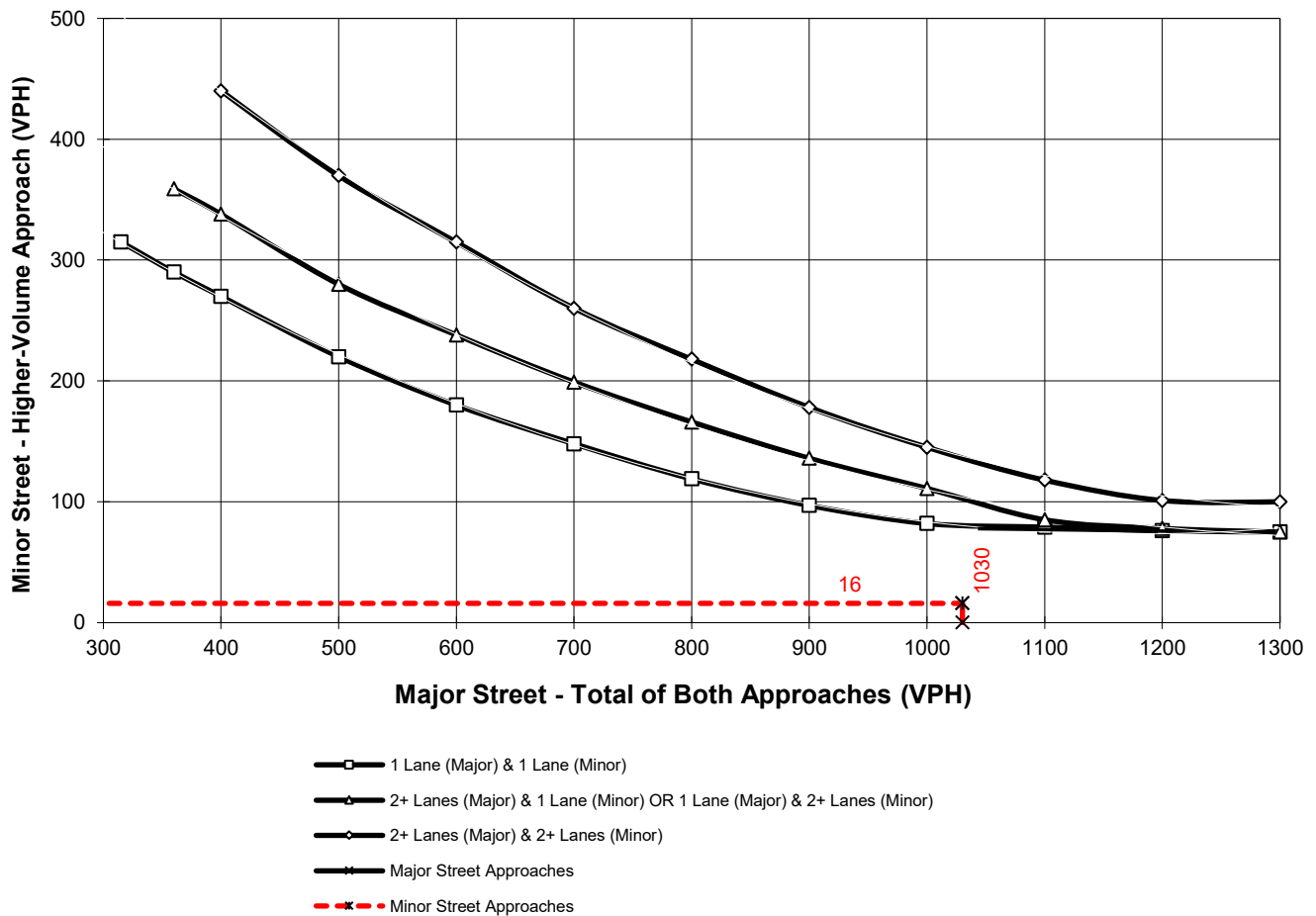
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1030**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 2**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 With Project Conditions - Weekday PM Peak Hour**

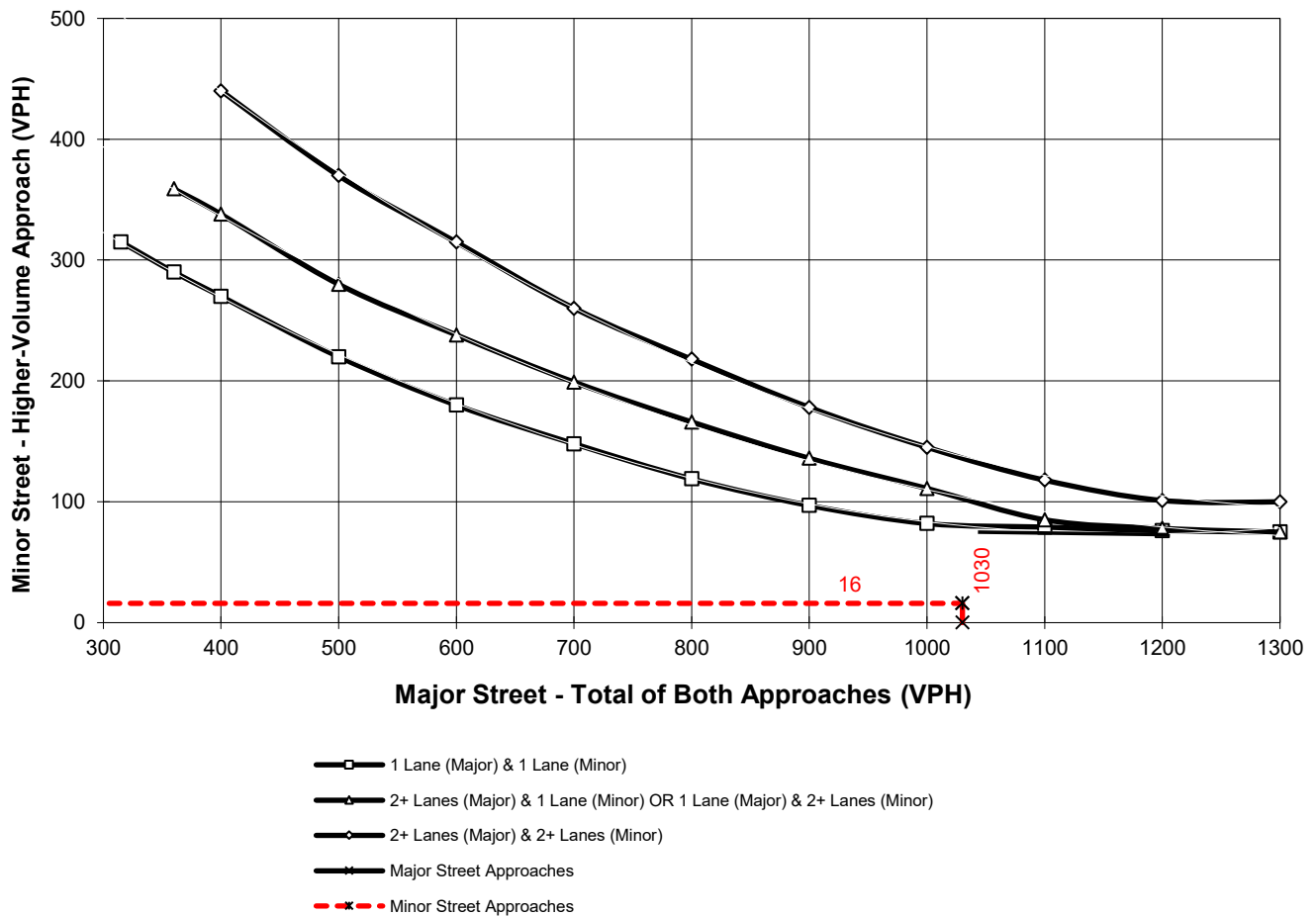
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1030**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 3**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 With Project Conditions - Weekday PM Peak Hour**

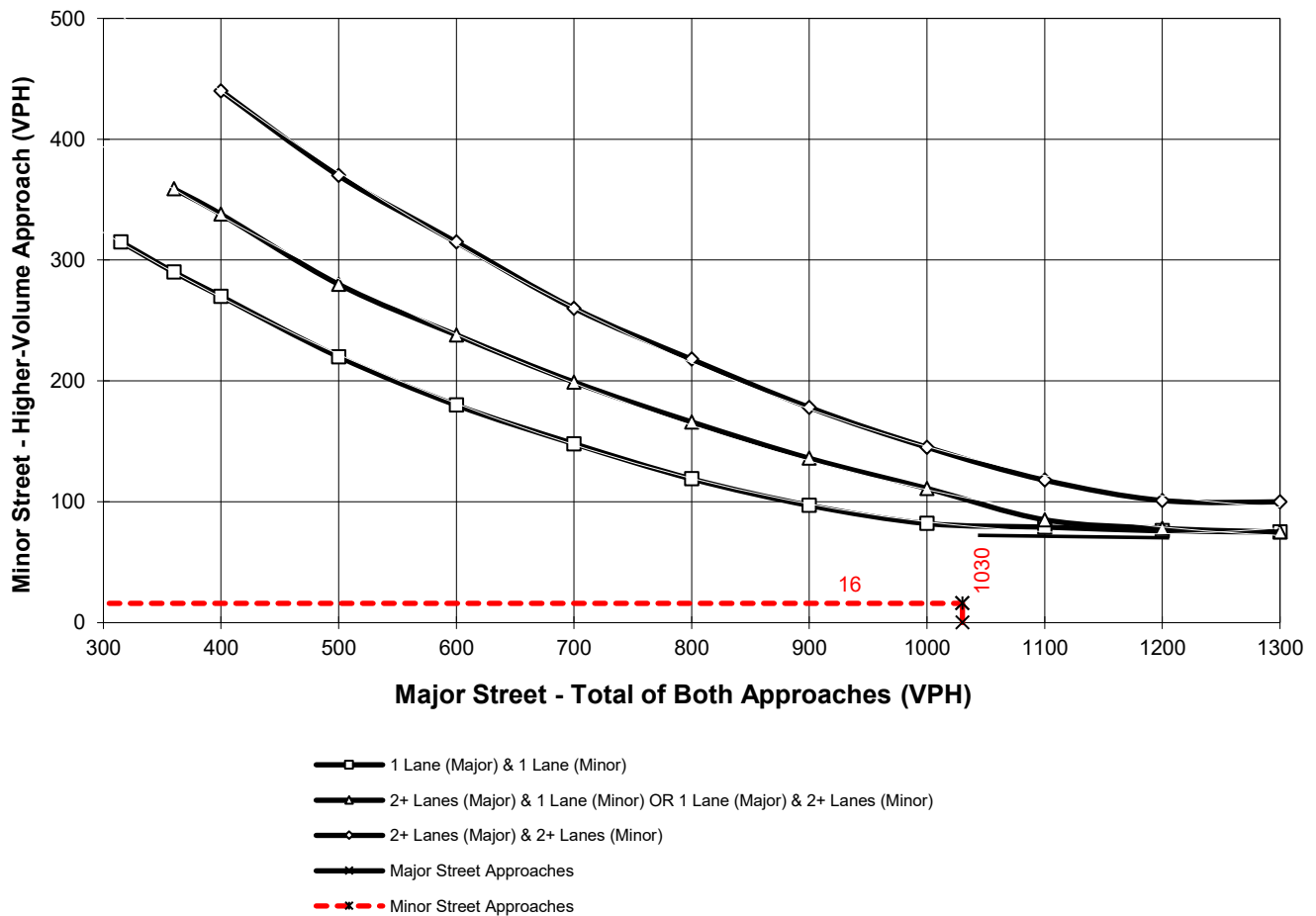
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1030**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Driveway 4**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2051 With Project Conditions - Weekday PM Peak Hour**

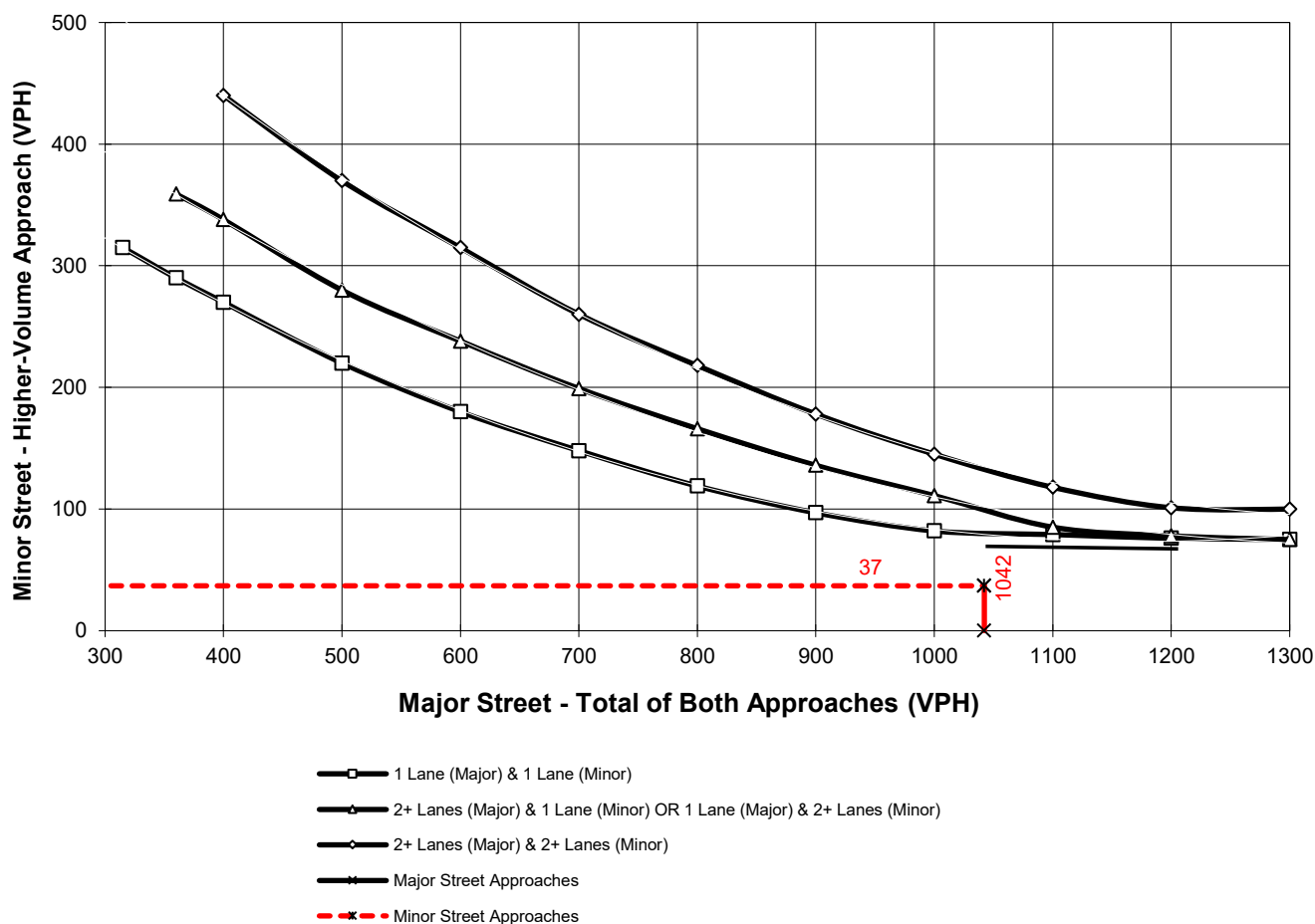
Major Street Name = **Wilson Av.**

Total of Both Approaches (VPH) = **1042**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **College Dr.**

High Volume Approach (VPH) = **37**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.5:

HORIZON YEAR (2051) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Timings 8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1408	5	338	908	559	588	1094
Future Volume (vph)	1408	5	338	908	559	588	1094
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	30.2	9.7	31.2
Total Split (s)	54.5	54.5	54.5	39.8	39.8	25.7	65.5
Total Split (%)	45.4%	45.4%	45.4%	33.2%	33.2%	21.4%	54.6%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2	4.7	6.2
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None
Act Effect Green (s)	48.7	48.7	48.7	33.6	33.6	21.0	59.3
Actuated g/C Ratio	0.41	0.41	0.41	0.28	0.28	0.18	0.49
v/c Ratio	1.03	1.01	0.43	1.01	0.64	1.00	0.43
Control Delay	76.4	71.0	21.6	75.4	7.4	86.0	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	76.4	71.0	21.6	75.4	7.4	86.0	20.5
LOS	E	E	C	E	A	F	C
Approach Delay		64.7		49.5			43.4
Approach LOS		E		D			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 52.8

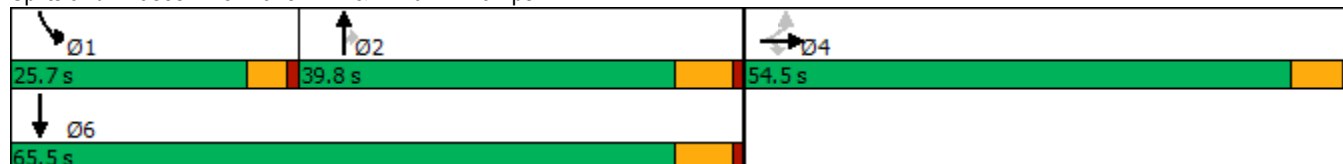
Intersection LOS: D

Intersection Capacity Utilization 159.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1408	5	338	0	0	0	0	908	559	588	1094	0
Future Volume (veh/h)	1408	5	338	0	0	0	0	908	559	588	1094	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1352	1781				0	1841	1856	1885	1856	0
Adj Flow Rate, veh/h	1512	0	28				0	966	300	626	1164	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	37	8				0	4	3	1	3	0
Cap, veh/h	1450	0	614				0	1024	437	630	2744	0
Arrive On Green	0.41	0.00	0.41				0.00	0.28	0.28	0.18	0.49	0.00
Sat Flow, veh/h	3563	0	1510				0	3681	1572	3591	5567	0
Grp Volume(v), veh/h	1512	0	28				0	966	300	626	1164	0
Grp Sat Flow(s),veh/h/ln	1781	0	1510				0	1841	1572	1795	1856	0
Q Serve(g_s), s	48.7	0.0	1.3				0.0	30.7	20.4	20.8	16.0	0.0
Cycle Q Clear(g_c), s	48.7	0.0	1.3				0.0	30.7	20.4	20.8	16.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1450	0	614				0	1024	437	630	2744	0
V/C Ratio(X)	1.04	0.00	0.05				0.00	0.94	0.69	0.99	0.42	0.00
Avail Cap(c_a), veh/h	1450	0	614				0	1033	441	630	2758	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.5	0.0	21.5				0.0	42.3	38.5	49.3	19.5	0.0
Incr Delay (d2), s/veh	35.7	0.0	0.0				0.0	16.0	4.0	34.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.9	0.0	0.5				0.0	15.7	8.1	12.0	6.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.2	0.0	21.5				0.0	58.3	42.6	83.4	19.5	0.0
LnGrp LOS	F	A	C				A	E	D	F	B	A
Approach Vol, veh/h	1540						1266			1790		
Approach Delay, s/veh	70.3						54.6			41.9		
Approach LOS	E						D			D		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.7	39.5		54.5		65.2						
Change Period (Y+Rc), s	* 4.7	6.2		5.8		6.2						
Max Green Setting (Gmax), s	* 21	33.6		48.7		59.3						
Max Q Clear Time (g_c+I1), s	22.8	32.7		50.7		18.0						
Green Ext Time (p_c), s	0.0	0.6		0.0		7.5						
Intersection Summary												
HCM 6th Ctrl Delay	54.9											
HCM 6th LOS	D											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	582	7	314	1734	1114	779	1273
Future Volume (vph)	582	7	314	1734	1114	779	1273
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.8	10.8	10.8	30.2	30.2	9.7	31.2
Total Split (s)	26.0	26.0	26.0	63.0	63.0	31.0	94.0
Total Split (%)	21.7%	21.7%	21.7%	52.5%	52.5%	25.8%	78.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2	3.7	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2	4.7	6.2
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None
Act Effect Green (s)	20.2	20.2	20.2	56.8	56.8	26.3	87.8
Actuated g/C Ratio	0.17	0.17	0.17	0.47	0.47	0.22	0.73
v/c Ratio	1.05	1.02	0.77	1.11	1.06	1.06	0.33
Control Delay	111.6	104.4	46.6	89.8	65.9	93.9	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	111.6	104.4	46.6	89.8	65.9	93.9	6.3
LOS	F	F	D	F	E	F	A
Approach Delay		89.0		80.4			39.6
Approach LOS		F		F			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 67.3

Intersection LOS: E

Intersection Capacity Utilization 124.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Haven Av. & I-210 EB Ramps



HCM 6th Signalized Intersection Summary

8: Haven Av. & I-210 EB Ramps

Chaffey College (JN 13236)

07/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	582	7	314	0	0	0	0	1734	1114	779	1273	0
Future Volume (veh/h)	582	7	314	0	0	0	0	1734	1114	779	1273	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1856				0	1885	1885	1885	1885	0
Adj Flow Rate, veh/h	647	0	57				0	1845	566	829	1354	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	3				0	1	1	1	1	0
Cap, veh/h	609	0	265				0	1785	745	787	4138	0
Arrive On Green	0.17	0.00	0.17				0.00	0.47	0.47	0.22	0.73	0.00
Sat Flow, veh/h	3619	0	1572				0	3770	1575	3591	5656	0
Grp Volume(v), veh/h	647	0	57				0	1845	566	829	1354	0
Grp Sat Flow(s),veh/h/ln	1810	0	1572				0	1885	1575	1795	1885	0
Q Serve(g_s), s	20.2	0.0	3.8				0.0	56.8	35.5	26.3	10.1	0.0
Cycle Q Clear(g_c), s	20.2	0.0	3.8				0.0	56.8	35.5	26.3	10.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	609	0	265				0	1785	745	787	4138	0
V/C Ratio(X)	1.06	0.00	0.22				0.00	1.03	0.76	1.05	0.33	0.00
Avail Cap(c_a), veh/h	609	0	265				0	1785	745	787	4138	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.9	0.0	43.1				0.0	31.6	26.0	46.8	5.7	0.0
Incr Delay (d2), s/veh	54.0	0.0	0.4				0.0	30.6	4.4	47.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.4	0.0	1.5				0.0	31.2	13.3	16.5	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.9	0.0	43.5				0.0	62.2	30.3	93.9	5.7	0.0
LnGrp LOS	F	A	D				A	F	C	F	A	A
Approach Vol, veh/h	704						2411			2183		
Approach Delay, s/veh	99.0						54.7			39.2		
Approach LOS	F						D			D		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	31.0	63.0		26.0			94.0					
Change Period (Y+Rc), s	* 4.7	6.2		5.8			6.2					
Max Green Setting (Gmax), s	* 26	56.8		20.2			87.8					
Max Q Clear Time (g_c+I1), s	28.3	58.8		22.2			12.1					
Green Ext Time (p_c), s	0.0	0.0		0.0			9.8					

Intersection Summary

HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendices

Appendix H VMT Screening Memo

Appendices

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July 7, 2021

Ms. Elizabeth Kim
Placeworks
700 S. Flower Street, Suite 600
Los Angeles, CA 90017

**SUBJECT: CHAFFEY COMMUNITY COLLEGE DISTRICT'S RANCHO CUCAMONGA CAMPUS MASTER PLAN
VEHICLE MILES TRAVELED (VMT) SCREENING EVALUATION**

Dear Ms. Elizabeth Kim:

The following VMT screening evaluation has been prepared for the proposed Chaffey Community College District's Rancho Cucamonga Campus Master Plan (**Project**), which is located throughout the 200-acre Chaffey College Rancho Cucamonga Campus at 5885 Haven Avenue, City of Rancho Cucamonga, San Bernardino County (Assessor's Parcel Number 0201-191-15, -29, -32)

PROJECT OVERVIEW

The proposed project Master Plan for the Rancho Cucamonga Campus plans for physical improvements throughout the campus in 5 phases over 30 years. The proposed project would involve demolition of approximately 127,000 sq. ft. of buildings and facilities, construction of about 673,00 sq. ft. of building space, and renovations of 187,000 sq. ft., along with ADA and site improvements.

Project Components and Phasing

Demolition	New Building / Facility	Renovations and Repurposed Space
Phase 1		
- Administration (AD; Building 1) - Campus Center East (CCE; Building 20) - Bookstore (B; Building 67) - Campus Police (CP; Building 23)	- Instructional Building 1 - Campus Center East	- ADA and Site Improvements 1 - Swing Space (existing Library modifications) - Swimming Pool Renovation
Phase 2		
- Business Education (BE; Building 5) - Language Arts (LA; Building 10) - Social Science (SS; Building 15) - Wargin Hall (WH; Building 17)	- Instructional Building 2 - Student Services Building	- ADA and Site Improvements 2 - Marie Kane Student Services & Administration (SSA)

Project Components and Phasing

Demolition	New Building / Facility	Renovations and Repurposed Space
Vocational Education (VSS; Building 18) (also known as Vocational and Student Support)		
Phase 3		
None.	Flexible Performance Space (FPS) and TV Studio Production Space (TV) Building	- ADA and Site Improvements 3 - Aeronautics (AERO) - Berz Educational Excellence Center (BEB; Building 51)
Phase 4		
- Math (MATH; Building 24) - Physical Science (PS; Building 14)	- Instructional Building 3 - Operational Support Building	- ADA and Site Improvements 4 - Skills Lab Renovation (SL) - Theatre (TA)
Phase 5		
- Health Science East (HS; Building 3) - Health Science West (HS; Building 42) - Maintenance & Operation (Building 13) - Library (LI) - Modular Classrooms/Offices (MOD)	- Instructional Building 4 - Maintenance Building	- ADA and Site Improvements 5 - Earl Sicosky Gymnasium (GYM; Building 8) - Warehouse (Building 22) - Kinesiology and Athletic Fields

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**). (1) Based on OPR's Technical Advisory, the City of Rancho Cucamonga has adopted their Traffic Impact Analysis Guidelines (June 2020) (**City Guidelines**) (2), which documents the City's VMT analysis methodology and approved impact thresholds. The VMT screening evaluation presented in this report has been developed based on the City Guidelines.

PROJECT SCREENING

Consistent with City Guidelines, projects that meet certain screening thresholds based on their location and project type may be presumed to result in a less than significant transportation impact. Consistent with the screening criteria recommended in OPR's Technical Advisory, the City of Rancho Cucamonga utilizes the following project screening thresholds:

- Step 1: Transit Priority Area (TPA) Screening
- Step 2: Low VMT Area Screening
- Step 3: Project Type Screening

A land use project need only meet one of the above screening criteria to result in a less than significant impact.

TPA SCREENING

Consistent with guidance identified in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing “major transit stop”¹ or an existing stop along a “high-quality transit corridor”²) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

The Project is not located near a major transit stop or high-quality transit corridor. (See Attachment A)

TPA screening criteria is not met.

Low VMT AREA SCREENING

City Guidelines state that “residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary.”³ Furthermore, OPR’s Technical Advisory notes that “projects that locate in areas with low VMT and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT.”⁴

The City uses the San Bernardino County Transportation Authority (SBCTA) screening tool to determine low areas of VMT. The screening tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ’s) within the region. The parcel containing the proposed Project was selected and the screening tool was run for the Origin/Destination (OD) VMT per service population measure of VMT. Based on the Screening Tool

¹ Pub. Resources Code, § 21064.3 (“‘Major transit stop’ means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.”).

² Pub. Resources Code, § 21155 (“For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.”).

³ City Guidelines; Page 19

⁴ Technical Advisory; Page 12

results, the Project resides within TAZ 53691201 and the Project's TAZ was shown to not be within a low VMT generating zone. (See Attachment A)

Low VMT Area screening criteria is not met.

PROJECT TYPE SCREENING

The City Guidelines indicate that small development projects generating fewer than 250 daily vehicle trips or less may be presumed to have a less than significant impact, subject to discretionary approval by the City. Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (3) The proposed Project is anticipated to generate a total of 1,070 vehicle trip-ends per day (see Attachment B) at project buildout (30 years). The number of daily vehicle trips are projected to be exceed the City's adopted screening criteria of 250 daily vehicle trips.

Additionally, the City Guidelines identify that local serving essential services (e.g., Student housing projects on or adjacent to college campuses, community institutions, local serving community colleges that are consistent with the assumptions noted in the RTP/SCS, etc.) are presumed to have a less than significant impact absent substantial evidence to the contrary. The City's existing land use plan identifies the project location as currently zoned for school and the proposed Project land use assumption would not change, therefore the project is consistent with the City's General Plan land use assumptions. The Project proposes to modernize the existing campus by removing its oldest buildings, building new facilities, and renovating several existing buildings, as well as to implement district-wide projects focused on priorities such as vehicular and pedestrian circulation, landscaping, utilities infrastructure, informal student gathering spaces, and safety and security upgrades. Student enrollment data⁵ provided to Urban Crossroads identify that the student population is comprised of local population traveling on average within 10 miles of the campus. (See Attachment C) Chaffey College has several local campuses within the San Bernardino County to locally serve students. Comparatively, California State University San Bernardino serves students at a regional level, based on its location and proximity to other State Colleges (i.e., California State University Fullerton). Therefore, the Project is local serving and is presumed to have a less than significant impact to VMT.

Project Type screening threshold is met.

CONCLUSION

In summary, the Project meets the Project Type screening criteria based on the Project's student population comprising of students traveling within the local area. Therefore, the project presumed to result in a less than significant VMT impact; no further VMT analysis required.

⁵ Chaffey College Students Home Residence and Distance from Chaffey College Campuses (June 2021); Page 4, Table 2

Ms. Elizabeth Kim
Placeworks
July 7, 2021
Page 5 of 6

If you have any questions, please contact me directly at 949-660-1994.

Respectfully submitted,

URBAN CROSSROADS, INC.

A handwritten signature in black ink, appearing to be 'Alex So', with a long horizontal stroke extending to the right.

Alex So
Senior Analyst

REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
2. **City of Rancho Cucamonga .** *Traffic Impact Analysis Guidelines.* City of Rancho Cucamonga : s.n., June 2020.
3. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.

ATTACHMENT A
SBCTA SCREENING TOOL

ATTACHMENT B
PROJECT TRIP GENERATION

TABLE 1: PROJECT TRIP GENERATION SUMMARY

Land Use ¹	Units ²	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
Junior/Community College	STU	540	0.09	0.02	0.11	0.06	0.05	0.11	1.15

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), [Trip Generation Manual](#), Tenth Edition (2017).

² STU - Students

Project Land Use	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Project Trip Generation Summary:								
Chaffey College - Rancho Cucamonga	930 STU	83	19	102	57	45	102	1,070

¹ STU = Students

ATTACHMENT C
CHAFFEY COLLEGE STUDENTS HOME RESIDENCE AND DISTANCE FROM CHAFFEY COLLEGE
CAMPUSES



Chaffey College Students Enrolled at the Rancho Campus, Spring 2020 Semester Home Residence and Distance from Chaffey College Campuses

Overview. At the request of the Chaffey College Measure P Bond Manager, the Office of Institutional Research (OIR) updated a report first generated in June 2020 that identified all students who enrolled in the Spring 2020 semester (including students who withdrew from all courses prior to first census date) and examined location of home residence and distance to the nearest Chaffey College campus (Rancho, Chino, or Fontana Campuses). The updated report provides the same analyses but restricts examination to only students who enrolled in one or more courses at the Rancho Campus (i.e., students who were exclusively enrolled at other campus locations or only online are not included in the current report). The current report also expands upon campus locations and includes the proposed sites for the new Ontario and Fontana Campuses.

Methodology. Extracting data from the District's student information system (Colleague), the Office of Institutional Research identified all student enrollments that occurred in the Spring 2020 semester. In total, 91,390 unique enrollment records were identified. Excluding students who withdrew from courses prior to the start of the semester or were enrolled in sections that were subsequently cancelled, 71,184 enrollment records were included in the analysis. For each enrollment record, a corresponding location (Rancho, Chino, Fontana, Online, or Other Location) was identified. *NOTE: location was based upon pre-Coronavirus location where the section was offered.* Enrollment records were further restricted to only enrollments generated at the Rancho Campus, reducing the record count to 46,636. Unduplicating enrollments by unique student identification number, 15,354 unduplicated students were identified as having taken one or more courses at the Rancho Campus in the Spring 2020 semester.

In order to geocode addresses of students taking one or more courses at the Rancho Campus, the OIR merged in the most recent address information provided by each student. Addresses (street address, city, state, and zip code) were then loaded into an online program (GPS Visualizer; <https://www.gpsvisualizer.com/geocoder/>) to calculate the longitude and latitude of each address. Once longitude and latitude was calculated for each unduplicated student address, the OIR used ARC GIS to geocode addresses. Multiple maps were then generated, including maps that examined: 1) a four-county region (San Bernardino, Riverside, Los Angeles, and Orange Counties); 2) the Chaffey College District boundaries; and 3) for students who live outside of the Chaffey College District, four-county and district maps that geocode student residences for out-of-district students only.

In addition to geocoding addresses, the OIR also examined distance from students' home address to Chaffey College locations (Rancho, Chino, and Fontana Campuses and the proposed new campus site in Ontario and Fontana). The OIR was interested in identifying whether the proposed

new Ontario and Fontana Campus locations might be a closer physical location for students taking courses at the Rancho Campus.

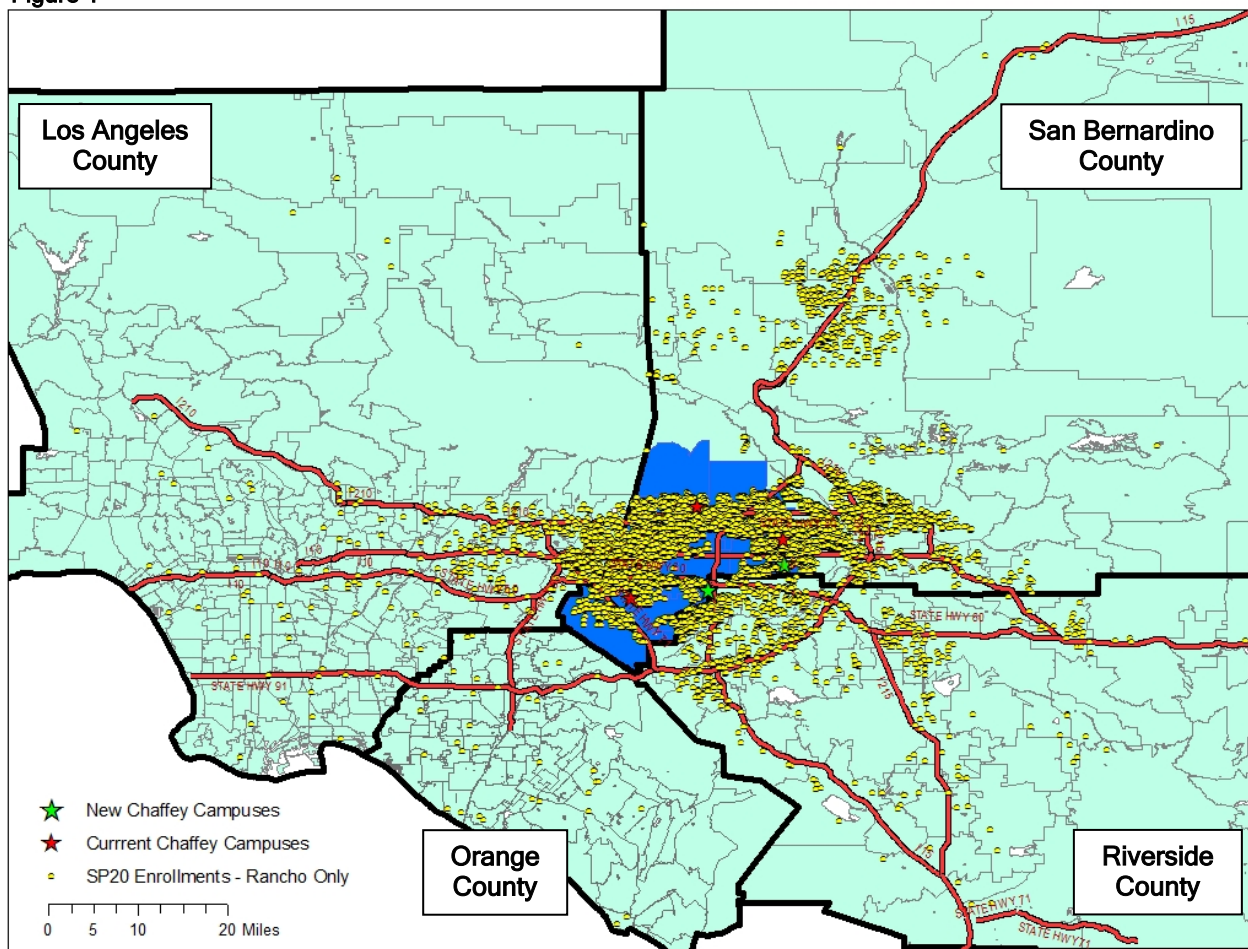
Findings:

Enrollment Patterns - All Students

As the following maps and tables indicate, the majority of students who take courses at the Rancho Campus are Chaffey College District residents. Among the 15,343 students who enrolled at the Rancho Campus in the Spring 2020 semester, 11,254 (73.3%) resided within the Chaffey Community College District boundaries. To illustrate the home residences of students who enrolled at the Rancho Campus, figure 1 provides home addresses for all students over a four-county region, while figure 2 focuses on the Chaffey Community College District, examining student residences within the district and in immediate proximity to the district boundaries.

HOME RESIDENCE of SPRING 2020 RANCHO CAMPUS STUDENTS Southern California Four-County Region

Figure 1



HOME RESIDENCE of SPRING 2020 RANCHO CAMPUS STUDENTS Chaffey Community College District

Figure 2

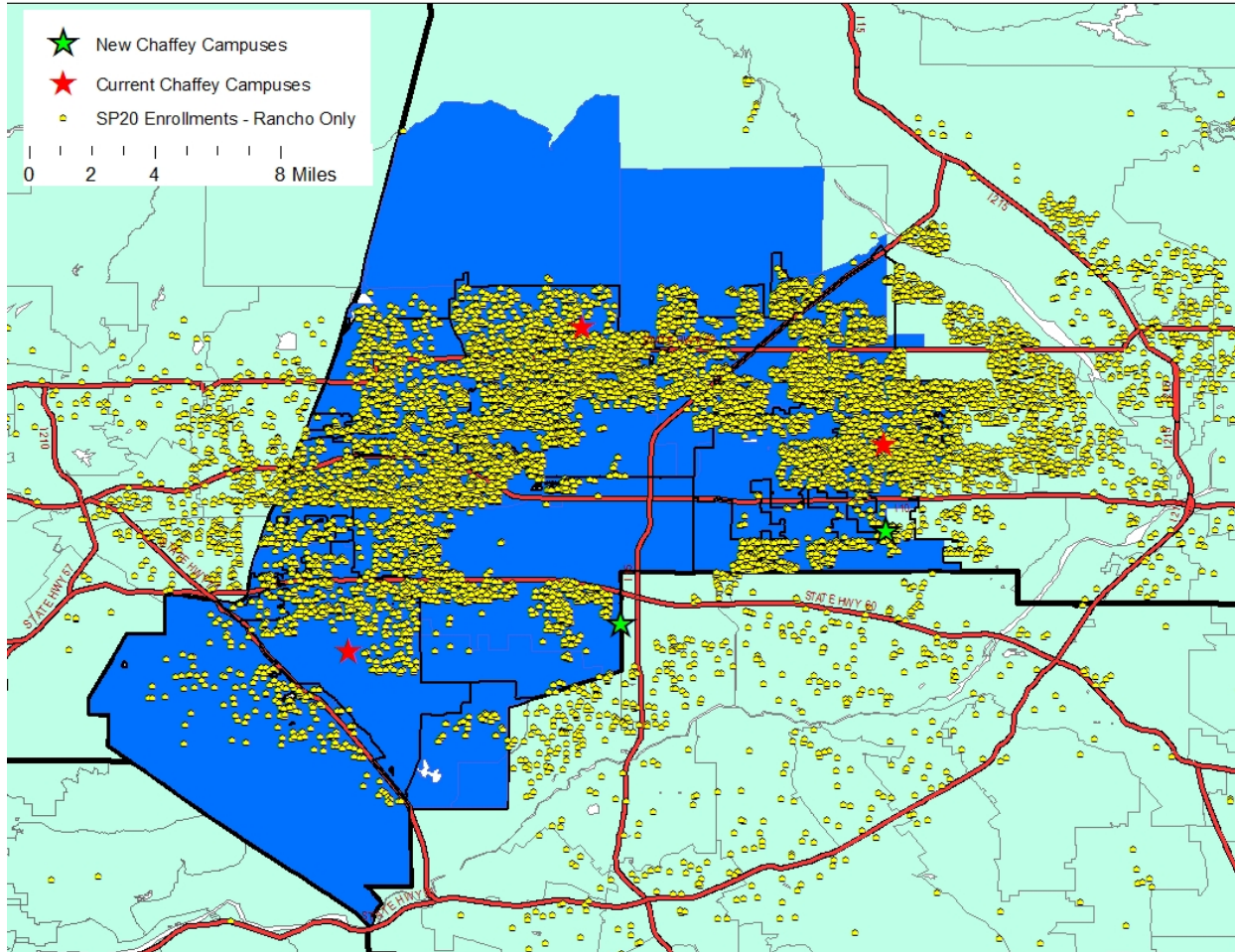


Table 1 identifies the mean and median distance (in miles) from students' homes to the various campus locations, including the two proposed new campus locations in Fontana and Ontario.

Table 1: Distance From Home Residence to Primary Campus Location,
Students Enrolled at Rancho Campus in Spring 2020 Semester

Primary Campus Location(s)*	Distance (in miles)	
	Mean	Median
Rancho Campus	9.55	7.57
Chino Campus	14.11	12.11
Fontana Campus	10.23	8.49
New Fontana Campus	11.10	9.20
New Ontario Campus	9.20	9.30

As table 1 indicates, while students who enrolled in one or more courses at the Rancho Campus had the shortest commute distance to the Rancho Campus (median distance: 7.57 miles), the median commute distance to the existing Fontana Campus (8.49 miles) is less than a mile longer, while median commute distances to the new Fontana Campus (9.20 miles) and Ontario Camp9s (9.30 miles) are only 1.63 and 1.73 miles further away from students' home addresses, respectively.

The Chaffey Community College District has identified a location for the new Fontana Campus (11070 Sierra Avenue; (Latitude: 34.0523924; Longitude: -117.4356771) and an approximate location for the Ontario Campus (Ontario Ranch Road and Hamner Avenue; Latitude: 34.000089; Longitude: -117.557900). For students taking one or more courses at the Rancho Campus, the OIR examined the mean and median distance from current home residence to the new Fontana and Ontario Campuses and identified the number and percentage of students for whom the new Fontana and Ontario Campuses would be closer to their home residence than the Rancho Campus (table 3). As table 3 indicates, the new Fontana Campus is closer to home residence for almost 6,000 students (38.5%) currently taking one or more courses at the Rancho Campus. Examining the new Ontario Campus location, almost 4,000 students (25.5%) who take at least one course at the Rancho Campus would have a shorter commute to the Ontario Campus.

Table 3: Distance to New Fontana and Ontario Campuses Closer to Home Residence Than Current Rancho Campus

New Fontana Campus Closer		Ontario Campus Closer	
N	%	N	%
5,916	38.5	3,915	25.5

Tables 5 and 6 identify the number of students enrolled in one or more courses at the Rancho Campus in the Spring 2020 semester who live within 1, 3, 5, and 7 miles of the new Fontana (Table 5) and Ontario (Table 6) Campuses.

Table 5: Spring 2020 Students Taking Courses at the Rancho Campus Who Live in Proximity to the New Fontana Campus

Distance From Students' Home to New Fontana Campus	Unduplicated Students	Cumulative Students
Live Within One Mile of New Fontana Campus	701	701
Live 1.01 - 3.00 Miles of New Fontana Campus	723	1,424
Live 3.01 - 5.00 Miles of New Fontana Campus	1,437	2,861
Live 5.01 - 7.00 Miles of New Fontana Campus	1,542	4,403

Table 6: Spring 2020 Students Taking Courses at the Rancho Campus Who Live in Proximity to the New Ontario Campus

Distance From Students' Home to New Ontario Campus	Unduplicated Students	Cumulative Students
Live Within One Mile of New Ontario Campus	961	961
Live 1.00 - 3.00 Miles of New Ontario Campus	581	1,542
Live 3.01 - 5.00 Miles of New Ontario Campus	1,169	2,711
Live 5.01 - 7.00 Miles of New Ontario Campus	560	3,271

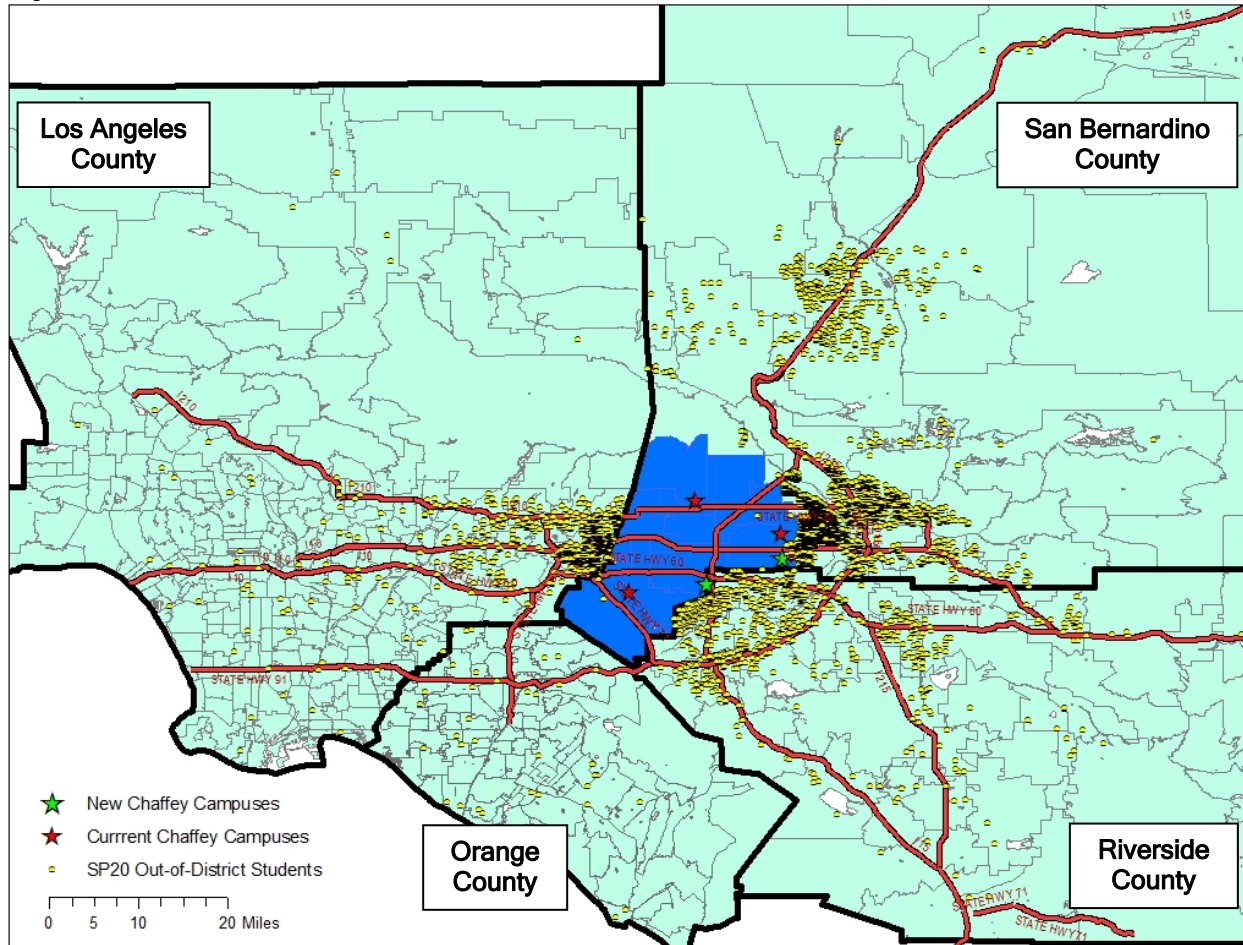
As tables 5 and 6 indicate, 4,403 and 3,271 students who took one or more courses at the Rancho Campus in the Spring 2020 semester lived within seven (7) miles of the new Fontana and Ontario Campuses, respectively. While slightly more students live within five miles of the new Fontana Campus (2,861) than the new Ontario Campus (2,711), more students live within three miles (1,542) and one mile (961) of the new Ontario Campus compared to the new Fontana Campus (3 miles: 1,424 students; one mile: 701 students).

Enrollment Patterns - Out-of-District Students

Similar to the previous study, the OIR also examined the impact the new campus locations would have on out-of-district students who enrolled in one or more courses at the Rancho Campus in the Spring 2020 semester. In Spring 2020, 4,100 students taking one or more courses at the Rancho Campus (26.7%) resided outside the Chaffey Community College District. To illustrate the home residency range of out-of-district students who enrolled in one more courses at the Rancho Campus in the Spring 2020 semester, figure 3 provides home addresses for out-of-district students over a four-county region, while figure 4 focuses on student out-of-district residences in proximity to the Chaffey Community College District, examining student residences in immediate proximity to the district boundaries.

**HOME RESIDENCE of
OUT-OF-DISTRICT SPRING 2020 CHAFFEY COLLEGE STUDENTS
WHO TOOK COURSES AT THE RANCHO CAMPUS
Southern California Four-County Region**

Figure 3



**HOME RESIDENCE of
OUT-OF-DISTRICT SPRING 2020 CHAFFEY COLLEGE STUDENTS
WHO TOOK COURSES AT THE RANCHO CAMPUS
Chaffey Community College District**

Figure 4

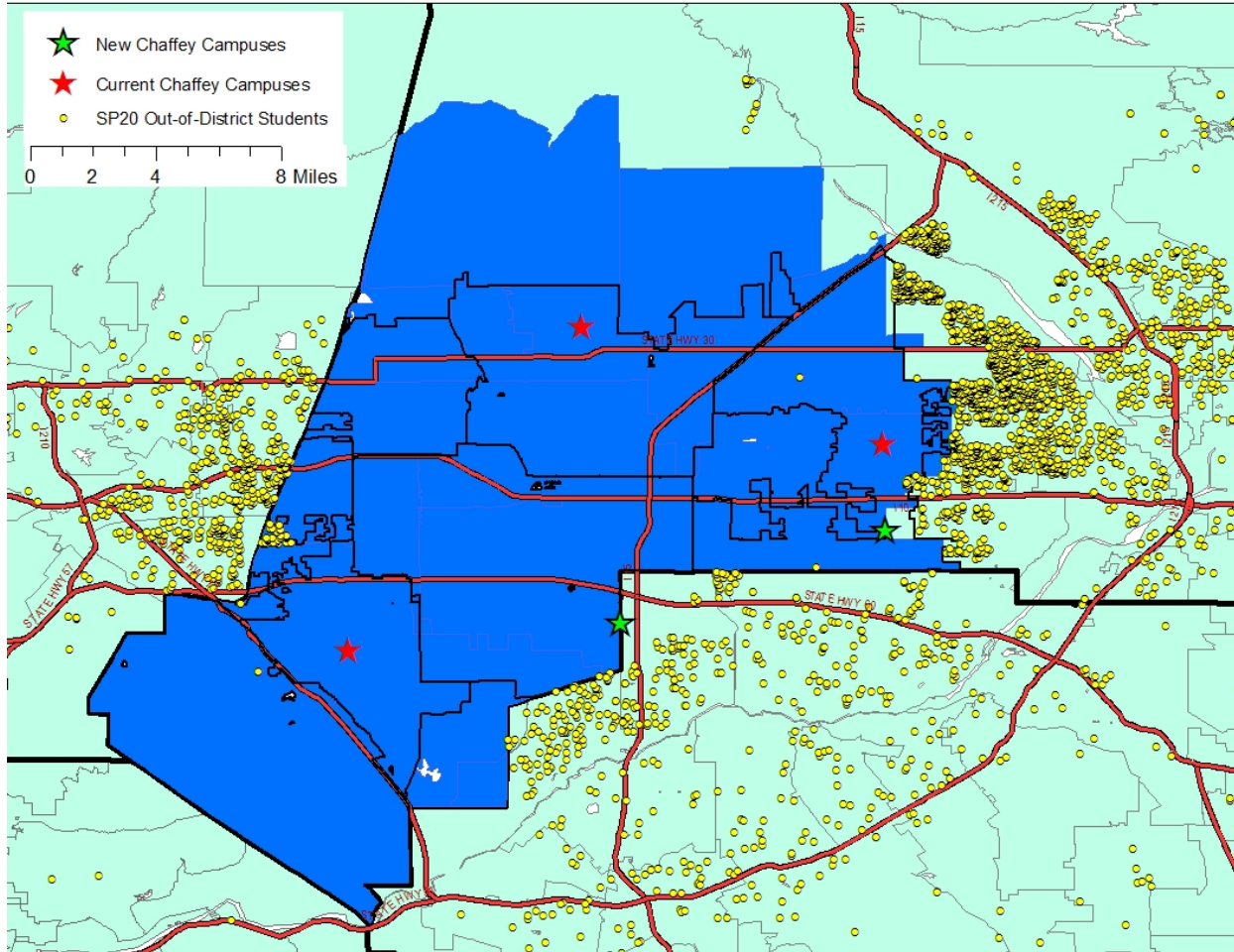


Table 7 identifies the top fifteen out-of-district cities where students who were enrolled in one or more courses at the Rancho Campus in the Spring 2020 semester resided. While out-of-district students who enrolled in courses at the Rancho Campus lived in 161 unique cities, the top fifteen out-of-district cities constitute 81.1% of the total out-of-district unduplicated student headcount taking one or more courses at the Rancho Campus in Spring 2020.

Table 7: Top Out-of-District Cities of Residence of Student Taking One or More Courses at the Rancho Campus in the Spring 2020 Semester

Out-of-District City	Spring 2020	
	N	%
Rialto	920	22.4
San Bernardino	651	15.9
Pomona	349	8.5
Riverside	246	6.0
Bloomington	184	4.5
Victorville	141	3.4
Colton	126	3.1
Claremont	117	2.9
Corona	113	2.8
Eastvale	106	2.6
Hesperia	99	2.4
Highland	79	1.9
Moreno Valley	78	1.9
Jurupa Valley	70	1.7
Mira Loma	47	1.1

In addition to examine specific city of residency, the OIR also examined out-of-district student residency for students taking one or more courses at the Rancho Campus as compass points (N, S, SE, NW, etc.) relative to the city's location to the Chaffey Community College District. Table 8 identifies unduplicated out-of-district student headcount relative to the Chaffey Community College District. As table 8 illustrates, while over 49% of out-of-district students reside in communities due east of the Chaffey Community College District, significant pockets of students reside to the southeast of the Chaffey Community College District (in Eastvale, Riverside, Corona, Norco, etc.); west of the district (e.g., Pomona, Claremont, Covina, etc.), and to the north, primarily in high desert communities.

Table 8: Out-of-District Residency Relative to Chaffey Community College District

Compass Point in Relation to the Chaffey Community College District	Spring 2020	
	N	%
East (Rialto, San Bernardino, Bloomington, etc.)	2,011	49.1
Southeast (Eastvale, Riverside, Corona, Norco, etc.)	790	19.3
West (Pomona, Claremont, Covina, etc.)	629	15.3
North (High Desert - Victorville, Apple Valley, Hesperia, etc.)	395	9.6
Northwest (Primarily Mountain Communities)	134	3.3
Northeast (Primarily Communities Along I-210 and San Fernando Valley)	59	1.4
South (Primarily Communities Along I-15 (Temecula, Murrieta, etc.)	50	1.2
Southwest (Primarily Orange County Communities)	32	0.8
TOTAL	4,100	100.0

Restricting analyses to only out-of-district students and examining home residency by compass location, table 9 identifies the median distance students are currently commuting to the Rancho

Campus and the median distances students would commute to the new Fontana and Ontario Campuses.

Table 9: Median Distance to Rancho Campus, New Fontana and Ontario Campuses, Spring 2020 Out-of-District Students Who Took Courses at Rancho Campus

Home Residence in Relation to Chaffey District	Median Distance From Home Residence to...		
	Rancho Campus	New Fontana Campus	New Ontario Campus
East	11.40	6.13	13.48
Southeast	14.87	9.70	7.28
West	11.14	17.72	12.08
North	25.71	29.60	34.49
Northwest	14.00	21.12	16.63
Northeast	24.73	24.63	28.95
South	34.20	25.27	26.71
Southwest	34.21	35.08	27.64

As table 9 identifies, students who attended the Rancho Campus in Spring 2020 and live to the east, southeast, or south of the district would have a significantly reduced commute to the new Fontana Campus. Students who live to the east of the Chaffey Community College District would reduce their median commute distance by an average of 5.27 miles; students who live to the southeast by an average of 5.17 miles; and students who live to the south would reduce their commute by an average of 8.93 miles. A slightly reduced commute would also occur for students who live to the northeast of the district (1/10 of a mile).

Comparing commute time to the Rancho Campus and the new Ontario Campus, students who live to the southeast, south, and southwest would also experience a reduced commute distance. Students who live to the southeast of the Chaffey Community College District would see their commute distance reduced by 7.59 miles on average, while students who live to the south and southwest would experience a commute distance reduction of 7.49 miles and 6.57 miles, respectively.

Restricting analyses to out-of-district students, tables 10 and 11 identify the number of students enrolled in one or more courses at the Rancho Campus in the Spring 2020 semester who live within 1, 3, 5, and 7 miles of the new Fontana (Table 5) and Ontario (Table 6) Campuses.

Table 10: Spring 2020 Out-of-District Students Taking Courses at the Rancho Campus Who Live in Proximity to the New Fontana Campus

Distance From Students' Home to New Fontana Campus	Unduplicated Students	Cumulative Students
Live Within One Mile of New Fontana Campus	142	142
Live 1.01 - 3.00 Miles of New Fontana Campus	226	368
Live 3.01 - 5.00 Miles of New Fontana Campus	553	921
Live 5.01 - 7.00 Miles of New Fontana Campus	825	1,746

**Table 10: Spring 2020 Out-of-District Students Taking Courses at the Rancho Campus
Who Live in Proximity to the New Ontario Campus**

Distance From Students' Home to New Ontario Campus	Unduplicated Students	Cumulative Students
Live Within One Mile of New Ontario Campus	399	399
Live 1.00 - 3.00 Miles of New Ontario Campus	224	623
Live 3.01 - 5.00 Miles of New Ontario Campus	167	790
Live 5.01 - 7.00 Miles of New Ontario Campus	215	1,005

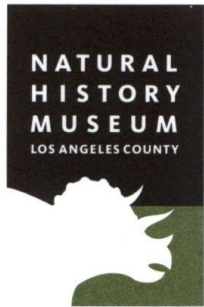
As tables 10 and 11 indicate, 1,746 and 1,005 out-of-district students who took one or more courses at the Rancho Campus in the Spring 2020 semester lived within seven (7) miles of the new Fontana and Ontario Campuses, respectively. While more out-of-district students live within five miles of the new Fontana Campus (921) than the new Ontario Campus (790), more out-of-district students live within three miles (623) and one mile (399) of the new Ontario Campus compared to the new Fontana Campus (3 miles: 368 students; one mile: 142 students).

Appendices

Appendix I Paleontological Resources Data

Appendices

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Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

November 21, 2021

Placeworks

Attn: Elizabeth Kim

re: Paleontological resources for the Rancho Cucamonga Campus Master Plan Project

Dear Elizabeth:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Rancho Cucamonga Campus Master Plan project area as outlined on the portion of the Cucamonga Peak USGS topographic quadrangle map that you sent to me via e-mail on November 10, 2021. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County.

Locality Number	Location	Formation	Taxa	Depth
LACM VP 1728	W of intersection of English Rd & Peyton Dr, Chino	Unknown (light brown shale with interbeds of very coarse brown sand; Pleistocene)	Horse (<i>Equus</i>), camel (<i>Camelops</i>)	15-20 feet bgs
LACM VP 7268, 7271	Sundance Condominiums, S of Los Serranos Golf Course	Unknown (Pleistocene)	Horse (<i>Equus</i>)	Unknown
LACM VP 7508	Near intersection of Vellano Club Dr. and Palmero Dr., Oakcrest Development; N of Serrano Canyon	Unknown formation (Pleistocene)	Ground sloth (<i>Nothrotheriops</i>); elephant clade (Proboscidea); horse (<i>Equus</i>)	Unknown
LACM VP 7811	W of Orchard Park, Chino Valley	Unknown formation (eolian, tan silt; Pleistocene)	Whip snake (<i>Masticophis</i>)	9-11 feet bgs
LACM VP 1207	Hill on east side of sewage disposal	Unknown formation (Pleistocene)	Bovidae	Unknown

plant; 1 mile N-NW
of Corona

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the Natural History Museum of Los Angeles County (“NHMLA”). It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,

A handwritten signature in black ink that reads "Alyssa Bell". The signature is written in a cursive, flowing style. The first name "Alyssa" is larger and more prominent than the last name "Bell". The signature is set against a light gray rectangular background.

Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice