APPENDIX A
AIR QUALITY IMPACT ASSESSMENT

AIR QUALITY IMPACT ANALYSIS

TENTATIVE TRACT MAP 6497
WEST HAVEN II PROJECT



FEBRUARY 2025

AIR QUALITY IMPACT ANALYSIS

TENTATIVE TRACT MAP 6497
WEST HAVEN II PROJECT

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Project #240227

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
AAQA	Ambient Air Quality Analysis
AB	Assembly Bill
AERMOD	Air Dispersion Modeling and Risk Assessment Tool
AQAP	Air Quality Attainment Plans
AQIA	Air Quality Impact Analysis
BACT	best available control technology
BAU	business as usual
BMCM	Bulk Material Control Measures
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
EGR	exhaust gas recirculation
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GPA	General Plan Amendments
GWP	Global Warming Potential
H_2S	hydrogen sulfide
HAPs	hazardous air pollutants
HARP	Hotspots Analysis and Reporting Program
HI	hazard index
IPCC	Intergovernmental Panel on Climate Change
FresnoCOG	FresnoCouncil of Governments
LOS	Level of Service
M-1	Light Manufacturing
M-2	General Manufacturing
M-3	Heavy Industrial
MMT CO_2e	million metric tons of CO_2 equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NO_2	nitrogen dioxide
NOx	nitrogen oxides
NSR	New Source Review
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
Pb	lead
PM	particulate matter
PM_{10}	particulate matter 10 micrometers
$PM_{2.5}$	particulate matter 2.5 micrometers
PMI	point of maximum impact
PSD	Prevention of Significant Deterioration
RACM	Reasonably Available Control Measures
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
SB	Senate Bill
SIL	significant impact levels
SIPs	State Implementation Plans
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SOx	sulfur oxides
USGCRP	United States Global Change Research Program
USGS	United States Geological Survey
VDE	visible dust emissions
VERA	Voluntary Emission Reduction Agreement

SECTION 1 - EXECUTIVE SUMMARY

Quad Knopf, Inc. (QK) has completed an Air Quality Impact Analysis (AQIA) for the Tentative Tract Map 6497 West Haven II Project (Project). The Project is located northeast of the intersection of South Buttonwillow Avenue and East Springfield Avenue. The project is located on the eastern side of the City of Reedley in Fresno County, CA.

The project proposes the development of 176 single-family lots averaging 5,627 square feet per lot. The project site is located within the City of Reedley's Sphere of Influence (SOI) and has a planned land use designation of Low Density Residential (4-8 dwelling units per acre [du/acre]) and High Density Residential (15-29 du/acre) pursuant to the Reedley 2030 General Plan. The site is zoned Limited Agricultural (AL-20) according to the County of Fresno zoning map. The project proposes to amend the planned land use designation of an approximately 3.5-acre portion of the project site from High Density Residential to Low Density Residential. Additionally, the project proposes to pre-zone the project site and the three rural residential parcels to the northwest, APNs 370-040-13, 370-040-22, and 370-040-23, to the R-1-6 (One Family Residential) zone district in preparation for annexation of the parcels consistent with the Reedley 2030 General Plan.

The proposed Project's construction and operations would include the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Project operations would generate air pollutant emissions from mobile (vehicle activity from residents), energy sources (natural gas and electricity usage), and area sources (incidental activities related to architectural coating, consumer products, and landscape maintenance). Project construction and operational activities would also generate greenhouse gas (GHG) emissions. Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.29 (California Air Pollution Control Officers Association (CAPCOA), 2024), which is the most current version of the model approved for use by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

Error! Reference source not found. presents the Project's construction emissions and provides substantial evidence to support a less-than-significant air quality impact on the San Joaquin Valley Air Basin (SJVAB).

Error! Reference source not found. presents the Project's operations emissions and provides substantial evidence to support a less-than-significant air quality impact on the SJVAB after mitigation.

SJVAPCD uses a single threshold for the determination of significance for both project-specific and cumulative impacts. As such, a qualitative evaluation of the cumulative projects supports the finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions would be *less than significant*.

SECTION 2 - INTRODUCTION

2.1 - Purpose

This AQIA was prepared pursuant to the SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD, 2015) and the California Environmental Quality Act (CEQA) Statute and Guidelines (CEQA, 2024).

2.2 - General Project Description

The Project is a 34-acre residential development, on the eastern side of the City of Reedley. The project site is bounded by East Springfield Avenue to the east, a residential subdivision to the south, rural residential homes and East North Avenue to the north, and South Buttonwillow Avenue to the west. The Project is within Section 25, Township 15 South, Range 23 East.

The proposed Project site is currently agriculture. The project proposes the development of 176 single-family lots averaging 5,627 square feet per lot. The project site is located within the City of Reedley's Sphere of Influence (SOI) and has a planned land use designation of Low Density Residential (4-8 dwelling units per acre [du/acre]) and High Density Residential (15-29 du/acre) pursuant to the Reedley 2030 General Plan. The site is zoned Limited Agricultural (AL-20) according to the County of Fresno zoning map. The project proposes to amend the planned land use designation of an approximately 3.5-acre portion of the project site from High Density Residential to Low Density Residential. Additionally, the project proposes to pre-zone the project site and the three rural residential parcels to the northwest, APNs 370-040-13, 370-040-22, and 370-040-23, to the R-1-6 (One Family Residential) zone district in preparation for annexation of the parcels consistent with the Reedley 2030 General Plan. **Error! Reference source not found.** depicts the regional location and **Error! Reference source not found.** depicts an aerial view of the Project location.

Error! Reference source not found.3 depicts the Project site's topography. The Project site is located at an elevation of approximately 350 feet above mean sea level and is surrounded by residential, industrial, and empty parcels.

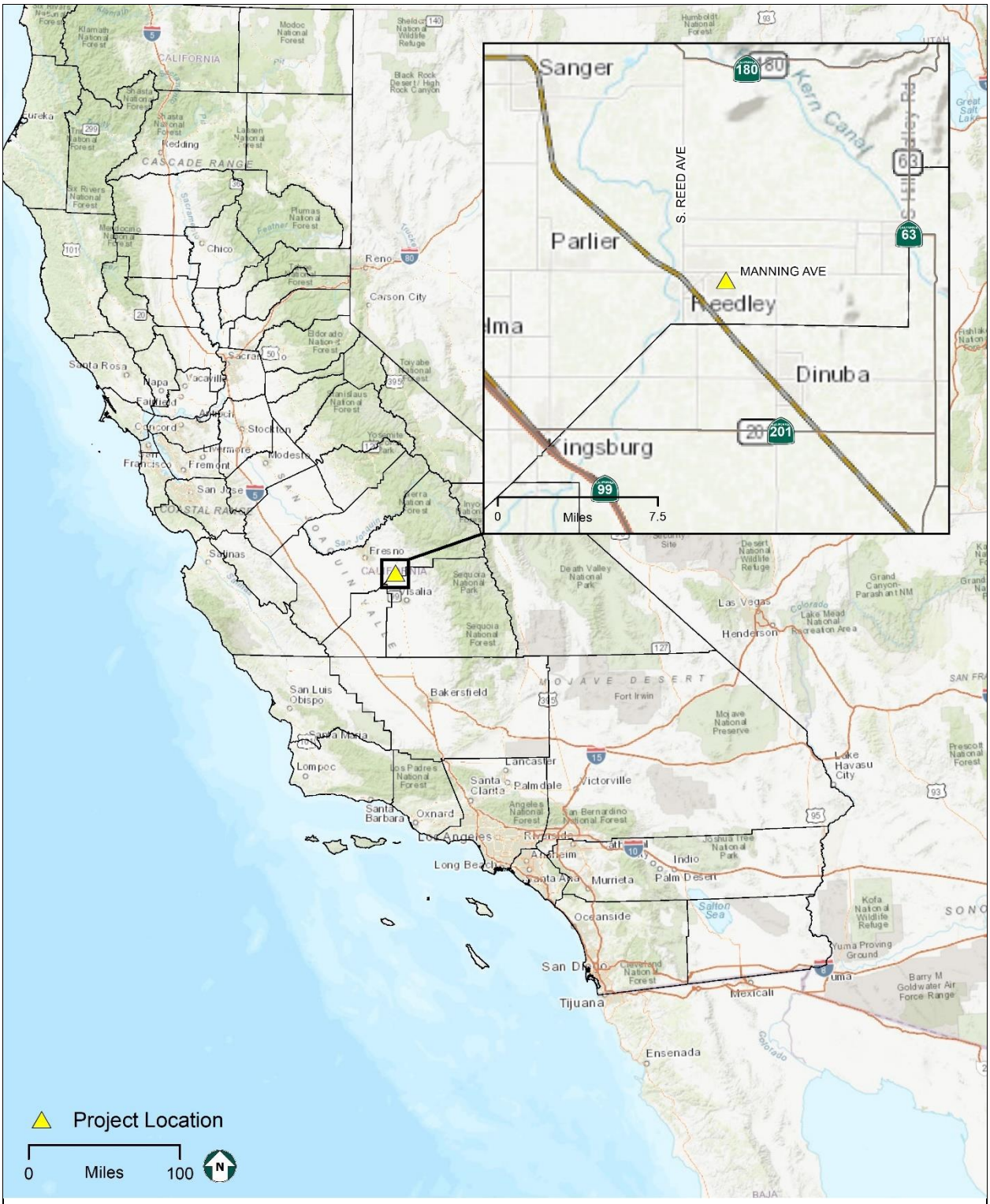


Figure 2-1
Regional Location



Figure 2-2
Project Location

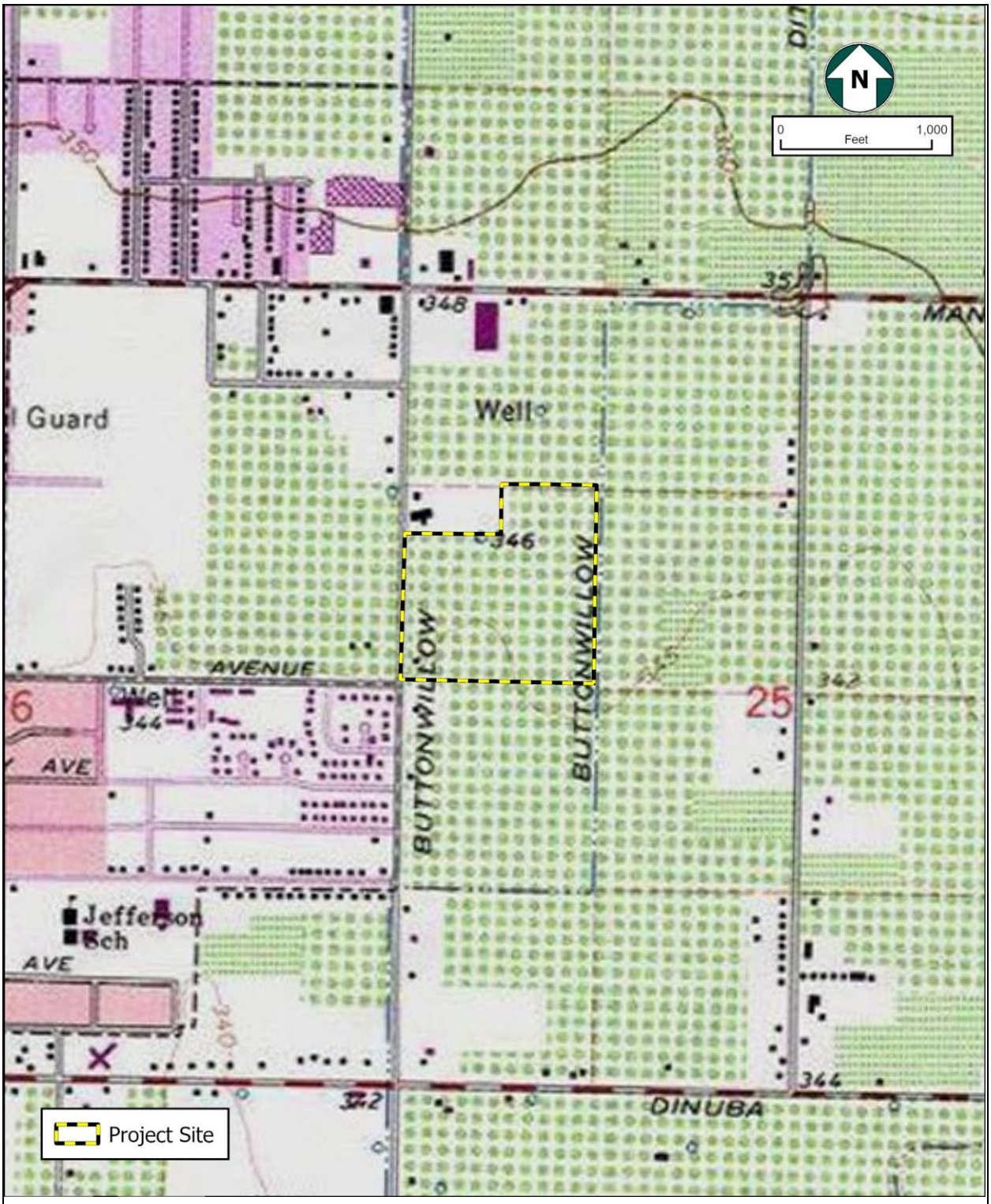


Figure 2-3
Project Site Topography

SECTION 3 - SETTING

Protection of public health is maintained through the attainment and maintenance of ambient air quality standards for various atmospheric compounds and the enforcement of emissions limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone (O_3), CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$, and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants. CAAQS are more stringent than the corresponding NAAQS and include standards for hydrogen sulfide (H_2S), vinyl chloride (chloroethene), and visibility-reducing particles. The U.S. Clean Air Act Amendments of 1977 required each state to identify areas that were in non-attainment of the NAAQS and to develop State Implementation Plans (SIPs) containing strategies to bring these non-attainment areas into compliance. NAAQS and CAAQS designation/classification for Fresno County are presented in Section 3.1 below.

Responsibility for the regulation of air quality in California lies with the California Air Resources Board (CARB) and the 35 local air districts, with oversight responsibility held by the EPA. CARB is responsible for regulating mobile source emissions, establishing CAAQS, conducting research, managing regulation development, and providing oversight and coordination of the activities of the 35 air districts. The air districts are primarily responsible for regulating stationary source emissions and monitoring ambient pollutant concentrations. CARB also determines whether air basins, or portions thereof, are “unclassified,” in “attainment,” or in “non-attainment” for the NAAQS and CAAQS relying on statewide air quality monitoring data.

3.1 - Air Quality Standards

The Project area is located within Fresno County in the San Joaquin Valley Air Basin (SJVAB or Basin). Fresno County is included among the eight counties that comprise the SJVAPCD. The SJVAPCD acts as the regulatory agency for air pollution control in the Basin and is the local agency empowered to regulate air pollutant emissions for the Project area. Table 3-1 provides the NAAQS and CAAQS.

Table 3-1
Federal and California Standards

Pollutant	Averaging Time	NAAQS	CAAQS
		Concentration	
O_3	8-hour	0.070 ppm (137 µg/m³)[a]	0.070 ppm (137 µg/m³)
	1-hour		0.09 ppm (180 µg/m³)
CO	8-hour	9 ppm (10 µg/m³)	9 ppm (10 µg/m³)
	1-hour	35 ppm (40 µg/m³)	20 ppm (23 µg/m³)
NO_2	Annual Average	53 ppb (100 µg/m³)	0.030 ppm (57 µg/m³)
	1-Hour	100 ppb (188.68 µg/m³)	0.18 ppm (339 µg/m³)
SO_2	3-Hour	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.14 ppm (365 µg/m³)	0.04 ppm (105 µg/m³)
	1-Hour	75 ppb (196 µg/m³)	0.25 ppm (655 µg/m³)
Particulate Matter (PM_{10})	Annual Arithmetic Mean		20 µg/m³
	24-Hour	150 µg/m³	50 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m³	12 µg/m³
	24-Hour	35 µg/m³	
Sulfates	24-Hour		25 µg/m³
Pb[d]	Rolling Three-Month Average	0.15 µg/m³	
	30 Day Average		1.5 µg/m³
H_2S	1-Hour		0.03 ppm (42 µg/m³)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m³)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		[b]

ppm = parts per million
ppb = parts per billion
mg/m³ = milligrams per cubic meter
µg/m³ = micrograms per cubic meter

Source: CARB 2024b
a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm
b. In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Under the provisions of the U.S. Clean Air Act, the Fresno County portion of the SJVAB has been classified as non-attainment/extreme, non-attainment/severe, non-attainment, attainment/ unclassified, attainment, or unclassified under the established NAAQS and CAAQS for various criteria pollutants. Table 3-2 provides the SJVAB's designation and classification based on the various criteria pollutants under both NAAQS and CAAQS.

Table 3-2
SJVAB Attainment Status

Pollutant	NAAQS[a]	CAAQS[b]
Ozone – 1 Hour	No Federal Standard[f]	Non-attainment/Severe
Ozone – 8 Hour[8]	Non-attainment/Extreme[e]	Non-attainment
PM_{10}	Attainment[c]	Non-attainment
$PM_{2.5}$	Non-attainment[d]	Non-attainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead Particulates	No Designation/Classification	Attainment
H_2S	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2025a
Notes:
a. See 40 CFR Part 81
b. See CCR Title 17 Sections 60200-60210
c. On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM_{10} National Ambient Air Quality Standard (NAAQS) and approved the PM_{10} Maintenance Plan.
d. The Valley is designated non-attainment for the 1997 $PM_{2.5}$ NAAQS. EPA designated the Valley as non-attainment for the 2006 $PM_{2.5}$ NAAQS on November 13, 2009 (effective December 14, 2009).
e. Though the Valley was initially classified as serious non-attainment for the 1997 8-hour O_3 standard, EPA approved Valley reclassification to extreme non-attainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
f. Effective June 15, 2005, the EPA revoked the federal 1-hour O_3 standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme non-attainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour O3 non-attainment areas continue to apply to the SJVAB.

The SJVACPD, along with CARB, operates an air quality monitoring network that provides average concentrations of those pollutants for which State or federal agencies have established ambient air quality standards. Information from the various monitoring stations is available from the corresponding agency's websites. A map of the monitoring stations in the SJVAB is provided in **Error! Reference source not found.** below.

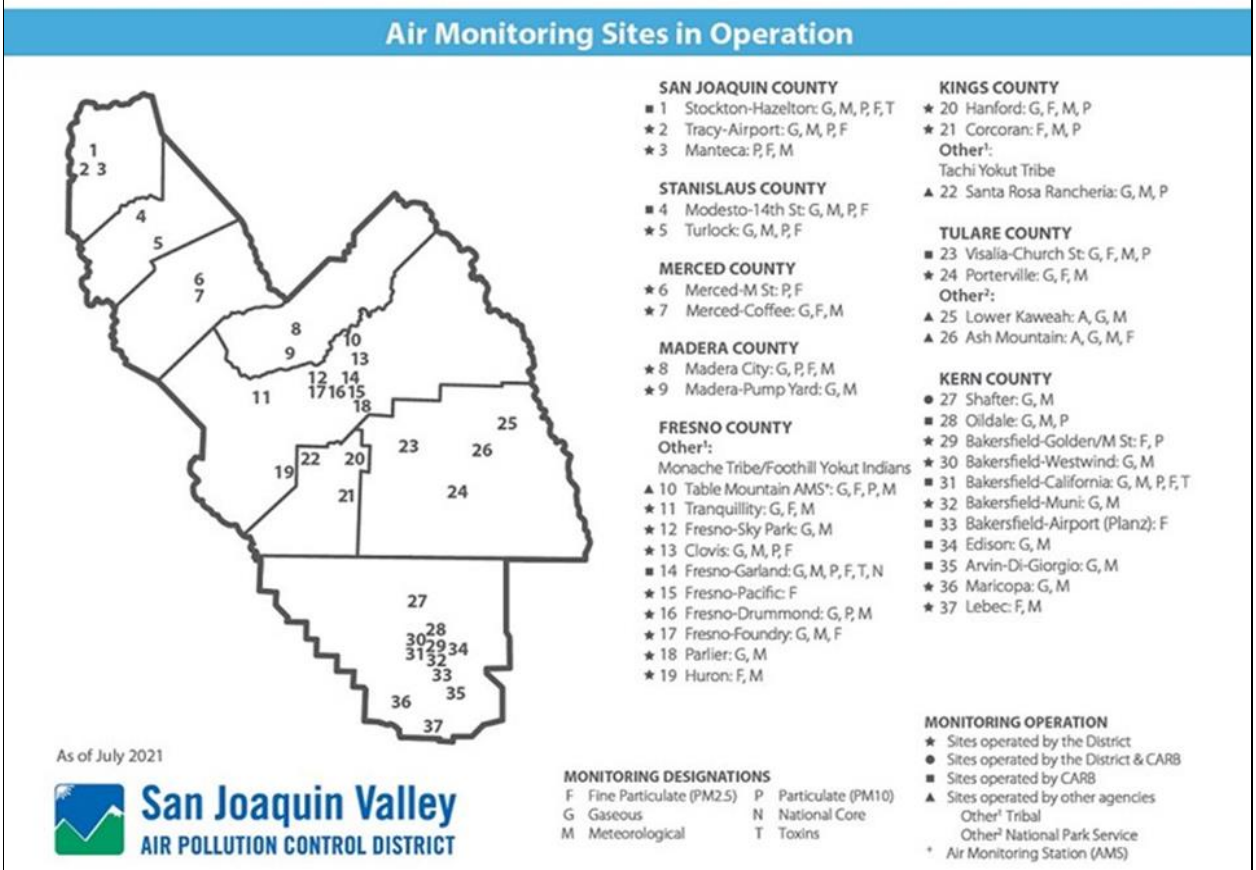


Figure 3-1
CARB Monitoring Network

3.2 - Existing Air Quality

For the purposes of background data and this air quality assessment, this analysis relied on data collected in the last three years for the CARB monitoring stations that are located in closest proximity to the Project site. **Error! Reference source not found.** provides the background concentrations for O_3, particulate matter of 10 microns (PM_{10}), particulate matter of less than 2.5 microns ($PM_{2.5}$), CO, NO_2, PB, and H_2S as of 2024. Information is provided for the Fresno—Drummond Street, Fresno—Garland, and Clovis—N Villa Ave monitoring stations for 2021 through 2023. No data is available for SO_2, Vinyl Chloride, or other toxic air contaminants in the SJVAB.

Table 3-3
Existing Air Quality Monitoring Data in Project Area

Pollutant and Monitoring Station Location	Maximum Concentration			Days Exceeding Standard		
	2021	2022	2023	2021	2022	2023
O_3 – 1-hour CAAQS (0.09 ppm)						
Fresno – Drummond Street	0.125	0.111	0.102	9	3	3
Fresno – Garland	0.112	0.096	0.101	6	2	3
Clovis – N Villa Avenue	0.123	0.109	0.102	9	3	3
O_3 – 8-hour CAAQS (0.07 ppm)						
Fresno – Drummond Street	0.100	0.089	0.088	41	8	24
Fresno – Garland	0.093	0.083	0.084	22	10	17
Clovis – N Villa Avenue	0.100	0.084	0.084	37	26	23
O_3 – 8-hour NAAQS (0.070 ppm)						
Fresno – Drummond Street	0.099	0.089	0.088	39	8	20
Fresno – Garland	0.093	0.083	0.084	18	10	15
Clovis – N Villa Avenue	0.100	0.084	0.083	34	23	21
PM_{10} – 24-hour CAAQS (50 µg/m³)						
Fresno – Drummond Street	149.8	166.5	130.0	20	133	120
Fresno – Garland	283.3	109.2	107.8	91	73	54
Clovis – N Villa Avenue	208.8	120.0	103.1	111	73	44
PM_{10} – 24-hour NAAQS (150 µg/m³)						
Fresno – Drummond Street	151.8	73.4	131.1	0	0	0
Fresno – Garland	281.0	116.1	109.3	1	0	0
Clovis – N Villa Avenue	125.0	127.0	104.7	0	0	0
$PM_{2.5}$ - 24-hour NAAQS (35 µg/m³)						
Fresno – Garland	99.9	53.3	39.1	30	13	4
Clovis – N Villa Avenue	104.6	41.9	34.7	22	4	0
CO - 8-Hour CAAQS & NAAQS (9.0 ppm)						
No data collected	*	*	*	*	*	*
NO_2 - 1-Hour CAAQS (0.18 ppm)						
Fresno – Drummond Street	0.064	0.058	0.058	0	0	0
Fresno – Garland	0.056	0.054	0.047	0	0	0
Clovis – N Villa Avenue	0.059	0.051	0.047	0	0	0
NO_2 - 1-Hour NAAQS (0.10 ppm)						
Fresno – Drummond Street	0.0645	0.0583	0.0581	0	0	0
Fresno – Garland	0.0563	0.0547	0.0479	0	0	0
Clovis – N Villa Avenue	0.0494	0.0518	0.0479	0	0	0
SO_2 – 24-hour Concentration - CAAQS (0.04 ppm) & NAAQS (0.14 ppm)						
No data collected	*	*	*	*	*	*

Pb - Maximum 30-Day Concentration CAAQS (1500 ng/m³)						
Fresno – Garland	6.8	42	6.5	*	*	*

Source: CARB 2024
Notes: ppm= parts per million
* There was insufficient (or no) data available to determine the value.

The following describes criteria air pollutants, typical sources, health effects, and recently documented pollutant levels in the Project vicinity.

3.2.1 - OZONE (O_3)

The SJVAB has high concentrations of O_3, and these high levels are known to cause eye irritation and impair respiratory functions. High levels of O_3 can also affect plants and materials. Grapes, lettuce, spinach, and many types of garden flowers and shrubs are particularly vulnerable to O_3 damage. O_3 is not directly emitted into the atmosphere; it is a secondary pollutant produced from a photochemical interaction between hydrocarbons and nitrogen oxides (NOx). One to three hours of strong sunlight in a stable atmosphere creates O_3. The "O_3 season," therefore, typically spans from April through October. O_3 is a regional pollutant; wind transports and diffuses the precursors while activating the photochemical reaction process. The data presented in **Error! Reference source not found.** shows that the Project area monitoring stations exceeded the 1-hour average ambient O_3 CAAQS and the 8-hour average ambient O_3 NAAQS and CAAQS between 2021 through 2023.

3.2.2 - SUSPENDED PARTICULATE MATTER (PM_{10} AND $PM_{2.5}$)

Both NAAQS and CAAQS now apply to particulates under 10 microns (PM_{10}). Since the smaller diameter fraction of total suspended particulates is documented to represent the greatest health hazard, EPA has established NAAQS for particulates under 2.5 microns ($PM_{2.5}$). The Project area is classified as attainment for PM_{10} and non-attainment for $PM_{2.5}$ for NAAQS.

Dust and fumes from industrial and agricultural operations generate particulate matter. Natural activities, such as wind-raised dust, fires, and ocean spray, also increase the level of particulates in the atmosphere. The largest source of PM_{10} and $PM_{2.5}$ in Fresno County is vehicle movement over paved and unpaved roads from demolition and construction activities and farming operations. PM_{10} and $PM_{2.5}$ are considered regional pollutants, with elevated levels typically occurring over a wide geographic area. Concentrations tend to be highest in the winter, during periods of high atmospheric stability and low wind speed. Very small particulates may contain absorbed gases that produce injury to the respiratory tract. Particulates of aerosol size suspended in the air can both scatter and absorb sunlight, producing haze and reducing visibility. They can also damage a wide range of materials. **Error! Reference source not found.** shows that PM_{10} levels exceeded the CAAQS, and both PM_{10} and $PM_{2.5}$ exceeded the NAAQS in 2021 and 2023, respectively. Similar levels can be expected to occur in the vicinity of the Project site.

3.2.3 - CARBON MONOXIDE (CO)

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. Wind speed and atmospheric mixing also influence CO concentrations.

Internal combustion engines, principally in vehicles, produce CO due to incomplete fuel combustion. Various industrial processes also produce CO emissions through incomplete combustion. Gasoline-powered motor vehicles are typically the major source of this contaminant. CO does not irritate the respiratory tract but passes through the lungs directly into the bloodstream, and by interfering with the transfer of fresh oxygen to the blood, deprives sensitive tissues of oxygen, thereby aggravating cardiovascular disease, causing fatigue, headaches, and dizziness. CO is not known to have adverse effects on vegetation, visibility, or materials. **Error! Reference source not found.** reports insufficient data for the CO monitoring at any monitoring stations during the three-year period from 2021 through 2023.

3.2.4 - NITROGEN DIOXIDE (NO_2) AND HYDROCARBONS

Fresno County has been designated as an attainment/unclassified area for the NAAQS for NO_2. NO_2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution. Mobile sources account for nearly all the County's NOx emissions, most of which are emitted as NO_2. Combustion in motor vehicle engines, power plants, refineries, and other industrial operations are the primary sources in the air basin. Railroads and aircraft are other potentially significant sources of combustion air contaminants. Oxides of nitrogen are direct participants in photochemical smog reactions. The emitted compound, nitric oxide, combines with oxygen in the atmosphere in the presence of hydrocarbons and sunlight to form NO_2 and O_3. NO_2, the most significant of these pollutants, can color the atmosphere at concentrations as low as 0.5 ppm on days of 10-mile visibility. NOx is an important air pollutant in the region because it is a primary receptor of ultraviolet light, which initiates the reactions producing photochemical smog. It also reacts in the air to form nitrate particulates.

Motor vehicles are the major source of reactive hydrocarbons in the basin. Other sources include evaporation of organic solvents and petroleum production and refining operations. Certain hydrocarbons can damage plants by inhibiting growth and by causing flowers and leaves to fall. Levels of hydrocarbons currently measured in urban areas are not known to cause adverse effects in humans. However, certain members of this contaminant group are important components in the reactions which produce photochemical oxidants. **Error! Reference source not found.** shows that the NO_2 NAAQS and CAAQS were not exceeded over the three-year period of 2021 through 2023. Hydrocarbons are not currently monitored.

3.2.5 - SULFUR DIOXIDE

Fresno County has been designated as an attainment/unclassified area for the NAAQS for SO_2. SO_2 is the primary combustion product of sulfur or sulfur-containing fuels. Fuel

combustion is the major source of this pollutant, while chemical plants, sulfur recovery plants, and metal processing facilities are minor contributors. Gaseous fuels (natural gas, propane, etc.) typically have lower percentages of sulfur-containing compounds than liquid fuels such as diesel or crude oil. SO_2 levels are generally higher in the winter months. Decreasing levels of SO_2 in the atmosphere reflect the use of natural gas in power plants and boilers.

At high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when respirated in combination with particulates, SO_2 can result in greater harm by injuring lung tissues. Sulfur oxides (SOx), in combination with moisture and oxygen, result in the formation of sulfuric acid, which can yellow the leaves of plants, dissolve marble, and oxidize iron and steel. SOx can also react to produce sulfates that reduce visibility and sunlight. **Error! Reference source not found.** shows no data has been reported over the three-year period.

3.2.6 - LEAD (PB) AND SUSPENDED SULFATE

Ambient Pb levels have dropped dramatically due to the increase in the percentage of motor vehicles that run exclusively on unleaded fuel. Ambient Pb levels in Fresno (the closest monitoring station to the Project) are well below the ambient standard and are expected to continue to decline; the data reported in **Error! Reference source not found.** only shows the highest concentration as the number of days exceeding standards is not reported. Suspended sulfate levels have stabilized to the point where no excesses of the State standard are expected in any given year.

3.3 - Climate

The most significant single control on the weather pattern of the San Joaquin Valley is the semi-permanent subtropical high-pressure cell, referred to as the "Pacific High." During the summer, the Pacific High is positioned off the coast of northern California, diverting ocean-derived storms to the north. Hence, the summer months are virtually rainless. During the winter, the Pacific High moves southward, allowing storms to pass through the San Joaquin Valley. Almost all the precipitation expected during a given year occurs from December through April. During the summer, the predominant surface winds are out of the northwest. Air enters the Valley through the Carquinez Strait and flows toward the Tehachapi Mountains. This up-valley (northwesterly) wind flow is interrupted in early fall by the emergence of nocturnal, down-valley (southeasterly) winds, which become progressively more predominant as winter approaches. Wind speeds are generally highest during the spring and lightest in fall and winter. The relatively cool air flowing through the Carquinez Strait is warmed on its journey south through the Valley. On reaching the southern end of the Valley, the average high temperature during the summer is nearly 100 degrees Fahrenheit (°F). Relative humidity during the summer is quite low, causing large diurnal temperature variations. Temperatures during the summer often drop into the upper 60s. In winter, the average high temperatures reach into the mid-50s, and the average low drops to the mid-30s. In addition, another high-pressure cell, known as the "Great Basin High," develops east of the Sierra Nevada Mountain Range during winter. When this cell is weak, a

layer of cool, damp air becomes trapped in the basin, and extensive fog results. During inversions, vertical dispersion is restricted, and pollutant emissions are trapped beneath the inversion and pushed against the mountains, adversely affecting regional air quality. Surface-based inversions, while shallow and typically short-lived, are present most mornings. Elevated inversions, while less frequent than ground-based inversions, are typically longer lasting and create more severe air stagnation problems. The winter season characteristically has the poorest conditions for vertical mixing of the entire year.

Meteorological data for various monitoring stations is maintained by the Western Regional Climate Center. Meteorological data for the Project site is expected to be similar to the data recorded at the Fresno monitoring station. This data is provided in Table 3-4, which contains average precipitation data recorded at the Fresno monitoring station from January 1948 through June 2016 (the most recent data available at the time this report was prepared).

Table 3-4
Fresno, California Weather Data

Period of Record Monthly Climate Summary for the Period 01/01/1948 to 6/09/2016													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.6	61.5	67.0	74.4	83.5	91.7	98.3	96.4	90.8	79.7	65.3	54.7	76.5
Average Min. Temperature (F)	37.6	40.7	43.8	48.0	54.3	60.5	65.7	64.0	59.7	51.2	42.4	37.3	50.4
Average Total Precipitation (in.)	2.09	1.90	1.89	1.03	0.36	0.16	0.01	0.01	0.15	0.53	1.13	1.64	10.89
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for the period of record:
Max. Temp.: 100% Min. Temp.: 100% Precipitation: 100% Snowfall: 91.2% Snow Depth: 91.3%
Source: Western Regional Climate Center, 2025.

3.4 - Climate Change and Greenhouse Gases

3.4.1 - GLOBAL CLIMATE CHANGE

"Global climate change" refers to changes in average meteorological conditions on the earth with respect to temperature, precipitation, and storms, lasting for decades or longer. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred by some scientists and policymakers to "global warming" because it helps convey the notion that in addition to rising temperatures, other changes in global climate may occur. Climate change may result from the following influences:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun.
- Natural processes within the climate system (e.g., changes in ocean circulation).

- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

As determined from worldwide meteorological measurements between 1990 and 2005, the primary observed effect of global climate change has been a rise in the average global tropospheric temperature of 0.36 degrees Fahrenheit (°F) per decade. Climate change modeling shows that further warming could occur, which could induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather (e.g., droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones). Specific effects from climate change in California may include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Sacramento-San Joaquin River Delta.

Human activities, including fossil fuel combustion and land use changes, release carbon dioxide (CO_2) and other compounds cumulatively termed greenhouse gases. GHGs are effective at trapping radiation that would otherwise escape the atmosphere. This trapped radiation warms the atmosphere, the oceans, and the earth's surface (USGCRP, 2014). Many scientists believe most of the warming observed over the last 50 years is attributable to human activities" (IPCC, 2014). The increased amount of CO_2 and other GHGs in the atmosphere is the alleged primary result of human-induced warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2, methane (CH_4), nitrous oxide (N_2O), and O_3. In the last 200 years, substantial quantities of GHGs have been released into the atmosphere, primarily from fossil fuel combustion. These human-induced emissions are increasing GHG concentrations in the atmosphere, therefore enhancing the natural greenhouse effect. The GHGs resulting from human activity are believed to be causing global climate change. While human-made GHGs include CO_2, CH_4, and N_2O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere. GHGs vary considerably in terms of Global Warming Potential (GWP), the comparative ability of each GHG to trap heat in the atmosphere. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

Natural sources of CO_2 include the respiration (breathing) of animals and plants and evaporation from the oceans. Together, these natural sources release approximately 150 billion metric tons of CO_2 each year, far outweighing the seven billion metric tons of GHG emissions from fossil fuel burning, waste incineration, deforestation, cement manufacturing, and other human activity. Nevertheless, natural GHG removal processes such as

photosynthesis cannot keep pace with the additional output of CO_2 from human activities. Consequently, GHGs are building up in the atmosphere (Enviropedia, 2019).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 production include wetlands, termites, and oceans. Human activity accounts for the majority of the approximately 500 million metric tons of CH_4 emitted annually. These anthropogenic sources include the mining and burning of fossil fuels, digestive processes in ruminant livestock such as cattle, rice cultivation, and the decomposition of waste in landfills. The major removal process for atmospheric CH_4, the chemical breakdown in the atmosphere, cannot keep pace with source emissions; therefore, CH_4 concentrations in the atmosphere are rising.

Worldwide emissions of GHGs in 2008 were 30.1 billion metric tons of CO_2e and have increased considerably since that time (United Nations, 2011). Emissions from the top five emitting countries (China, the United States, India, the Russian Federation, and Japan) and the European Union accounted for approximately 70 percent of total global GHG emissions in 2014. The United States was the number two producer of GHG emissions, behind China. The primary GHG emitted by human activities was CO_2, representing approximately 80 percent of total GHG emissions (U.S. EPA, 2024).

In 2022, the United States emitted approximately 6,343.2 million metric tons of CO_2e. Between 1990 and 2022, CO2 emissions from fossil fuel combustion decreased by 1.1 percent; emissions decreased by 18.2 percent (1,044.7 MMT CO2e) from 2005 levels; and from 2021 to 2022, these emissions increased by 1.0 percent (45.1 MMT CO2e). (U.S. EPA, 2024).

Worldwide, energy-related CO_2 emissions are expected to increase through 2050. Projections indicate that resources, demand, and technology costs will drive the shift from fossil to non-fossil energy sources, but current policies are not enough to decrease global energy-sector emissions. This outcome is largely due to population growth, regional economic shifts toward more manufacturing, and increased energy consumption as living standards improve. Globally, we project increases in energy consumption to outpace efficiency improvements. China remains the primary source of energy-related CO_2 emissions through 2050 across all cases, although its share of total global CO_2 emissions declines. Further, across all cases we project India to displace the United States and our Other Asia-Pacific modeling region to displace Western Europe as the second- and third-highest emitters of energy-related CO_2 emissions by 2050, respectively (U.S. EIA, 2023).

CARB is responsible for developing and maintaining the California GHG emissions inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within California and supports the Assembly Bill (AB) 32 Climate Change Program. CARB's current GHG emission inventory covers the years 2000 through 2017 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural lands).

In 2022, emissions from statewide emitting activities were 371.1 million metric tons of CO_2 equivalent (MMT CO_2e), which is 9.3 MMT CO_2e lower than 2021 levels. 2022 emissions have decreased by 24 percent since peak levels in 2004 and are 59.9 MMT CO_2e below the 1990 emissions level and the State's 2020 GHG limit (CARB 2024a).

CARB estimates that transportation was the source of approximately 39 percent of California's GHG emissions in 2022, followed by industrial sources at 23 percent. Other sources of GHG emissions were electricity sources at 16 percent, residential plus commercial activities at 14 percent, and agriculture at 8 percent (CARB, 2024a).

CARB has projected statewide GHG emissions for the year 2020, which represent the emissions that would be expected to occur with reductions anticipated from Pavley I and the Renewables Portfolio Standard (RPS) (30 MMT CO2e total), will be 509 MMT of CO_2e. GHG emissions from the transportation and electricity sectors as a whole are expected to increase at approximately 36 percent and 20 percent of total CO_2e emissions, respectively, as compared to 2009. The industrial sector consists of large stationary sources of GHG emissions, and the percentage of the total 2020 emissions is projected to be 18 percent of total CO_2e emissions. The remaining sources of GHG emissions in 2020 are high global warming potential gases at 6 percent, residential and commercial activities at 10 percent, agriculture at 7 percent, and recycling and waste at 2 percent (CARB, 2014).

3.4.2 - EFFECTS OF GLOBAL CLIMATE CHANGE

Changes in the global climate are assessed using historical records of temperature changes that have occurred in the past. Climate change scientists use this temperature data to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from past climate changes in rate and magnitude.

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fifth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, could range from 1.1 degree Celsius (°C) to 6.4°C (8 to 10.4°Fahrenheit) (IPCC, 2013). Global average temperatures and sea levels are expected to rise under all scenarios (IPCC, 2014). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many aspects of climate change, the actual temperature changes during the 20th century, and contributions from human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke, drought, etc. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria,

dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

According to the 2006 California Climate Action Team (CAT) Report, several climate change effects can be expected in California over the course of the next century (CalEPA, 2006). These are based on trends established by the IPCC and are summarized below.

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply.
- A rise in sea levels, resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Sea level rises of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the proposed Project area, as it is a significant distance away from coastal areas.)
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days that ozone pollution levels are exceeded in most urban areas (see below).
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.

- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and the establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

3.4.3 - GLOBAL CLIMATE CHANGE REGULATORY ISSUES

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. Pursuant to the Montreal Protocol, the production and consumption of compounds that deplete O_3 in the stratosphere (chlorofluorocarbons [CFCs], halons, carbon tetrachloride, and methyl chloroform) were phased out by 2000 (methyl chloroform was phased out by 2005).

On September 27, 2006, Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006 (the Act), was enacted by the State of California. The legislature stated, "Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." The Act caps California's GHG emissions at 1990 levels by 2020. The Act defines GHG emissions as all of the following gases: carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This agreement represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that include penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the State that serve California residents and businesses. According to CARB, California has met its 2020 GHG emission reduction target (CARB, 2021).

Subsequent legislation by the California legislature has included Senate Bill (SB) 32, which expanded on AB 32 to reduce GHG emissions to 40 percent below the 1990 levels by 2030; AB 197, which increased the legislative oversight of the CARB by adding two legislatively appointed non-voting members to the CARB Board and provided additional protection to disadvantaged communities; SB 350, which increased California's renewable energy electricity procurement goal; and SB 100, which established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electrical retail sales to end-use customers and 100 percent of electricity procured to serve State agencies by 2045.

Global warming and climate change have received substantial public attention for more than 20 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand, and predict global change, and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not been developed to determine the effect on global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even further in the future.

The California Supreme Court's most recent CEQA decision on the Newhall Ranch development case, Center for Biological v. California Department of Fish and Wildlife (November 30, 2015, Case No. 217763), determined that the project's Environmental Impact Report (EIR) did not substantiate the conclusion that the GHG cumulative impacts would be less than significant. The EIR determined that the Newhall Ranch development project would reduce GHG emissions by 31 percent from business as usual (BAU). This reduction was compared to California's target of reducing GHG emissions statewide by 29 percent from business as usual. The Court determined that "the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas reduction effort required by the State as a whole, and attempting to use that method, without adjustments, for a purpose very different from its original design." In the Court's final ruling, it offered suggestions that were deemed appropriate use of the BAU methodology:

1. Lead agencies can use the comparison to BAU methodology if they determine what reduction a particular project must achieve in order to comply with statewide goals.
2. Project design features that comply with regulations to reduce emissions may demonstrate that those components of emissions are less than significant.
3. Lead agencies could also demonstrate compliance with locally adopted climate plans or apply specific numerical thresholds developed by some local agencies.

Neither the City of Reedley nor Fresno County have developed specific thresholds for GHGs. As discussed in Section 4.1, the SJVAPCD, a CEQA Trustee Agency for this Project, has developed thresholds to determine the significance of a proposed project – either implement Best Performance Standards or achieve a 29 percent reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. The 2020 projected baseline has passed, and at this time, no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29 percent reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established. For this Project, compliance with locally adopted climate plans will be used to determine the level of significance of GHG. Therefore, the GHG analysis for this Project follows the suggestions from the Court's ruling on the Newhall Ranch development project in order to determine the significance of using the Project design features.

SECTION 4 - IMPACT ASSESSMENT

4.1 - Significance Criteria

To determine whether a proposed Project could create a potential CEQA impact, local, State, and federal agencies have developed various means by which a project's impacts may be measured and evaluated. Such means can generally be categorized as follows:

- Thresholds of significance adopted by air quality agencies to guide lead agencies in their evaluation of air quality impacts under the CEQA.
- Regulations established by air districts, CARB, and EPA for the evaluation of stationary sources when applying for Authorities to Construct, Permits to Operate, and other permit program requirements (e.g., New Source Review).
- Thresholds utilized to determine if a project would cause or contribute significantly to violations of the ambient air quality standards or other concentration-based limits.
- Regulations applied in areas where severe air quality problems exist.

Below are summary tables of these emission-based and concentration-based thresholds of significance for each pollutant, along with a discussion of their applicability.

4.1.1 - THRESHOLDS ADOPTED FOR THE EVALUATION OF AIR QUALITY IMPACTS UNDER CEQA

In order to maintain consistency with CEQA, the SJVAPCD (2015) adopted guidelines to assist applicants in complying with the various requirements. According to the SJVAPCD's GAMAQI, a project would have potentially significant air quality impacts when the project:

- Creates a conflict with or obstructs implementation of the applicable air quality plan.
- Causes a violation of any air quality standard or generates substantial contribution towards exceeding an existing or projected air quality standard.
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is designated non-attainment under a NAAQS and CAAQS (including emissions that exceed quantitative thresholds for O_3 precursors).
- Exposes sensitive receptors to substantial pollutant concentrations.
- Creates objectionable odors that affect a substantial number of people.

The SJVAPCD GAMAQI thresholds are designed to implement the general criteria for air quality emissions as required in the CEQA Guidelines, Appendix G, Paragraph III (Title 14 of the California Code of Regulations §15064.7) and CEQA (California Public Resources Code Sections 21000 et al.). SJVAPCD's specific CEQA air quality thresholds are presented in **Error! Reference source not found.**.

Table 4-1
SJVAPCD CEQA Thresholds of Significance

Criteria Pollutant	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
NOx	10 tons/yr	10 tons/yr	10 tons/yr
ROG	10 tons/yr	10 tons/yr	10 tons/yr
SOx	27 tons/yr	27 tons/yr	27 tons/yr
PM_{10}	15 tons/yr	15 tons/yr	15 tons/yr
$PM_{2.5}$	15 tons/yr	15 tons/yr	15 tons/yr
CO	100 tons/yr	100 tons/yr	100 tons/yr

Source: SJVAPCD, 2015.

4.1.2 - THRESHOLD FOR AMBIENT AIR QUALITY IMPACTS

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*" would be considered to create significant impacts on air quality. Therefore, an AQIA should determine whether the emissions from a project would cause or contribute significantly to violations of the NAAQS or CAAQS (presented above in **Error! Reference source not found.**) when added to existing ambient concentrations.

The EPA has established the federal Prevention of Significant Deterioration (PSD) program to determine what comprises "significant impact levels" (SIL) to NAAQS attainment areas. A project's impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. As the Project would not include modification to the stationary source under New Source Review (NSR), it would not be subject to either PSD or NSR review. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the project would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*." Ambient air quality emissions estimates below the PSD SIL thresholds would result in less-than-significant ambient air quality impacts on both a project and cumulative CEQA impact analysis. The SJVAB is classified as non-attainment/marginal for the 8-hour O_3 NAAQS and, as such, is subject to non-attainment NSR. PSD SILs and increments are more stringent than the CAAQS or NAAQS and represent the most stringent thresholds of significance.

4.1.3 - THRESHOLDS FOR HAZARDOUS AIR POLLUTANTS

The SJVAPCD's GAMAQI states, "From a health risk perspective, there are basically two types of land use projects that have the potential to cause long-term public health risk impacts:

- Type A Projects: Land use projects that will place new toxic sources in the vicinity of existing receptors.

- Type B Projects: Land use projects that will place new receptors in the vicinity of existing toxic sources" (SJVAPCD, 2015).

Error! Reference source not found. presents the thresholds of significance used with toxic air contaminants when evaluating hazardous air pollutants (HAPs).

Table 4-2
Measures of Significance – Toxic Air Contaminants

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
SJVAPCD	Carcinogens	Maximally Exposed Individual risk **equals or exceeds** 20 in one million.
	Non-Carcinogens	**Acute**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual. **Chronic**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual.

Source: SJVAPCD, 2015

4.1.4 - GLOBAL CLIMATE CHANGE THRESHOLDS OF SIGNIFICANCE

On December 17, 2009, SJVAPCD adopted Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD, 2009); which outlined the SJVAPCD's methodology for assessing a project's significance for GHGs under CEQA. The following criteria were outlined in the document to determine whether a project could have a significant impact:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less-than-significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of project-specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement BPS.
- Projects complying with an approved GHG emission reduction plan or GHG mitigation program that avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA-compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.
- Projects implementing Best Performance Standards would not require quantification of project-specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

- Projects not implementing Best Performance Standards would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent, compared to business as usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG.
- Notwithstanding any of the above provisions, projects requiring the preparation of an Environmental Impact Report for any other reason would require quantification of project-specific GHG emissions. Projects implementing BPS or achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG.

Neither the City of Reedley nor Fresno County have developed specific thresholds for GHGs. The SJVAPCD, a CEQA Trustee Agency for this Project, has developed thresholds to determine the significance of a proposed project – either implement Best Performance Standards or achieve a 29 percent reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. The 2020 projected baseline has passed, and at this time, no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29 percent reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established. For this Project, compliance with locally adopted climate plans will be used to determine the level of significance for GHG. Therefore, the GHG analysis for this Project follows the suggestions from the Court's ruling on the Newhall Ranch development project in order to determine the significance of using the project design features.

4.2 - Project Related Emissions

This document was prepared pursuant to the SJVAPCD's GAMAQI. The GAMAQI identifies separate thresholds for a project's short-term (construction) and long-term (operational) emissions.

Project emissions were estimated separately for each emission source. The California Emissions Estimator Model (CalEEMod) was used to estimate emissions for both short-term, construction-related sources and long-term, operations-related sources.

Project emissions were estimated for the following development stages:

- Short-term (Construction and Demolition) – Construction emissions of the proposed Project were estimated in CalEEMod using the default construction schedule and construction equipment for the development. (See Appendix B.)
- Long-term (Operations) – Long-term emissions were also estimated in CalEEMod using model defaults for operations of the aforementioned land use types. (See Appendix B.)

4.2.1 - SHORT-TERM EMISSIONS

Short-term emissions from the construction phases of a project would have temporary impacts on air quality.

The construction emissions were based on the default CalEEMod equipment list for the proposed Project's land use type and development intensity and applying model defaults as well as a conservative analysis approach. In order to be conservative construction emissions were estimated under the assumption that construction would begin in 2025. The dates entered into the CalEEMod program represent the earliest construction timeline, which would estimate the worst-case emissions as construction equipment technology and emissions improve over time; therefore, all estimated emission totals are conservative and reflect a reasonable and legally sufficient estimate of potential impacts. All construction equipment activity levels assumed were based CalEEMod default values for type, number of equipment, hours per day and horsepower.

Adjustments to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the Project description.
- Demolition construction phase was removed as the Project Location is open land.

SJVAPCD's required measures for all projects were also applied:

- Water exposed area three times per day.
- Reduce vehicle speed to less than 15 miles per hour on unpaved roads.

Error! Reference source not found. presents the Project's short-term emissions based on the anticipated construction period.

As calculated with CalEEMod, the estimated short-term construction-related emissions would not exceed SJVAPCD significance threshold levels during any given year and would, therefore, be *less than significant*.

Table 4-3
Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2025	0.17	1.53	1.70	0.00	0.24	0.13
2026	0.17	1.35	1.91	0.00	0.10	0.06
2027	1.04	0.83	1.23	0.00	0.06	0.03
Maximum Annual Emission	**1.04**	**1.53**	**1.91**	**0.00**	**0.24**	**0.13**
Significance Threshold	10	10	100	27	15	15
Is Threshold Exceeded for a Single Year After Mitigation?	No	No	No	No	No	No

Source: QK 2025

4.2.2 - LONG-TERM OPERATIONAL EMISSIONS

Long-term emissions are caused by operational mobile sources and area source emissions from the Project site.

Fugitive Dust Emissions

Operation of the Project site at full build-out is not expected to present a substantial source of fugitive dust (PM_{10}) emissions. The main source of PM_{10} emissions would be from vehicular traffic associated with the Project site.

PM_{10}, on its own as well as in combination with other pollutants, creates a health hazard. The SJVAPCD's Regulation VIII establishes required controls to reduce and minimize fugitive dust emissions. The following SJVAPCD Rules and Regulations apply to the proposed Project (and all projects):

- Rule 4102 – Nuisance – prohibits a facility from posing as a nuisance to surrounding receptors and can impose penalties for nuisance issues such as dust, smoke, excess emissions, etc. Compliance with this rule ensures that the area around the Project site will not be adversely impacted by such issues.
- Regulation VIII – Fugitive PM_{10} Prohibitions – a series of regulations to reduce and/or eliminate the generation of particulate matter (PM) that can adversely impact visibility as well as the health and safety of people on-site or in the vicinity of the Project.
    - Rule 8011 – General Requirements – this rule is to reduce ambient concentrations of fine particulate matter (PM_{10}) by requiring actions to prevent, reduce, or mitigate anthropogenic (human-caused) fugitive dust emissions.
    - Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities – restricts generation of airborne dust and visibility impacts from these activities. Places limits on opacity and equipment operation under certain adverse weather conditions.

- Rule 8041 – Carryout and Trackout – requires that equipment and vehicles leaving the construction site control the amount of dirt, soil, or mud that is tracked offsite and onto public roadways. This helps eliminate or minimize dust generation and opacity degradation.
- Rule 8051 – Open Areas – limits fugitive dust from open areas, i.e., areas on a construction site that are not actively being constructed upon but may generate wind-blown dust.

The Project would comply with applicable SJVAPCD Rules and Regulations, the local zoning codes, and additional emissions reduction measures recommended later in this analysis, in Section 7, Mitigation and Other Recommended Measures.

Exhaust Emissions

Project-related transportation activities from residents would generate mobile source ROG, NOx, SOx, CO, PM_{10}, and $PM_{2.5}$ exhaust emissions. Exhaust emissions would vary substantially from day to day but would average out over the course of an operational year. The variables factored into estimating total Project emissions include: level of activity, site characteristics, weather conditions, and number of visitors. As the Project is not expected to generate an adverse change in current activity levels, substantial emissions are not anticipated. The default trip rates in CalEEMod were used along with an adjusted fleet mix to reflect SJVAPCD approved residential fleet mix for year 2026.

Projected Emissions

The proposed Project is expected to have long-term air quality impacts as shown in Table 4-4. Emission calculations are available in Appendix B.

Table 4-4
Post-Project Max Year (Operational Emissions)

Emissions Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Mitigated Emissions						
Operational Emissions	2.09	0.88	6.04	0.01	1.04	0.29
SJVAPCD Threshold	10	10	100	27	15	15
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

As shown in Table 4-4, operations-related emissions, as calculated in Appendix B, would not exceed the SJVAPCD significant threshold levels. Therefore, the Project is less-than-significant for operational emissions.

4.3 - Potential Impacts on Sensitive Receptors

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers. The nearest residential sensitive

receptor to the proposed Project is located adjacent to portions of the Project's sites. Table 4-5 lists the known non-residential sensitive receptors within one mile of the Project site. Discussion of health risks and risks to sensitive receptors is addressed in detail below in Section 4.6.

Table 4-5
Sensitive Receptors Located < 1 miles from Project

Receptor	Type of Facility	Distance from Project (miles)	Direction from Project
Silas Bartsch School	School	0.02	E
Grant Middel School	School	0.51	W
Monte Vista School	School	0.36	SW
Jefferson Elementary School	School	0.44	SW
Mountain View	School	0.51	W
Lincoln Elementary School	School	0.83	W
St. La Salle School	School	0.83	NW
Children's Paradise Daycare	Daycare	0.47	W
Fresno EOC Head Start	Preschool	0.44	SW
KC Kids Preschool	Preschool	0.45	SW
Sierra View Homes	Retirement Community	0.26	W
Reedley Elderly	Retirement Community	0.71	W
Vineyard Care Center	Nursing Home	0.57	SW
United Health Centers	Medical Center	0.26	N
Adventist Health	Medical Center	0.49	SW
Family Healthcare	Medical Center	0.63	NW

4.4 - Potential Impacts to Visibility to Nearby Class 1 Areas

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. Under the PSD program, all international parks, national wilderness areas and national memorial parks that exceed 5,000 acres, and of national parks that exceed 6,000 acres are designated as mandatory federal Class I areas which are provided visibility protection under the Clean Air Act. Because the Project's PM10 emissions increases are predicted to be less than the PSD threshold levels, an impact at any Class 1 area or military/airspace operation within 100 kilometers of the Project is extremely unlikely. Therefore, based on the Project's predicted less-than significant PM10 emissions, the Project would be expected to have a *less than significant impact* to visibility at any Class 1 area or military/airspace operation.

4.5 - Potential Impacts from Carbon Monoxide

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. CO concentrations are also

influenced by wind speed and atmospheric mixing. CO concentrations may be more uniformly distributed when inversion conditions are prevalent in the valley. Under certain meteorological conditions, CO concentrations along a congested roadway or intersection may reach unhealthful levels for sensitive receptors, e.g., children, the elderly, hospital patients, etc. This localized impact can result in elevated levels of CO, or "hotspots," even though concentrations at the closest air quality monitoring station may be below NAAQS and CAAQS.

The localized project impacts depend on whether ambient CO levels in the Project vicinity would be above or below NAAQS. If ambient levels are below the standards, a project is considered to have significant impacts if a project's emissions would exceed of one or more of these standards. If ambient levels already exceed a State standard, a project's emissions are considered significant if they would increase 1-hour CO concentrations by 10 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. There are two criteria established by the SJVAPCD's GAMAQI by which CO "hotspot" modeling is required:

1. A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity would be reduced to LOS E or F.
2. A traffic study indicates that the project would substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

A traffic study was completed for this Project (Ruettgers & Schuler, 2025). According to the traffic study, impacted intersections and roadway segments are anticipated to operate at a LOS of C or better. Therefore, CO "hotspot" modeling was not conducted for this Project, and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

4.6 - Predicted Health Impacts

GAMAQI recommends that Lead Agencies consider situations wherein a new or modified source of HAPs is proposed for a location near an existing residential area or other sensitive receptors when evaluating potential impacts related to HAPs.

The proposed Project would result in emissions of HAPs from construction activities and would be located near existing residents; therefore, an assessment of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed Project is required.

To predict the potential health risk to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over the construction period for construction emissions. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices, which are the ratio of expected exposure to acceptable exposure. The basis

for evaluating potential health risks is the identification of sources with increased HAPs. HAP emissions from anticipated on-site construction activities were evaluated.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP) software distributed by the CARB. HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. The assumptions used to calculate the emission rates for the proposed Project are outlined below.

The most recent version of EPA's AMS/EPA Regulatory Model – AERMOD (recompiled for the Lakes ISC-AERMOD View) was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

Diesel combustion emissions from diesel on-site construction equipment were modeled as an area source for on-site construction activity on the property. Diesel particulate matter was calculated using CalEEMod for on-site construction. A unit emission rate of one gram/second (g/sec) was input to AERMOD for each source.

A fenceline discrete receptor grid was placed around the Project site in order to evaluate residences and businesses within close proximity of the Project site. A three-tier grid was used with 25-meter fenceline spacing. The first tier extended 100 meters with 25-meter tier spacing, the second tier extended an additional 200 meters with 50 meter tier spacing and the third tier extended another 400 meters with a tier spacing of 100 meters. A total of 1,560 discrete off-site receptors were analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area. The 7.5-minute DEM terrain data for Reedley, CA, was processed with AERMAP to identify elevations for the proposed Project.

SJVAPCD-provided AERMET processed meteorological datasets for the Fresno monitoring station, calendar years 2018 through 2022 were input to AERMOD (SJVAPCD, 2025d). This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility are considered "rural" under the Auer land use classification method (Auer, 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP2) (CARB, 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA) using the OEHHA Derived Method. HARP2 site parameters were set for the mandatory minimum pathways of inhalation, homegrown gardens, soil ingestion, dermal, and mother's milk. The non-inhalation pathways used a deposition rate of 0.02 m/s along with all other default parameters. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for the inhalation pathway at each receptor. A hazard index was computed for chronic non-cancer

health effects for each applicable endpoint and each receptor. A hazard index for acute non-cancer health effects was not computed since DPM does not have a risk exposure level for acute risk.

SJVAPCD has set the level of significance for carcinogenic risk at twenty in one million, which is understood as the possibility of causing 20 additional cancer cases in a population of one million people. The level of significance for chronic non-cancer risk is a hazard index of 1.0. All receptors were modeled with a 3-year exposure for construction activities.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of 20 in one million (20 x 10-6) and 1.0, respectively, for the proposed Project. The PMIs are identified by receptor location and risk and are provided in Table 4-6. The electronic AERMOD and HARP2 output files are provided in Appendix D.

Table 4-6
Potential Maximum Impacts Predicted by HARP

	Cancer Risk	Chronic Hazard Index
Construction	12.3E-06	6.43E-03
SJVAPCD Threshold	20.0E-06	1.0
Exceedance?	No	No
Receptor #	302	302
UTM Easting (m)	282976.61	282976.61
UTM Northing (m)	4053035.62	4053035.62

Note: UTM = Universal Transverse Mercator

As shown above in Table 4-6, the maximum predicted cancer risk for the proposed Project is 12.3E-06. The maximum chronic non-cancer hazard index for the proposed Project is 6.43E-03. Since the PMI remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be *less than significant* based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors.
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant.

4.7 - Potential Impacts from Valley Fever

The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to Valley Fever spores as fugitive dust is generated during construction. In order to mitigate potential risk, the proposed Project would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the mitigation measures, dust from the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

4.8 - Potential Impacts from Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released into the atmosphere due to vehicular traffic on unpaved roads, during the grading of development projects, and at mining operations.

Serpentinite and/or ultramafic rocks are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and the Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDCDMG, 2000). Therefore, impacts associated with the exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

4.9 - Odor Impacts and Mitigation

The SJVAPCD's GAMAQI states, "An analysis of potential odor impacts should be conducted for both of the following two situations:

1. Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
2. Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources" (SJVAPCD, 2015).

The GAMAQI also states, "The District has identified some common types of facilities that have been known to produce odors in the San Joaquin Valley Air Basin. These are presented in Table 6 (Screening Levels for Potential Odor Sources), along with a reasonable distance from the source within which the degree of odors could possibly be significant. [Table 6] can be used as a screening tool to qualitatively assess a project's potential to adversely affect

area receptors" (SJVAPCD, 2015). Because the Project's anticipated land uses and activities are not listed in Table 6 of the GAMAQI as a source that would create objectionable odors, the Project is not expected to be a source of objectionable odors.

Based on the provisions of the SJVAPCD's GAMAQI, the proposed Project would not exceed any screening trigger levels to be considered a source of objectionable odors or odorous compounds (SJVAPCD, 2015). Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the Project site when it is in operation. Additionally, the Project emissions estimates indicate that it would not be expected to adversely impact surrounding receptors. As such, the proposed Project would not be a source of any odorous compounds, nor would it likely be impacted by any odorous source.

4.10 - Impacts to Ambient Air Quality

As stated in the GAMAQI (2015, pp 96-97), SJVAPCD has developed screening levels that require an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

Average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day. Therefore, an AAQA is not required for this Project.

4.11 - Impacts to Greenhouse Gases and Climate Change

The proposed Project's construction and operational GHG emissions were estimated using the CalEEMod. The Project's GHG emissions are primarily from mobile source activities. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified as CO_2e. Table 4-7 presents the Project's annual GHG emissions.

Table 4-7
Estimated Annual GHG Emissions (MT/Year)

Source	CO_2	CH_4	N_2O	CO_2e
Total Construction Emissions	874.74	0.03	0.02	880.74
Annualized Construction Emissions[1]	29.16	0.00	0.00	29.36
Total Operational Emissions	1,503	1.54	0.06	1,562
Total Project Emissions				

1 Per South Coast AQMD's Methodology

In the decade after SJVAPCD adopted their Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, several new laws and executive orders were adopted that require additional reductions in years after 2020. For

instance, Senate Bill 32 requires that GHG emissions be 40 percent less than 1990 levels by 2030. More drastic still, Senate Bill 100, which was signed by the Governor recently, requires 100 percent zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18, which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2009 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards, which propose a grand vision that, if achieved, would fundamentally change how business is conducted and citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, the objectives of the Scoping Plan affect entire sectors of the economy, and it no longer makes sense to evaluate GHG emissions on a project level.

For these reasons, Project GHG emissions levels presented in Table 4-6 are primarily for disclosure purposes. The Project's largest contributors to GHG emissions are from electricity and exhaust from transportation fuels. Electricity and transportation fuels are, in effect, regulated by requiring providers and importers of electricity and fuel to participate in the GHG Cap-and-Trade Program and other programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each such sector-wide program exists within the framework of AB 32 and its descendant laws, the purpose of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan.

The Project would generate GHGs from electricity use and combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply chain. As such, each citizen of California (including those creating emissions of this Project) will have no choice but to purchase electricity and fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because energy purchases are from the California market. Thus, consumers of electricity and transportation fuels are, in effect, regulated by higher-level emissions restrictions on the producers of these energy sources. Therefore, the Project would have a less-than-significant impact on applicable GHG reduction plans and the Project's contribution to cumulative global climate change impacts would not be cumulatively considerable.

SECTION 5 - CUMULATIVE IMPACTS

By its very nature, air pollution has a cumulative impact. The District's non-attainment status is a result of past and present development within the SJVAB. Furthermore, attainment of ambient air quality standards can be jeopardized by increasing emissions-generating activities in the region. No single project would be sufficient in size by itself to result in non-attainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the San Joaquin Valley Air Basin. When assessing whether there is a new significant cumulative effect, the Lead Agency shall consider whether the incremental effects of the project are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [CCR §15064(h)(1)]. Per CEQA Guidelines §15064(h)(3), a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (SJVAPCD, 2015).

GAMAQI also states, "If a project is significant based on the thresholds of significance for criteria pollutants, then it is also cumulatively significant. This does not imply that if the project is below all such significance thresholds, it cannot be cumulatively significant." (SJVAPCD, 2015). Based on the analysis conducted for this Project, it is individually less than significant. This AQIA, however, also considered the impacts of the proposed Project in conjunction with the impacts of other projects previously proposed in the area. The following cumulative impacts were considered:

- Cumulative O_3 Impacts (ROG and NOx) from numerous sources within the region, including transport from outside the region. O_3 is formed through chemical reactions of ROG and NOx in the presence of sunlight.
- Cumulative CO Impacts produced primarily by vehicular emissions.
- Cumulative PM_{10} Impacts from within the region and locally from the various projects. Such projects may cumulatively produce a significant amount of PM10 if several projects conduct grading or earthmoving activities at the same time; and
- Hazardous Air Pollutant (HAP) Impacts on sensitive receptors.

5.1 - Cumulative Regional Air Quality Impacts

The most recent, certified SJVAB Emission Inventory data available from the SJVAPCD is based on data gathered for the 2024 annual inventory. This data will be used to assist the SJVAPCD in demonstrating attainment of Federal 1-hour O_3 Standards. **Error! Reference source not found.** provides a comparative look at the impacts proposed by the proposed Project to the SJVAB Emissions Inventory.

Table 5-1
Comparative Analysis Based on SJVAB 2024 Inventory

Emissions Inventory Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Fresno County – 2024[2]	21,698.5	11,242.0	54,483.2	553.3	24,252.1	6,059.4
SJVAB – 2024[2]	108,775.1	51,926.7	215,561.3	2,265.2	97,564.5	23,861.1
Proposed Project	2.09	0.88	6.04	0.01	1.04	0.29
Proposed Project's % of Fresno[1]	0.0099%	0.0078%	0.0111%	0.0018%	0.0043%	0.0048%
Proposed Project's % of SJVAB[1]	0.0019%	0.0017%	0.0028%	0.0004%	0.0011%	0.0012%

Source: CARB, 2025
Notes: 1) Percentages equaling 0.0000 could represent a percent <0.00005.
2) This is the latest inventory available as of February 2025, excluding Natural Sources.

As shown in **Error! Reference source not found.** the proposed Project does not pose a substantial increase to basin emissions, as such basin emissions would be essentially the same if the Project is approved.

Error! Reference source not found., Table 5-3, and **Error! Reference source not found.** provide CARB Emissions Inventory projections for the year 2030 for both the SJVAB and the Fresno County portion of the air basin (see Appendix C). Looking at the SJVAB Emissions predicted by the CARB year 2030 emissions inventory, the Fresno County portion of the air basin is a moderate source of the emissions. The proposed Project produces a small portion of the total emissions in both Fresno County and the entire SJVAB.

Table 5-2
Emission Inventory SJVAB 2030 Projection – Tons per Year

	ROG	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Total Emissions	104,380.5	38,036.3	168,950.5	2,208.6	99,271.2	21,758.7
Percent Stationary Sources	29.98%	15.51%	4.43%	78.83%	4.30%	11.34%
Percent Area-Wide Sources	55.76%	6.01%	27.47%	8.59%	91.44%	76.99%
Percent Mobile Sources	14.26%	78.48%	74.09%	12.58%	4.26%	11.66%
Total Stationary Source Emissions	31,297.7	5,897.7	7,489.8	1,741.1	4,266.9	2,468.5
Total Area-Wide Source Emissions	58,202.9	2,285.6	36,279.9	189.8	90,775.5	16,752.8
Total Mobile Source Emissions	18,359.5	37,193.5	145,708.0	292.0	4,380.0	2,737.5

Source: CARB, 2025
Note: Total may not add due to rounding.

Table 5-3
Emission Inventory Fresno County 2030 Projection – Tons per Year

	ROG	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Total Emissions	20,463.4	7,796.4	40,658.8	547.5	24,307.2	5,277.5
Percent Stationary Sources	34.58%	16.47%	2.97%	77.86%	2.83%	6.89%
Percent Area-Wide Sources	49.70%	7.60%	28.34%	10.34%	93.58%	84.31%
Percent Mobile Sources	15.72%	75.93%	68.69%	11.87%	3.59%	8.80%
Total Stationary Source Emissions	7,076.3	1,283.7	1,206.7	426.3	687.7	363.5
Total Area-Wide Source Emissions	10,170.7	592.8	11,524.1	56.6	22,746.1	4,449.7
Total Mobile Source Emissions	3,216.4	5,919.9	27,928.0	65.0	873.1	464.3

Source: CARB, 2025
Note: Total may not add due to rounding.

Table 5-4
2030 Emissions Projections – Proposed Project, Fresno County and SJVAB

	ROG	NO_X	PM_{10}
Proposed Project	2.09	0.88	1.04
Fresno County	20,463.4	7,796.4	24,307.2
SJVAB	104,380.5	38,036.3	99,271.2
Proposed Project Percent of Fresno County	0.010%	0.011%	0.004%
Proposed Project Percent of SJVAB	0.002%	0.002%	0.001%
Fresno County Percent of SJVAB	19.60%	20.50%	24.49%

As shown above, the proposed Project would pose an inconsequential impact on regional O_3 and PM_{10} formation. Therefore, this Project would not be considered cumulatively considerable in its contribution to regional O_3 and PM_{10} impacts.

5.2 - Cumulative Local Air Quality Impacts

SJVAPCD uses a single threshold for the determination of significance for both project-specific and cumulative impacts. Air quality in SJVAB has improved over the past decades, as shown in Section 3.3, which indicates that the single threshold is sufficient for assessing cumulative impacts. The proposed Project would generate less-than-significant impacts for criteria air pollutants; therefore, the Project's incremental contribution to cumulative air quality impacts would not be cumulatively considerable (CEQA Guidelines Section 15064(h)(3); (SJVAPCD, 2015).

5.3 - Cumulative Hazardous Air Pollutants

The GAMAQI also states that when evaluating potential impacts related to HAPs, "*impacts of local pollutants (CO, HAPs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects will exceed air quality standards*." Because the Project would not be a significant source of HAPs, the proposed Project would also *not be expected to pose a significant cumulative CO or HAPs impact*.

5.4 - Cumulative Carbon Monoxide (CO) – Mobile Sources

The SJVAPCD's GAMAQI has identified CO impacts from impacted traffic intersections and roadway segments as being potentially cumulatively considerable. Traffic increases and added congestion caused by a project can combine to cause a violation of the SJVAPCD's CO standard, also known as a "hotspot." There are two criteria established by the GAMAQI by which CO "hotspot" modeling is required:

1. A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity would be reduced to LOS E or F.

2. A traffic study indicates that the project would substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

A traffic study was completed for this Project (Ruettgers & Schuler, 2025). According to the traffic study, impacted intersections and roadway segments are anticipated to operate at a LOS of C or better. Therefore, CO "hotspot" modeling was not conducted for this Project, and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

SECTION 6 - CONSISTENCY WITH THE AIR QUALITY ATTAINMENT PLAN

Air quality impacts from proposed projects within Fresno County are controlled through policies and provisions of the SJVAPCD and the Fresno County General Plan (FCDPWP, 2024). In order to demonstrate that a proposed project would not cause further air quality degradation in either the SJVAPCD's plan to improve air quality within the air basin or the federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the SJVAPCD's adopted Air Quality Attainment Plans (AQAP) for O_3 and PM_{10}. The SJVAPCD is required to submit a "Rate of Progress" document to CARB that demonstrates past and planned progress toward reaching attainment for all criteria pollutants. The California Clean Air Act (CCAA) requires air pollution control districts with severe or extreme air quality problems to provide for a five percent reduction in non-attainment emissions per year. The AQAP prepared for the San Joaquin Valley by the SJVAPCD complies with this requirement. CARB reviews, approves, or amends the document and forwards the plan to the EPA for final review and approval within the SIP.

Air pollution sources associated with stationary sources are regulated through the permitting authority of the SJVAPCD under the New and Modified Stationary Source Review Rule (SJVAPCD Rule 2201). Owners of any new or modified equipment that emits, reduces, or controls air contaminants, except those specifically exempted by the SJVAPCD, are required to apply for an Authority to Construct and Permit to Operate (SJVAPCD Rule 2010). Additionally, best available control technology (BACT) is required on specific types of stationary equipment and is required to offset both stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (SJVAPCD Rule 2201, 4.7.1). Through this mechanism, the SJVAPCD would ensure that all stationary sources within the project area would be subject to the standards of the SJVAPCD to ensure that new developments do not result in net increases in stationary sources of criteria air pollutants.

6.1 - Required Evaluation Guidelines

CEQA Guidelines and the Federal Clean Air Act (Sections 176 and 316) contain specific references on the need to evaluate consistency between a proposed project and the applicable AQAP for the Project site. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQAP:

1. Determination that an AQAP is being implemented in the area where the project is being proposed. The SJVAPCD has implemented the current, modified AQAP as approved by CARB.
2. The proposed project must be consistent with the growth assumptions of the applicable AQAP. The proposed Project is included in the employment increases projected in the Fresno County General Plan.
3. The project must contain in its design all reasonably available and feasible air quality control measures. The proposed Project incorporates various policy and rule-required implementation measures that will reduce related emissions.

The CCAA and AQAP identify transportation control measures as methods to further reduce emissions from mobile sources. Strategies identified to reduce vehicular emissions such as reductions in vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion, in order to reduce vehicular emissions, can be implemented as control measures under the CCAA as well. Additional measures may also be implemented through the building process, such as providing electrical outlets on exterior walls of structures to encourage the use of electrical landscape maintenance equipment or measures such as electrical outlets for electrical systems on diesel trucks to reduce or eliminate idling time.

The growth represented by the proposed Project was not anticipated by the Fresno County General Plan and incorporated into the AQAP, therefore, the General Plan will require an update, however, conclusions may be drawn from the following criteria:

1. That, by definition, the proposed emissions from the Project are below the SJVAPCD's established emissions impact thresholds.
2. That the primary source of emissions from the Project would be motor vehicles which would be licensed through the State of California and whose emissions are already incorporated into the CARB's Eastern Fresno County's Emissions Inventory.

Based on these factors, the Project *is consistent with the AQAP*.

6.2 - Consistency with the Fresno Council of Government's Regional Conformity Analysis

The Fresno Council of Governments (FresnoCOG) Conformity Analysis Determination demonstrates that the federal and regional transportation plans in Fresno County portion of the San Joaquin Valley air quality attainment areas would not hinder the efforts set out in the CARB's SIP for each area's non-attainment pollutants (CO, O_3, and PM_{10}). The analysis uses an adopted regional growth forecast prepared by Applied Development Economics (ADE) which was commissioned by FresnoCOG to update these forecasts.

The FresnoCOG Regional Conformity Analysis considers General Plan Amendments (GPA) and zone changes that were enacted at the time of the analysis as projected growth within the area based on land use designations incorporated within the Fresno County General Plan. Land use designations that are altered based on subsequent GPAs that were not included in the Regional Conformity Analysis were not incorporated into the FresnoCOG analysis. Consequently, if a proposed project is not included in the regional growth forecast using the latest planning assumptions, it may not be said to conform to the regional growth forecast.

Under the current City of Reedley Zoning, the Project site is designated as Low Density Residential (4-8 dwelling units per acre [du/acre]) and High Density Residential (15-29 du/acre) pursuant to the Reedley 2030 General Plan. The site is zoned Limited Agricultural (AL-20) according to the County of Fresno zoning map (see **Error! Reference source not found.**).

Under current policies, only after a GPA is approved, can housing and employment assumptions be updated to reflect the capacity changes. The proposed development does require a zone change; therefore, the existing growth forecast will need to be modified to reflect these changes.



Figure 6-1
Fresno County Zoning

SECTION 7 - MITIGATION AND OTHER RECOMMENDED MEASURES

The estimated construction and operational emissions from the proposed Project would be less than significant after the specific mitigation measures listed below. However, to ensure that the Project is in compliance with all applicable SJVAPCD rules and regulations and that emissions are further reduced, the applicant should implement and comply with a number of measures that are either recommended as a "good operating practice" for environmental stewardship, or they are required by regulation. Some of the listed measures are regulatory requirements or construction requirements that would result in further emission reductions through their inclusion in Project construction and long-term design. The following measures either have been applied to the Project through the CalEEMod model and would be incorporated into the Project by design or would be implemented in conjunction with SJVAPCD rules as conditions of approval.

7.1 - Applicable PM_{10} Reduction Measures

As the Project would be completed in compliance with SJVAPCD Regulation VIII, dust control measures would be taken to ensure compliance, specifically during the grading and construction phases. The required Regulation VIII measures are as follows:

- Water previously exposed surfaces (soil) whenever visible dust is capable of drifting from the site or approaches 20 percent opacity.
- Water all unpaved haul roads a minimum of three times/day or whenever visible dust from such roads is capable of drifting from the site or approaches 20 percent opacity.
- Reduce speed on unpaved roads to less than 15 miles per hour.
- Install and maintain a track-out control device that meets the specifications of SJVAPCD Rule 8041 if the site exceeds 150 vehicle trips per day or more than 20 vehicle trips per day by vehicles with three or more axles.
- Stabilize all disturbed areas, including storage piles, which are not being actively utilized for production purposes using water, chemical stabilizers, or by covering with a tarp or other suitable cover.
- Control fugitive dust emissions during land clearing, grubbing, scraping, excavation, leveling, grading, or cut and fill operations with application of water or by presoaking.
- When transporting materials offsite, maintain a freeboard limit of at least 6 inches and cover or effectively wet to limit visible dust emissions.
- Limit and remove the accumulation of mud and/or dirt from adjacent public roadways at the end of each workday. (Use of dry rotary brushes is prohibited except when preceded or accompanied by sufficient wetting to limit visible dust emissions, and use of blowers is expressly forbidden.)
- Stabilize the surface of storage piles following the addition or removal of materials using water or chemical stabilizer/suppressants.
- Remove visible track-out from the site at the end of each workday.
- Cease grading or other activities that cause excessive (greater than 20 percent opacity) dust formation during periods of high winds (greater than 20 mph over a one-hour period).

7.2 - Recommended Measures to Reduce Equipment Exhaust

In addition, the GAMAQI guidance document lists the following measures as approved and recommended for construction activities. These measures are recommended:

- Maintain all construction equipment as recommended by manufacturer manuals.
- Shut down equipment when not in use for extended periods.
- Construction equipment shall operate no longer than eight cumulative hours per day.
- Use electric equipment for construction whenever possible in lieu of diesel or gasoline powered equipment.
- Curtail use of high-emitting construction equipment during periods of high or excessive ambient pollutant concentrations.
- All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOx emissions.
- On-road and Off-road diesel equipment shall use diesel particulate filters if permitted under the manufacturer's guidelines.
- On-road and Off-road diesel equipment shall use cooled exhaust gas recirculation (EGR) if permitted under the manufacturer's guidelines.
- All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.

7.3 - Recommended Measures to Reduce Equipment Exhaust

The following measures are recommended to further reduce the potential for long-term emissions from the Project. These measures are required as a matter of regulatory compliance:

- The Project design shall comply with applicable standards set forth in Title 24 of the Uniform Building Code to minimize total consumption of energy.
- The developer shall comply with the provisions of SJVAPCD Rule 4601 - Architectural Coatings, during the construction of all buildings and facilities. Application of architectural coatings shall be completed in a manner that poses the least emissions impacts whenever such application is deemed proficient.
- The applicant shall comply with the provisions of SJVAPCD Rule 4641 during the construction and pavement of all roads and parking areas within the project area. Specifically, the applicant shall not allow the use of:
  - Rapid cure cutback asphalt.
  - Medium cure cutback asphalt.
  - Slow cure cutback asphalt (as specified in SJVAPCD Rule 4641, Section 5.1.3); or Emulsified asphalt (as specified in SJVAPCD Rule 4641, Section 5.1.4).
  - The developer shall comply with applicable provisions of SJVAPCD Rule 9510 (Indirect Source Review).

SECTION 8 - LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project would have short-term air quality impacts due to construction activities as well as vehicular emissions. Both of these impacts would be mitigated and *were found to be less than significant before and after mitigation*.

The proposed Project would result in long-term air quality impacts due to operational and related mobile source emissions. These impacts would be mitigated and were found to *be less than significant before and after mitigation*.

The proposed Project would result in impacts to greenhouse gases and climate change due to construction and operational emissions. These impacts *were found to be less than significant*.

The proposed Project, in conjunction with other past, present, and foreseeable future projects, would result in cumulative short-term and long-term impacts to air quality. The proposed Project's incremental contribution to these impacts would be mitigated below thresholds of significance and would not be considered cumulatively considerable. Therefore, the Project's contribution to cumulative impacts *was found to be less than significant*.

The proposed Project, in conjunction with other past, present, and foreseeable future projects, would result in cumulative long-term impacts to global climate change. Given the cumulative nature of the energy industry and given consumers of electricity and diesel fuel are in effect regulated by higher level emissions restrictions on the producers of these energy sources, the proposed Project's incremental contribution to these impacts will be mitigated to the extent feasible and are considered *less than significant*.

SECTION 9 - REFERENCES

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APPENDIX A

EXISTING AIR QUALITY MONITORING DATA

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Fresno-Drummond Street

	2021		2022		2023	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jun 18	*0.125*	Aug 16	0.111	Jul 15	0.102
Second High:	Aug 30	0.113	Sep 8	0.098	Jul 2	0.098
Third High:	Aug 28	0.106	Sep 3	0.097	Sep 15	0.097
Fourth High:	Jun 17	0.103	Sep 24	0.090	Apr 28	0.094
California:						
# Days Above the Standard:		9		3		3
California Designation Value:		0.11		0.11		0.11
Expected Peak Day Concentration:		0.110		0.109		0.105
National:						
# Days Above the Standard:		*1*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*0.3*		*0.3*		*0.3*
1-Year Estimated Expected Number of Exceedance Days:		*1.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*0.113*		*0.111*		*0.106*
Year Coverage:		93		97		97

Notes:

Hourly ozone measurements and related statistics are available at Fresno-Drummond Street between 1984 and 2023. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Fresno-Garland

	2021		2022		2023	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Aug 30	0.112	Aug 16	0.096	Jul 22	0.101
Second High:	Jun 19	0.108	Sep 8	0.096	Jun 30	0.095
Third High:	Aug 29	0.102	Sep 3	0.090	Jul 23	0.095
Fourth High:	Aug 28	0.097	Sep 2	0.086	Jul 15	0.094
California:						
# Days Above the Standard:	6		2		3	
California Designation Value:	0.11		0.11		0.10	
Expected Peak Day Concentration:	0.107		0.107		0.101	
National:						
# Days Above the Standard:	*0*		*0*		*0*	
3-Year Estimated Expected Number of Exceedance Days:	*0.0*		*0.0*		*0.0*	
1-Year Estimated Expected Number of Exceedance Days:	*0.0*		*0.0*		*0.0*	
Nat'l Standard Design Value:	*0.112*		*0.112*		*0.101*	
Year Coverage:	99		99		98	

Notes:

Hourly ozone measurements and related statistics are available at Fresno-Garland between 2012 and 2023. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Clovis-N Villa Avenue

	2021		2022		2023	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Aug 30	0.123	Sep 2	0.109	Jun 30	0.102
Second High:	Aug 29	0.119	Sep 4	0.101	Jul 15	0.102
Third High:	Aug 28	0.113	Aug 19	0.095	Jul 23	0.098
Fourth High:	Jun 19	0.111	Jun 24	0.094	Jul 22	0.094
California:						
# Days Above the Standard:	9		3		3	
California Designation Value:	0.11		0.11		0.11	
Expected Peak Day Concentration:	0.113		0.114		0.108	
National:						
# Days Above the Standard:	*0*		*0*		*0*	
3-Year Estimated Expected Number of Exceedance Days:	*0.7*		*0.7*		*0.0*	
1-Year Estimated Expected Number of Exceedance Days:	*0.0*		*0.0*		*0.0*	
Nat'l Standard Design Value:	*0.119*		*0.119*		*0.111*	
Year Coverage:	97		97		96	

Notes:

Hourly ozone measurements and related statistics are available at Clovis-N Villa Avenue between 1990 and 2023. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Fresno-Drummond Street

	2021		2022		2023	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jun 18	0.099	Aug 16	0.089	Jul 2	0.088
Second High:	Aug 28	0.099	Sep 8	0.081	Jul 15	0.086
Third High:	Jun 19	0.093	Sep 3	0.078	Jul 1	0.083
Fourth High:	Aug 29	0.088	Sep 24	0.076	Apr 28	0.082
California Std (0.070 ppm):						
First High:	Jun 18	0.100	Aug 16	0.089	Jul 2	0.088
Second High:	Aug 28	0.099	Sep 8	0.082	Jul 15	0.087
Third High:	Jun 19	0.093	Sep 3	0.078	Jul 1	0.083
Fourth High:	Aug 30	0.089	Sep 24	0.076	Apr 28	0.082
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		39		8		20
Nat'l Standard Design Value:		0.082		0.083		0.082
National Year Coverage:		95		99		98
California Std (0.070 ppm):						
# Days Above the Standard:		41		8		24
California Designation Value:		0.093		0.093		0.089
Expected Peak Day Concentration:		0.095		0.095		0.092
California Year Coverage:		93		96		96

Notes:

Eight-hour ozone averages and related statistics are available at Fresno-Drummond Street between 1984 and 2023. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Fresno-Garland

	2021		2022		2023	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Aug 28	0.093	Aug 16	0.083	Jul 23	0.084
Second High:	Aug 29	0.087	Sep 8	0.080	Jul 2	0.082
Third High:	Jun 19	0.086	Sep 2	0.077	Jun 30	0.080
Fourth High:	Aug 30	0.086	Sep 3	0.073	Jul 16	0.080
California Std (0.070 ppm):						
First High:	Aug 28	0.093	Aug 16	0.083	Jul 23	0.084
Second High:	Aug 29	0.087	Sep 8	0.080	Jul 2	0.082
Third High:	Aug 30	0.087	Sep 2	0.078	Jun 30	0.081
Fourth High:	Jun 19	0.086	Sep 3	0.073	Jul 16	0.081
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		18		10		15
Nat'l Standard Design Value:		0.084		0.083		0.079
National Year Coverage:		100		99		99
California Std (0.070 ppm):						
# Days Above the Standard:		22		10		17
California Designation Value:		0.092		0.090		0.087
Expected Peak Day Concentration:		0.092		0.091		0.088
California Year Coverage:		99		99		97

Notes:

Eight-hour ozone averages and related statistics are available at Fresno-Garland between 2012 and 2023. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Clovis-N Villa Avenue

iADAM

	2021		2022		2023	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Aug 28	0.100	Aug 16	0.084	Jul 23	0.083
Second High:	Aug 29	0.091	Sep 2	0.083	Jul 15	0.082
Third High:	Aug 30	0.090	Sep 6	0.080	Jun 30	0.081
Fourth High:	Jun 19	0.085	Sep 8	0.080	Jul 2	0.081
California Std (0.070 ppm):						
First High:	Aug 28	0.100	Aug 16	0.084	Jul 23	0.084
Second High:	Aug 29	0.092	Sep 2	0.083	Jul 15	0.082
Third High:	Aug 30	0.090	Sep 6	0.080	Oct 7	0.082
Fourth High:	Jun 19	0.086	Sep 8	0.080	Jun 30	0.081
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		34		23		21
Nat'l Standard Design Value:		0.083		0.084		0.082
National Year Coverage:		99		98		97
California Std (0.070 ppm):						
# Days Above the Standard:		37		26		23
California Designation Value:		0.095		0.095		0.092
Expected Peak Day Concentration:		0.096		0.096		0.093
California Year Coverage:		97		97		93

Notes:

Eight-hour ozone averages and related statistics are available at Clovis-N Villa Avenue between 1990 and 2023. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Fresno-Drummond Street

	2021		2022		2023	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Dec 1	64.5	Feb 11	58.3	Oct 31	58.1
Second High:	Oct 15	58.0	Nov 25	56.2	Dec 15	54.7
Third High:	Nov 30	57.2	Nov 24	56.0	Oct 19	52.6
Fourth High:	Mar 4	55.1	Feb 18	54.5	Dec 13	52.5
California:						
First High:	Dec 1	64	Feb 11	58	Oct 31	58
Second High:	Oct 15	58	Nov 24	56	Dec 15	54
Third High:	Nov 30	57	Nov 25	56	Oct 19	52
Fourth High:	Mar 4	55	Feb 10	54	Dec 13	52
National:						
1-Hour Standard Design Value:	*		52		51	
1-Hour Standard 98th Percentile:	49.7		52.0		50.8	
# Days Above the Standard:	0		0		0	
Annual Standard Design Value:	11		12		10	
California:						
1-Hour Std Designation Value:	70		70		60	
Expected Peak Day Concentration:	66		65		63	
# Days Above the Standard:	0		0		0	
Annual Std Designation Value:	11		12		12	
Annual Average:	11		12		10	
Year Coverage:	93		99		97	

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Fresno-Drummond Street between 1984 and 2023. Some years in this range may not be represented.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Fresno-Garland

iADAM

	2021		2022		2023	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Dec 1	56.3	Nov 25	54.7	Dec 13	47.9
Second High:	Oct 16	48.1	Nov 23	46.6	Dec 15	47.2
Third High:	Oct 4	46.6	Nov 26	44.5	Dec 14	45.2
Fourth High:	Sep 24	45.6	Nov 24	44.1	Dec 16	42.9
California:						
First High:	Dec 1	56	Nov 25	54	Dec 13	47
Second High:	Oct 16	48	Nov 23	46	Dec 15	47
Third High:	Oct 4	46	Oct 19	44	Dec 14	45
Fourth High:	Sep 24	45	Nov 24	44	Nov 13	42
National:						
1-Hour Standard Design Value:		46		44		42
1-Hour Standard 98th Percentile:		43.7		41.0		40.6
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		8		8		8
California:						
1-Hour Std Designation Value:		60		60		50
Expected Peak Day Concentration:		56		55		50
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		9		9		8
Annual Average:		8		*		7
Year Coverage:		99		83		94

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Fresno-Garland between 2012 and 2023. Some years in this range may not be represented.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Clovis-N Villa Avenue

	2021		2022		2023	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Dec 1	49.4	Nov 23	51.8	Dec 13	47.9
Second High:	Nov 30	46.1	Nov 25	51.2	Dec 14	46.8
Third High:	Oct 1	43.5	Nov 26	45.9	Nov 14	46.6
Fourth High:	Jan 21	42.5	Nov 22	44.8	Nov 3	46.4
California:						
First High:	Dec 1	49	Nov 23	51	Dec 13	47
Second High:	Nov 30	46	Nov 25	51	Nov 3	46
Third High:	Oct 1	43	Nov 26	45	Nov 14	46
Fourth High:	Jan 21	42	Nov 22	44	Dec 14	46
National:						
1-Hour Standard Design Value:		46		43		41
1-Hour Standard 98th Percentile:		38.1		43.2		42.1
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		8		9		8
California:						
1-Hour Std Designation Value:		60		50		50
Expected Peak Day Concentration:		58		54		51
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		9		9		8
Annual Average:		7		8		7
Year Coverage:		99		96		96

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Clovis-N Villa Avenue between 1990 and 2023. Some years in this range may not be represented.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Fresno-Drummond Street

	2021		2022		2023	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Sep 25	151.8	Feb 10	73.4	Oct 19	131.1
Second High:	Aug 20	147.7	Jan 29	68.9	Oct 20	127.2
Third High:	Oct 1	129.7	Feb 4	54.9	Oct 7	121.3
Fourth High:	Sep 7	128.1	Jan 17	54.6	Oct 5	118.3
California:						
First High:	Sep 25	149.8	Sep 9	166.5	Oct 19	130.0
Second High:	Aug 20	145.0	Sep 6	165.7	Oct 20	125.4
Third High:	Oct 1	129.2	Jun 22	147.9	Oct 7	119.4
Fourth High:	Sep 7	123.9	Sep 8	131.5	Oct 5	117.5
National:						
Estimated # Days > 24-Hr Std:		*		*		0.0
Measured # Days > 24-Hr Std:		0		0		0
3-Yr Avg Est # Days > 24-Hr Std:		*		*		*
Annual Average:		*43.8*		*31.2*		*42.7*
3-Year Average:		*48*		*45*		*
California:						
Estimated # Days > 24-Hr Std:		*		*		*
Measured # Days > 24-Hr Std:		20		133		120
Annual Average:		*		*		*
3-Year Maximum Annual Average:		40		*		*
Year Coverage:		93		10		0

Notes:

Daily PM10 averages and related statistics are available at Fresno-Drummond Street between 1989 and 2023. Some years in this range may not be represented.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Fresno-Garland

	2021		2022		2023	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Oct 11	281.0	Sep 9	116.1	Oct 20	109.3
Second High:	Oct 3	143.1	Sep 2	105.6	Oct 19	102.3
Third High:	Sep 25	138.3	Sep 6	103.0	Nov 3	81.8
Fourth High:	Aug 20	131.1	Sep 1	95.9	Dec 15	81.4
California:						
First High:	Oct 11	283.3	Sep 9	109.2	Oct 20	107.8
Second High:	Oct 3	143.0	Sep 2	100.0	Oct 19	101.7
Third High:	Sep 25	135.7	Sep 6	97.2	Dec 15	85.9
Fourth High:	Oct 4	129.4	Sep 1	91.5	Dec 14	84.8
National:						
Estimated # Days > 24-Hr Std:		1.0		0.0		0.0
Measured # Days > 24-Hr Std:		1		0		0
3-Yr Avg Est # Days > 24-Hr Std:		6.0		5.0		0.0
Annual Average:		*41.4*		*37.2*		*32.3*
3-Year Average:		*41*		*42*		*37*
California:						
Estimated # Days > 24-Hr Std:		91.5		*		55.9
Measured # Days > 24-Hr Std:		91		73		54
Annual Average:		41.6		*		32.7
3-Year Maximum Annual Average:		48		48		42
Year Coverage:		0		0		0

Notes:

Daily PM10 averages and related statistics are available at Fresno-Garland between 2012 and 2023. Some years in this range may not be represented.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Clovis-N Villa Avenue

	2021		2022		2023	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Aug 20	125.0	Sep 9	127.0	Oct 20	104.7
Second High:	Sep 25	124.7	Sep 2	119.5	Oct 19	89.1
Third High:	Oct 1	104.8	Sep 6	105.9	Oct 18	85.0
Fourth High:	Sep 7	98.7	Sep 8	96.3	Sep 22	75.9
California:						
First High:	Oct 11	208.8	Sep 9	120.0	Oct 20	103.1
Second High:	Aug 19	146.1	Sep 2	113.8	Oct 19	88.2
Third High:	Oct 4	144.7	Sep 6	100.5	Oct 18	84.4
Fourth High:	Oct 3	144.0	Oct 21	92.7	Sep 22	75.8
National:						
Estimated # Days > 24-Hr Std:		*		0.0		0.0
Measured # Days > 24-Hr Std:		0		0		0
3-Yr Avg Est # Days > 24-Hr Std:		*		5.0		0.0
Annual Average:		*37.6*		*35.5*		*30.3*
3-Year Average:		*39*		*43*		*36*
California:						
Estimated # Days > 24-Hr Std:		112.4		73.8		44.0
Measured # Days > 24-Hr Std:		111		73		44
Annual Average:		43.2		36.2		30.5
3-Year Maximum Annual Average:		51		51		43
Year Coverage:		95		0		0

Notes:

Daily PM10 averages and related statistics are available at Clovis-N Villa Avenue between 1991 and 2023. Some years in this range may not be represented.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Fresno-Garland

iADAM

	2021		2022		2023	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Oct 3	99.9	Jan 14	53.3	Dec 15	39.1
Second High:	Oct 4	74.3	Nov 25	49.8	Dec 14	38.2
Third High:	Aug 28	64.4	Nov 24	49.7	Dec 26	37.9
Fourth High:	Oct 5	63.2	Nov 27	44.8	Dec 16	36.6
California:						
First High:	Oct 3	99.9	Nov 25	53.5	Dec 14	42.7
Second High:	Oct 4	74.3	Jan 14	53.3	Dec 26	42.4
Third High:	Aug 28	64.4	Nov 24	49.7	Dec 15	39.1
Fourth High:	Oct 5	63.2	Nov 27	44.8	Dec 17	38.1

National:					
'06 Estimated # Days > 24-Hr Std:	30.3		13.7		4.1
'06 Measured # Days > 24-Hr Std:	30		13		4
2006 24-Hr Std Design Value:	58		61		43
2006 24-Hr Std 98th Percentile:	53.5		43.2		33.3
2006 Annual Std Design Value:	15.3		15.9		13.0
2006 Annual Average:	15.6		12.9		10.4
2012 Annual Std Design Value:	15.3		15.9		13.0
2012 Annual Average:	15.6		12.9		10.4
2024 Annual Std Design Value:	15.3		15.9		13.0
2024 Annual Average:	15.6		12.9		10.4
California:					
Annual Std Designation Value:	18		18		16

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Clovis-N Villa Avenue

iADAM

	2021		2022		2023	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Oct 3	104.6	Jan 14	41.9	Dec 26	34.7
Second High:	Oct 4	90.4	Jan 16	40.3	Sep 21	34.0
Third High:	Oct 5	66.3	Jan 15	35.9	Dec 14	30.5
Fourth High:	Oct 2	66.0	Jan 20	35.5	Dec 13	30.2
California:						
First High:	Oct 3	104.6	Jan 14	41.9	Dec 26	34.7
Second High:	Oct 4	90.4	Jan 16	40.3	Sep 21	34.0
Third High:	Oct 5	66.3	Jan 15	35.9	Dec 14	30.5
Fourth High:	Oct 2	66.0	Jan 20	35.5	Dec 13	30.2

National:					
'06 Estimated # Days > 24-Hr Std:	22.0		4.3		0.0
'06 Measured # Days > 24-Hr Std:	22		4		0
2006 24-Hr Std Design Value:	59		61		36
2006 24-Hr Std 98th Percentile:	49.6		32.9		24.0
2006 Annual Std Design Value:	*		14.7		11.4
2006 Annual Average:	15.1		10.5		8.5
2012 Annual Std Design Value:	14.6		14.7		11.4
2012 Annual Average:	15.1		10.5		8.5
2024 Annual Std Design Value:	14.6		14.7		11.4
2024 Annual Average:	15.1		10.5		8.5
California:					
Annual Std Designation Value:	18		18		11

Annual Average:	*		10.5		8.6
Year Coverage:	100		100		100

Notes:

Daily PM2.5 averages and related statistics are available at Clovis-N Villa Avenue between 1999 and 2023. Some years in this range may not be represented.

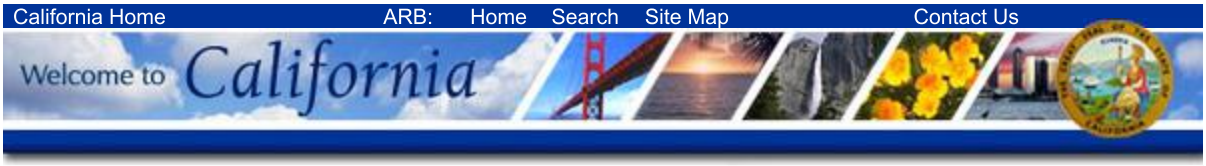
All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.



Air Resources Board

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Annual Toxics Summary

Fresno-Garland

Lead

nanograms per cubic meter

iADAM

FAQs

Read About Estimated Risk

Year	Months Present	Minimum	Median	Mean	90th Percentile	Maximum	Standard Deviation	Number of Observations	Detection Limit	Estimated Risk
2024	------########	0.7	2.2	*	4.4	6.5	1.52	13	0.4	*
2023	############	0.65	3.3	3.45	5.0	6.5	1.59	25	1.3	0.1
2022	#######------	0.65	3.6	*	9.4	42	11.2	12	1.3	*
2021	###---------##	0.65	2.2	*	4.0	6.8	1.60	17	1.3	*
2020	---###########	0.65	*	*	*	6.1	2.09	7	1.3	*
2019	############	0.65	2.3	3.17	6.6	10.3	2.48	29	1.3	0.1
2018	############	0.65	3.1	4.18	8.6	12.2	2.92	31	1.3	0.1
2017	###-#########	0.65	3.1	*	6.6	8.4	2.08	26	1.3	*
2016	############	0.65	3.0	3.71	5.7	12.1	2.47	31	1.3	0.1
2015	############	0.65	2.6	3.01	5.4	8.3	1.81	30	1.3	0.1
2014	############	0.85	3.0	3.93	8.0	12	3.09	30	1.7	0.1
2013	##----------	0.5	3.5	*	10.1	17	4.01	30	1.0	*
2012	############	0.75	2.6	3.17	6.2	16	3.29	29	1.5	0.1
2011	############	*	*	*	*	*	*	0	*	*
2010	############	*	*	*	*	*	*	0	*	*
2009	############	*	*	*	*	*	*	0	*	*
2008	############	*	*	*	*	*	*	0	*	*
2007	############	*	*	*	*	*	*	0	*	*
2006	############	*	*	*	*	*	*	0	*	*
2005	############	*	*	*	*	*	*	0	*	*
2004	############	*	*	*	*	*	*	0	*	*
2003	############	*	*	*	*	*	*	0	*	*
2002	############	*	*	*	*	*	*	0	*	*
2001	############	*	*	*	*	*	*	0	*	*
2000	############	*	*	*	*	*	*	0	*	*
1999	############	*	*	*	*	*	*	0	*	*
1998	############	*	*	*	*	*	*	0	*	*
1997	############	*	*	*	*	*	*	0	*	*
1996	############	*	*	*	*	*	*	0	*	*
1995	############	*	*	*	*	*	*	0	*	*
1994	############	*	*	*	*	*	*	0	*	*
1993	############	*	*	*	*	*	*	0	*	*
1992	############	*	*	*	*	*	*	0	*	*
1991	############	*	*	*	*	*	*	0	*	*
1990	############	*	*	*	*	*	*	0	*	*
1989	############	*	*	*	*	*	*	0	*	*

Graph It!

Toxics Statistics Home

Notes: Values below the Limit of Detection (LoD) assumed to be ½ LoD.
Means and risks shown only for years with data in all 12 months.
"*" means there was insufficient or no data available to determine the value.

Data Descriptions Page

APPENDIX B

PROJECT EMISSION CALCULATIONS

Westhaven II Detailed Report

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1.1. Basic Project Information

Data Field	Value
Project Name	Westhaven II
Construction Start Date	4/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.90
Precipitation (days)	31.4
Location	36.598929457338244, -119.42927985096745
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2511
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	153	Dwelling Unit	34.0	298,350	1,792,067	—	490	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	53.5	53.5	31.7	30.8	0.06	1.37	19.8	21.1	1.26	10.1	11.4	—	6,720	6,720	0.27	0.07	1.81	6,745
Mit.	53.5	53.5	31.7	30.8	0.06	1.37	7.76	9.13	1.26	3.96	5.22	—	6,720	6,720	0.27	0.07	1.81	6,745
% Reduced	—	—	—	—	—	—	61%	57%	—	61%	54%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	53.5	53.5	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
Mit.	53.5	53.5	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.78	5.68	8.38	10.5	0.02	0.35	2.32	2.67	0.32	1.03	1.35	—	2,078	2,078	0.08	0.05	0.50	2,094
Mit.	5.78	5.68	8.38	10.5	0.02	0.35	0.98	1.32	0.32	0.42	0.74	—	2,078	2,078	0.08	0.05	0.50	2,094

% Reduced	—	—	—	—	—	—	58%	51%	—	59%	45%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.05	1.04	1.53	1.91	< 0.005	0.06	0.42	0.49	0.06	0.19	0.25	—	344	344	0.01	0.01	0.08	347
Mit.	1.05	1.04	1.53	1.91	< 0.005	0.06	0.18	0.24	0.06	0.08	0.13	—	344	344	0.01	0.01	0.08	347
% Reduced	—	—	—	—	—	—	58%	51%	—	59%	45%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.02	3.39	31.7	30.8	0.06	1.37	19.8	21.1	1.26	10.1	11.4	—	6,720	6,720	0.27	0.07	1.81	6,745
2026	1.53	1.30	10.3	15.0	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,935	2,935	0.11	0.07	1.63	2,959
2027	53.5	53.5	9.82	14.8	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,924	2,924	0.11	0.06	1.46	2,947
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.59	1.34	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
2026	1.50	1.28	10.4	14.6	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,899	2,899	0.11	0.07	0.04	2,921
2027	53.5	53.5	9.86	14.5	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,888	2,888	0.11	0.06	0.04	2,910
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.13	0.96	8.38	9.30	0.02	0.35	2.32	2.67	0.32	1.03	1.35	—	1,917	1,917	0.08	0.03	0.25	1,927
2026	1.08	0.91	7.38	10.5	0.02	0.27	0.25	0.52	0.25	0.06	0.31	—	2,078	2,078	0.08	0.05	0.50	2,094
2027	5.78	5.68	4.54	6.72	0.01	0.16	0.15	0.31	0.15	0.04	0.18	—	1,288	1,288	0.05	0.03	0.26	1,298
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.21	0.17	1.53	1.70	< 0.005	0.06	0.42	0.49	0.06	0.19	0.25	—	317	317	0.01	< 0.005	0.04	319

2026	0.20	0.17	1.35	1.91	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	344	344	0.01	0.01	0.08	347
2027	1.05	1.04	0.83	1.23	< 0.005	0.03	0.03	0.06	0.03	0.01	0.03	—	213	213	0.01	< 0.005	0.04	215

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.02	3.39	31.7	30.8	0.06	1.37	7.76	9.13	1.26	3.96	5.22	—	6,720	6,720	0.27	0.07	1.81	6,745
2026	1.53	1.30	10.3	15.0	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,935	2,935	0.11	0.07	1.63	2,959
2027	53.5	53.5	9.82	14.8	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,924	2,924	0.11	0.06	1.46	2,947
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.59	1.34	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
2026	1.50	1.28	10.4	14.6	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,899	2,899	0.11	0.07	0.04	2,921
2027	53.5	53.5	9.86	14.5	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,888	2,888	0.11	0.06	0.04	2,910
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.13	0.96	8.38	9.30	0.02	0.35	0.98	1.32	0.32	0.42	0.74	—	1,917	1,917	0.08	0.03	0.25	1,927
2026	1.08	0.91	7.38	10.5	0.02	0.27	0.25	0.52	0.25	0.06	0.31	—	2,078	2,078	0.08	0.05	0.50	2,094
2027	5.78	5.68	4.54	6.72	0.01	0.16	0.15	0.31	0.15	0.04	0.18	—	1,288	1,288	0.05	0.03	0.26	1,298
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.21	0.17	1.53	1.70	< 0.005	0.06	0.18	0.24	0.06	0.08	0.13	—	317	317	0.01	< 0.005	0.04	319
2026	0.20	0.17	1.35	1.91	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	344	344	0.01	0.01	0.08	347
2027	1.05	1.04	0.83	1.23	< 0.005	0.03	0.03	0.06	0.03	0.01	0.03	—	213	213	0.01	< 0.005	0.04	215

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13.0	12.5	4.70	42.6	0.08	0.17	5.80	5.97	0.16	1.47	1.63	85.1	9,616	9,701	9.25	0.38	24.4	10,070
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.5	11.1	5.12	29.8	0.07	0.16	5.80	5.96	0.16	1.47	1.63	85.1	8,938	9,023	9.32	0.41	2.71	9,381
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.9	11.5	4.82	33.1	0.07	0.17	5.55	5.72	0.16	1.40	1.57	85.1	8,992	9,077	9.27	0.39	11.5	9,436
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.17	2.09	0.88	6.04	0.01	0.03	1.01	1.04	0.03	0.26	0.29	14.1	1,489	1,503	1.54	0.06	1.91	1,562

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Area	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	13.0	12.5	4.70	42.6	0.08	0.17	5.80	5.97	0.16	1.47	1.63	85.1	9,616	9,701	9.25	0.38	24.4	10,070

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Area	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	11.5	11.1	5.12	29.8	0.07	0.16	5.80	5.96	0.16	1.47	1.63	85.1	8,938	9,023	9.32	0.41	2.71	9,381
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.44	4.09	3.28	28.2	0.06	0.04	5.55	5.59	0.04	1.40	1.44	—	6,219	6,219	0.43	0.34	9.40	6,340
Area	7.30	7.28	0.04	4.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.4	11.4	< 0.005	< 0.005	—	11.5
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	11.9	11.5	4.82	33.1	0.07	0.17	5.55	5.72	0.16	1.40	1.57	85.1	8,992	9,077	9.27	0.39	11.5	9,436
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Area	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90
Energy	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	448	448	0.05	< 0.005	—	450
Water	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Waste	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	2.17	2.09	0.88	6.04	0.01	0.03	1.01	1.04	0.03	0.26	0.29	14.1	1,489	1,503	1.54	0.06	1.91	1,562

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Area	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	13.0	12.5	4.70	42.6	0.08	0.17	5.80	5.97	0.16	1.47	1.63	85.1	9,616	9,701	9.25	0.38	24.4	10,070
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Area	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	11.5	11.1	5.12	29.8	0.07	0.16	5.80	5.96	0.16	1.47	1.63	85.1	8,938	9,023	9.32	0.41	2.71	9,381
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.44	4.09	3.28	28.2	0.06	0.04	5.55	5.59	0.04	1.40	1.44	—	6,219	6,219	0.43	0.34	9.40	6,340
Area	7.30	7.28	0.04	4.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.4	11.4	< 0.005	< 0.005	—	11.5
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14

Total	11.9	11.5	4.82	33.1	0.07	0.17	5.55	5.72	0.16	1.40	1.57	85.1	8,992	9,077	9.27	0.39	11.5	9,436
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Area	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90
Energy	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	448	448	0.05	< 0.005	—	450
Water	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Waste	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	2.17	2.09	0.88	6.04	0.01	0.03	1.01	1.04	0.03	0.26	0.29	14.1	1,489	1,503	1.54	0.06	1.91	1,562

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.73	1.65	< 0.005	0.07	—	0.07	0.07	—	0.07	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	1.08	1.08	—	0.55	0.55	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.04	0.65	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	< 0.005	< 0.005	0.40	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.34	5.34	< 0.005	< 0.005	0.01	5.43

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.88	0.88	< 0.005	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.73	1.65	< 0.005	0.07	—	0.07	0.07	—	0.07	—	290	290	0.01	< 0.005	—	291

Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.04	0.65	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	< 0.005	< 0.005	0.40	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.34	5.34	< 0.005	< 0.005	0.01	5.43
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.88	0.88	< 0.005	< 0.005	< 0.005	0.90

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.66	3.49	0.01	0.15	—	0.15	0.14	—	0.14	—	814	814	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	1.13	1.13	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.67	0.64	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.05	0.74	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.45	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.02	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.66	3.49	0.01	0.15	—	0.15	0.14	—	0.14	—	814	814	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	0.44	0.44	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.67	0.64	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135

Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.05	0.74	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.45	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.02	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.84	3.55	0.01	0.12	—	0.12	0.11	—	0.11	—	652	652	0.03	0.01	—	654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.25	0.24	0.13	2.05	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	334	334	0.01	0.01	1.25	340
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	215	215	0.01	0.03	0.56	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.15	1.66	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	296	296	0.01	0.01	0.03	301
Vendor	0.02	0.01	0.37	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	216	216	0.01	0.03	0.01	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.46	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.5	83.5	< 0.005	< 0.005	0.15	84.9
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	58.6	58.6	< 0.005	0.01	0.07	61.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.70	9.70	< 0.005	< 0.005	0.01	10.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.84	3.55	0.01	0.12	—	0.12	0.11	—	0.11	—	652	652	0.03	0.01	—	654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.13	2.05	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	334	334	0.01	0.01	1.25	340
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	215	215	0.01	0.03	0.56	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.22	0.21	0.15	1.66	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	296	296	0.01	0.01	0.03	301
Vendor	0.02	0.01	0.37	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	216	216	0.01	0.03	0.01	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.46	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.5	83.5	< 0.005	< 0.005	0.15	84.9
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	58.6	58.6	< 0.005	0.01	0.07	61.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.70	9.70	< 0.005	< 0.005	0.01	10.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.22	0.11	1.89	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	327	327	0.01	0.01	1.14	333
Vendor	0.02	0.01	0.33	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	211	211	0.01	0.03	0.49	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.14	1.53	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	290	290	0.01	0.01	0.03	295
Vendor	0.02	0.01	0.36	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	212	212	0.01	0.03	0.01	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.09	1.11	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	215	215	0.01	0.01	0.35	218
Vendor	0.01	0.01	0.25	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	151	151	< 0.005	0.02	0.15	158
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.6	35.6	< 0.005	< 0.005	0.06	36.1
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.0	25.0	< 0.005	< 0.005	0.03	26.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.22	0.11	1.89	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	327	327	0.01	0.01	1.14	333
Vendor	0.02	0.01	0.33	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	211	211	0.01	0.03	0.49	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.14	1.53	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	290	290	0.01	0.01	0.03	295
Vendor	0.02	0.01	0.36	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	212	212	0.01	0.03	0.01	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.09	1.11	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	215	215	0.01	0.01	0.35	218
Vendor	0.01	0.01	0.25	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	151	151	< 0.005	0.02	0.15	158
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.03	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.6	35.6	< 0.005	< 0.005	0.06	36.1
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.0	25.0	< 0.005	< 0.005	0.03	26.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	3.62	4.99	0.01	0.13	—	0.13	0.12	—	0.12	—	924	924	0.04	0.01	—	927
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.66	0.91	< 0.005	0.02	—	0.02	0.02	—	0.02	—	153	153	0.01	< 0.005	—	154
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.10	1.74	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	320	320	0.01	0.01	1.03	325
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.43	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.13	1.41	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	284	284	0.01	0.01	0.03	289
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.01	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.55	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	< 0.005	0.01	0.17	115
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	79.7	79.7	< 0.005	0.01	0.07	83.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.8	18.8	< 0.005	< 0.005	0.03	19.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	3.62	4.99	0.01	0.13	—	0.13	0.12	—	0.12	—	924	924	0.04	0.01	—	927
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.66	0.91	< 0.005	0.02	—	0.02	0.02	—	0.02	—	153	153	0.01	< 0.005	—	154
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.10	1.74	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	320	320	0.01	0.01	1.03	325
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.43	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.13	1.41	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	284	284	0.01	0.01	0.03	289
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.01	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.55	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	< 0.005	0.01	0.17	115
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	79.7	79.7	< 0.005	0.01	0.07	83.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.8	18.8	< 0.005	< 0.005	0.03	19.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.03	0.47	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	87.2	87.2	< 0.005	< 0.005	0.28	88.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.69	7.69	< 0.005	< 0.005	0.01	7.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.03	0.47	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	87.2	87.2	< 0.005	< 0.005	0.28	88.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.69	7.69	< 0.005	< 0.005	0.01	7.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8

Architectural Coating	5.12	5.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	0.93	0.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.35	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	64.0	64.0	< 0.005	< 0.005	0.21	65.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.9	56.9	< 0.005	< 0.005	0.01	57.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	0.01	5.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Architectural Coating (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	5.12	5.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	0.93	0.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.35	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	64.0	64.0	< 0.005	< 0.005	0.21	65.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.9	56.9	< 0.005	< 0.005	0.01	57.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	0.01	5.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Total	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297

Total	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Total	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Total	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Total	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Total	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134
Total	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807

Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134
Total	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317
Total	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317
Total	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.81	0.77	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.2	23.2	< 0.005	< 0.005	—	23.3
Total	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Products	1.17	1.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.89	1.89	< 0.005	< 0.005	—	1.90
Total	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.81	0.77	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.2	23.2	< 0.005	< 0.005	—	23.3
Total	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	1.17	1.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.89	1.89	< 0.005	< 0.005	—	1.90
Total	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Total	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Total	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5

Total	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5
Total	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	5/14/2025	6/11/2025	5.00	20.0	—
Grading	Grading	6/12/2025	8/14/2025	5.00	45.0	—
Building Construction	Building Construction	8/15/2025	7/16/2027	5.00	500	—
Paving	Paving	7/17/2027	9/4/2027	5.00	35.0	—
Architectural Coating	Architectural Coating	9/5/2027	10/24/2027	5.00	35.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	55.1	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	16.4	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.0	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	55.1	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	16.4	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.0	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	604,159	201,386	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	30.0	0.00	—
Grading	—	—	135	0.00	—
Paving	0.00	0.00	0.00	0.00	1.69

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.69	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

2027	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,444	1,460	1,308	520,874	8,184	8,270	7,412	2,951,279

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,444	1,460	1,308	520,874	8,184	8,270	7,412	2,951,279

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	176
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0

Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	176
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
604158.75	201,386	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,430,027	204	0.0330	0.0040	5,953,585

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,430,027	204	0.0330	0.0040	5,953,585

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,165,288	30,066,767

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,165,288	30,066,767

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	136	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	136	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	30.1	annual days of extreme heat
Extreme Precipitation	1.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	91.1
AQ-PM	94.4
AQ-DPM	13.4
Drinking Water	97.2
Lead Risk Housing	45.4
Pesticides	94.3
Toxic Releases	45.8
Traffic	3.85
Effect Indicators	—
CleanUp Sites	50.3
Groundwater	25.1

Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	23.9
Solid Waste	63.7
Sensitive Population	—
Asthma	74.0
Cardio-vascular	72.9
Low Birth Weights	47.1
Socioeconomic Factor Indicators	—
Education	56.0
Housing	24.9
Linguistic	10.4
Poverty	38.9
Unemployment	26.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	59.39946105
Employed	65.58449891
Median HI	51.39227512
Education	—
Bachelor's or higher	40.20274605
High school enrollment	24.3295265
Preschool enrollment	5.941229308
Transportation	—
Auto Access	95.6242782
Active commuting	22.0967535

Social	—
2-parent households	70.60182215
Voting	50.27588862
Neighborhood	—
Alcohol availability	86.74451431
Park access	19.196715
Retail density	3.708456307
Supermarket access	39.16335173
Tree canopy	77.38996535
Housing	—
Homeownership	84.84537405
Housing habitability	90.42730656
Low-inc homeowner severe housing cost burden	37.22571539
Low-inc renter severe housing cost burden	95.50878994
Uncrowded housing	71.88502502
Health Outcomes	—
Insured adults	42.7691518
Arthritis	0.0
Asthma ER Admissions	33.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	48.8
Cognitively Disabled	22.1
Physically Disabled	18.7

Heart Attack ER Admissions	44.6
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	73.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	41.8
Elderly	29.3
English Speaking	51.1
Foreign-born	35.7
Outdoor Workers	8.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.0
Traffic Density	4.5
Traffic Access	0.0
Other Indices	—
Hardship	59.1
Other Decision Support	—
2016 Voting	45.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	64.0
Healthy Places Index Score for Project Location (b)	48.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Acreage adjusted to match actual site
Construction: Construction Phases	Demolition removed
Operations: Fleet Mix	SJVAPCD Residential Fleet Mix for Year 2026
Operations: Hearths	No Hearths

APPENDIX C

HEALTH RISK ASSESSMENT MODELING FILES (ELECTRONIC)

APPENDIX B

PROJECT EMISSION CALCULATIONS

Westhaven II Detailed Report

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1.1. Basic Project Information

Data Field	Value
Project Name	Westhaven II
Construction Start Date	4/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.90
Precipitation (days)	31.4
Location	36.598929457338244, -119.42927985096745
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2511
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	153	Dwelling Unit	34.0	298,350	1,792,067	—	490	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	53.5	53.5	31.7	30.8	0.06	1.37	19.8	21.1	1.26	10.1	11.4	—	6,720	6,720	0.27	0.07	1.81	6,745
Mit.	53.5	53.5	31.7	30.8	0.06	1.37	7.76	9.13	1.26	3.96	5.22	—	6,720	6,720	0.27	0.07	1.81	6,745
% Reduced	—	—	—	—	—	—	61%	57%	—	61%	54%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	53.5	53.5	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
Mit.	53.5	53.5	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.78	5.68	8.38	10.5	0.02	0.35	2.32	2.67	0.32	1.03	1.35	—	2,078	2,078	0.08	0.05	0.50	2,094
Mit.	5.78	5.68	8.38	10.5	0.02	0.35	0.98	1.32	0.32	0.42	0.74	—	2,078	2,078	0.08	0.05	0.50	2,094

% Reduced	—	—	—	—	—	—	58%	51%	—	59%	45%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.05	1.04	1.53	1.91	< 0.005	0.06	0.42	0.49	0.06	0.19	0.25	—	344	344	0.01	0.01	0.08	347
Mit.	1.05	1.04	1.53	1.91	< 0.005	0.06	0.18	0.24	0.06	0.08	0.13	—	344	344	0.01	0.01	0.08	347
% Reduced	—	—	—	—	—	—	58%	51%	—	59%	45%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.02	3.39	31.7	30.8	0.06	1.37	19.8	21.1	1.26	10.1	11.4	—	6,720	6,720	0.27	0.07	1.81	6,745
2026	1.53	1.30	10.3	15.0	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,935	2,935	0.11	0.07	1.63	2,959
2027	53.5	53.5	9.82	14.8	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,924	2,924	0.11	0.06	1.46	2,947
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.59	1.34	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
2026	1.50	1.28	10.4	14.6	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,899	2,899	0.11	0.07	0.04	2,921
2027	53.5	53.5	9.86	14.5	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,888	2,888	0.11	0.06	0.04	2,910
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.13	0.96	8.38	9.30	0.02	0.35	2.32	2.67	0.32	1.03	1.35	—	1,917	1,917	0.08	0.03	0.25	1,927
2026	1.08	0.91	7.38	10.5	0.02	0.27	0.25	0.52	0.25	0.06	0.31	—	2,078	2,078	0.08	0.05	0.50	2,094
2027	5.78	5.68	4.54	6.72	0.01	0.16	0.15	0.31	0.15	0.04	0.18	—	1,288	1,288	0.05	0.03	0.26	1,298
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.21	0.17	1.53	1.70	< 0.005	0.06	0.42	0.49	0.06	0.19	0.25	—	317	317	0.01	< 0.005	0.04	319

2026	0.20	0.17	1.35	1.91	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	344	344	0.01	0.01	0.08	347
2027	1.05	1.04	0.83	1.23	< 0.005	0.03	0.03	0.06	0.03	0.01	0.03	—	213	213	0.01	< 0.005	0.04	215

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.02	3.39	31.7	30.8	0.06	1.37	7.76	9.13	1.26	3.96	5.22	—	6,720	6,720	0.27	0.07	1.81	6,745
2026	1.53	1.30	10.3	15.0	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,935	2,935	0.11	0.07	1.63	2,959
2027	53.5	53.5	9.82	14.8	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,924	2,924	0.11	0.06	1.46	2,947
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.59	1.34	11.0	14.9	0.02	0.43	0.35	0.79	0.40	0.09	0.49	—	2,910	2,910	0.12	0.07	0.05	2,932
2026	1.50	1.28	10.4	14.6	0.02	0.38	0.35	0.74	0.35	0.09	0.44	—	2,899	2,899	0.11	0.07	0.04	2,921
2027	53.5	53.5	9.86	14.5	0.02	0.34	0.35	0.69	0.31	0.09	0.40	—	2,888	2,888	0.11	0.06	0.04	2,910
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.13	0.96	8.38	9.30	0.02	0.35	0.98	1.32	0.32	0.42	0.74	—	1,917	1,917	0.08	0.03	0.25	1,927
2026	1.08	0.91	7.38	10.5	0.02	0.27	0.25	0.52	0.25	0.06	0.31	—	2,078	2,078	0.08	0.05	0.50	2,094
2027	5.78	5.68	4.54	6.72	0.01	0.16	0.15	0.31	0.15	0.04	0.18	—	1,288	1,288	0.05	0.03	0.26	1,298
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.21	0.17	1.53	1.70	< 0.005	0.06	0.18	0.24	0.06	0.08	0.13	—	317	317	0.01	< 0.005	0.04	319
2026	0.20	0.17	1.35	1.91	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	344	344	0.01	0.01	0.08	347
2027	1.05	1.04	0.83	1.23	< 0.005	0.03	0.03	0.06	0.03	0.01	0.03	—	213	213	0.01	< 0.005	0.04	215

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13.0	12.5	4.70	42.6	0.08	0.17	5.80	5.97	0.16	1.47	1.63	85.1	9,616	9,701	9.25	0.38	24.4	10,070
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.5	11.1	5.12	29.8	0.07	0.16	5.80	5.96	0.16	1.47	1.63	85.1	8,938	9,023	9.32	0.41	2.71	9,381
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.9	11.5	4.82	33.1	0.07	0.17	5.55	5.72	0.16	1.40	1.57	85.1	8,992	9,077	9.27	0.39	11.5	9,436
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.17	2.09	0.88	6.04	0.01	0.03	1.01	1.04	0.03	0.26	0.29	14.1	1,489	1,503	1.54	0.06	1.91	1,562

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Area	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	13.0	12.5	4.70	42.6	0.08	0.17	5.80	5.97	0.16	1.47	1.63	85.1	9,616	9,701	9.25	0.38	24.4	10,070

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Area	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	11.5	11.1	5.12	29.8	0.07	0.16	5.80	5.96	0.16	1.47	1.63	85.1	8,938	9,023	9.32	0.41	2.71	9,381
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.44	4.09	3.28	28.2	0.06	0.04	5.55	5.59	0.04	1.40	1.44	—	6,219	6,219	0.43	0.34	9.40	6,340
Area	7.30	7.28	0.04	4.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.4	11.4	< 0.005	< 0.005	—	11.5
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	11.9	11.5	4.82	33.1	0.07	0.17	5.55	5.72	0.16	1.40	1.57	85.1	8,992	9,077	9.27	0.39	11.5	9,436
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Area	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90
Energy	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	448	448	0.05	< 0.005	—	450
Water	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Waste	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	2.17	2.09	0.88	6.04	0.01	0.03	1.01	1.04	0.03	0.26	0.29	14.1	1,489	1,503	1.54	0.06	1.91	1,562

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Area	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	13.0	12.5	4.70	42.6	0.08	0.17	5.80	5.97	0.16	1.47	1.63	85.1	9,616	9,701	9.25	0.38	24.4	10,070
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Area	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	11.5	11.1	5.12	29.8	0.07	0.16	5.80	5.96	0.16	1.47	1.63	85.1	8,938	9,023	9.32	0.41	2.71	9,381
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.44	4.09	3.28	28.2	0.06	0.04	5.55	5.59	0.04	1.40	1.44	—	6,219	6,219	0.43	0.34	9.40	6,340
Area	7.30	7.28	0.04	4.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.4	11.4	< 0.005	< 0.005	—	11.5
Energy	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	2,707	2,707	0.30	0.02	—	2,720
Water	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Waste	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14

Total	11.9	11.5	4.82	33.1	0.07	0.17	5.55	5.72	0.16	1.40	1.57	85.1	8,992	9,077	9.27	0.39	11.5	9,436
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Area	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90
Energy	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	448	448	0.05	< 0.005	—	450
Water	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Waste	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	2.17	2.09	0.88	6.04	0.01	0.03	1.01	1.04	0.03	0.26	0.29	14.1	1,489	1,503	1.54	0.06	1.91	1,562

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.73	1.65	< 0.005	0.07	—	0.07	0.07	—	0.07	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	1.08	1.08	—	0.55	0.55	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.04	0.65	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	< 0.005	< 0.005	0.40	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.34	5.34	< 0.005	< 0.005	0.01	5.43

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.88	0.88	< 0.005	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.73	1.65	< 0.005	0.07	—	0.07	0.07	—	0.07	—	290	290	0.01	< 0.005	—	291

Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.04	0.65	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	< 0.005	< 0.005	0.40	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.34	5.34	< 0.005	< 0.005	0.01	5.43
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.88	0.88	< 0.005	< 0.005	< 0.005	0.90

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.66	3.49	0.01	0.15	—	0.15	0.14	—	0.14	—	814	814	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	1.13	1.13	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.67	0.64	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.05	0.74	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.45	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.02	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.66	3.49	0.01	0.15	—	0.15	0.14	—	0.14	—	814	814	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	0.44	0.44	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.67	0.64	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135

Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.05	0.74	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.45	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.02	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.84	3.55	0.01	0.12	—	0.12	0.11	—	0.11	—	652	652	0.03	0.01	—	654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.25	0.24	0.13	2.05	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	334	334	0.01	0.01	1.25	340
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	215	215	0.01	0.03	0.56	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.15	1.66	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	296	296	0.01	0.01	0.03	301
Vendor	0.02	0.01	0.37	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	216	216	0.01	0.03	0.01	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.46	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.5	83.5	< 0.005	< 0.005	0.15	84.9
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	58.6	58.6	< 0.005	0.01	0.07	61.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.70	9.70	< 0.005	< 0.005	0.01	10.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.84	3.55	0.01	0.12	—	0.12	0.11	—	0.11	—	652	652	0.03	0.01	—	654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.13	2.05	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	334	334	0.01	0.01	1.25	340
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	215	215	0.01	0.03	0.56	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.22	0.21	0.15	1.66	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	296	296	0.01	0.01	0.03	301
Vendor	0.02	0.01	0.37	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	216	216	0.01	0.03	0.01	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.46	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.5	83.5	< 0.005	< 0.005	0.15	84.9
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	58.6	58.6	< 0.005	0.01	0.07	61.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.70	9.70	< 0.005	< 0.005	0.01	10.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.22	0.11	1.89	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	327	327	0.01	0.01	1.14	333
Vendor	0.02	0.01	0.33	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	211	211	0.01	0.03	0.49	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.14	1.53	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	290	290	0.01	0.01	0.03	295
Vendor	0.02	0.01	0.36	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	212	212	0.01	0.03	0.01	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.09	1.11	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	215	215	0.01	0.01	0.35	218
Vendor	0.01	0.01	0.25	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	151	151	< 0.005	0.02	0.15	158
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.6	35.6	< 0.005	< 0.005	0.06	36.1
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.0	25.0	< 0.005	< 0.005	0.03	26.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.22	0.11	1.89	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	327	327	0.01	0.01	1.14	333
Vendor	0.02	0.01	0.33	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	211	211	0.01	0.03	0.49	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.14	1.53	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	290	290	0.01	0.01	0.03	295
Vendor	0.02	0.01	0.36	0.16	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	212	212	0.01	0.03	0.01	221
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.09	1.11	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	215	215	0.01	0.01	0.35	218
Vendor	0.01	0.01	0.25	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	151	151	< 0.005	0.02	0.15	158
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.03	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.6	35.6	< 0.005	< 0.005	0.06	36.1
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.0	25.0	< 0.005	< 0.005	0.03	26.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	3.62	4.99	0.01	0.13	—	0.13	0.12	—	0.12	—	924	924	0.04	0.01	—	927
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.66	0.91	< 0.005	0.02	—	0.02	0.02	—	0.02	—	153	153	0.01	< 0.005	—	154
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.10	1.74	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	320	320	0.01	0.01	1.03	325
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.43	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.13	1.41	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	284	284	0.01	0.01	0.03	289
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.01	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.55	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	< 0.005	0.01	0.17	115
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	79.7	79.7	< 0.005	0.01	0.07	83.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.8	18.8	< 0.005	< 0.005	0.03	19.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	3.62	4.99	0.01	0.13	—	0.13	0.12	—	0.12	—	924	924	0.04	0.01	—	927
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.66	0.91	< 0.005	0.02	—	0.02	0.02	—	0.02	—	153	153	0.01	< 0.005	—	154
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.10	1.74	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	320	320	0.01	0.01	1.03	325
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.43	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.13	1.41	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	284	284	0.01	0.01	0.03	289
Vendor	0.02	0.01	0.35	0.15	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	207	207	0.01	0.03	0.01	216
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.55	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	< 0.005	0.01	0.17	115
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	79.7	79.7	< 0.005	0.01	0.07	83.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.8	18.8	< 0.005	< 0.005	0.03	19.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.03	0.47	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	87.2	87.2	< 0.005	< 0.005	0.28	88.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.69	7.69	< 0.005	< 0.005	0.01	7.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.03	0.47	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	87.2	87.2	< 0.005	< 0.005	0.28	88.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.69	7.69	< 0.005	< 0.005	0.01	7.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8

Architectural Coating	5.12	5.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	0.93	0.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.35	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	64.0	64.0	< 0.005	< 0.005	0.21	65.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.9	56.9	< 0.005	< 0.005	0.01	57.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	0.01	5.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Architectural Coating (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.4	53.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	5.12	5.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	0.93	0.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.35	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	64.0	64.0	< 0.005	< 0.005	0.21	65.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.9	56.9	< 0.005	< 0.005	0.01	57.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	0.01	5.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Total	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297

Total	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Total	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Total	5.07	4.72	3.11	33.3	0.07	0.04	5.80	5.84	0.04	1.47	1.51	—	6,831	6,831	0.41	0.33	22.3	6,963
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Total	4.46	4.09	3.61	29.2	0.06	0.04	5.80	5.84	0.04	1.47	1.51	—	6,177	6,177	0.47	0.36	0.58	6,297
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050
Total	0.81	0.75	0.60	5.14	0.01	0.01	1.01	1.02	0.01	0.26	0.26	—	1,030	1,030	0.07	0.06	1.56	1,050

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134
Total	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807

Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Total	—	—	—	—	—	—	—	—	—	—	—	—	799	799	0.13	0.02	—	807
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134
Total	—	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	134

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317
Total	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Total	0.18	0.09	1.50	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,908	1,908	0.17	< 0.005	—	1,913
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317
Total	0.03	0.02	0.27	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	316	316	0.03	< 0.005	—	317

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.81	0.77	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.2	23.2	< 0.005	< 0.005	—	23.3
Total	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Products	1.17	1.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.89	1.89	< 0.005	< 0.005	—	1.90
Total	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.81	0.77	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.2	23.2	< 0.005	< 0.005	—	23.3
Total	7.71	7.67	0.08	8.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.2	23.2	< 0.005	< 0.005	—	23.3

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	6.38	6.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.90	6.90	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	1.17	1.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.89	1.89	< 0.005	< 0.005	—	1.90
Total	1.33	1.33	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.89	1.89	< 0.005	< 0.005	—	1.90

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Total	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Total	—	—	—	—	—	—	—	—	—	—	—	11.8	54.2	66.0	1.22	0.03	—	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5
Total	—	—	—	—	—	—	—	—	—	—	—	1.96	8.98	10.9	0.20	< 0.005	—	17.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5

Total	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Total	—	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.33	0.00	—	256
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5
Total	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.5

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.35	0.35

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	5/14/2025	6/11/2025	5.00	20.0	—
Grading	Grading	6/12/2025	8/14/2025	5.00	45.0	—
Building Construction	Building Construction	8/15/2025	7/16/2027	5.00	500	—
Paving	Paving	7/17/2027	9/4/2027	5.00	35.0	—
Architectural Coating	Architectural Coating	9/5/2027	10/24/2027	5.00	35.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	55.1	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	16.4	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.0	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	55.1	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	16.4	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.0	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	604,159	201,386	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	30.0	0.00	—
Grading	—	—	135	0.00	—
Paving	0.00	0.00	0.00	0.00	1.69

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.69	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

2027	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,444	1,460	1,308	520,874	8,184	8,270	7,412	2,951,279

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,444	1,460	1,308	520,874	8,184	8,270	7,412	2,951,279

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	176
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0

Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	176
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
604158.75	201,386	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,430,027	204	0.0330	0.0040	5,953,585

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,430,027	204	0.0330	0.0040	5,953,585

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,165,288	30,066,767

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,165,288	30,066,767

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	136	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	136	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	30.1	annual days of extreme heat
Extreme Precipitation	1.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	91.1
AQ-PM	94.4
AQ-DPM	13.4
Drinking Water	97.2
Lead Risk Housing	45.4
Pesticides	94.3
Toxic Releases	45.8
Traffic	3.85
Effect Indicators	—
CleanUp Sites	50.3
Groundwater	25.1

Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	23.9
Solid Waste	63.7
Sensitive Population	—
Asthma	74.0
Cardio-vascular	72.9
Low Birth Weights	47.1
Socioeconomic Factor Indicators	—
Education	56.0
Housing	24.9
Linguistic	10.4
Poverty	38.9
Unemployment	26.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	59.39946105
Employed	65.58449891
Median HI	51.39227512
Education	—
Bachelor's or higher	40.20274605
High school enrollment	24.3295265
Preschool enrollment	5.941229308
Transportation	—
Auto Access	95.6242782
Active commuting	22.0967535

Social	—
2-parent households	70.60182215
Voting	50.27588862
Neighborhood	—
Alcohol availability	86.74451431
Park access	19.196715
Retail density	3.708456307
Supermarket access	39.16335173
Tree canopy	77.38996535
Housing	—
Homeownership	84.84537405
Housing habitability	90.42730656
Low-inc homeowner severe housing cost burden	37.22571539
Low-inc renter severe housing cost burden	95.50878994
Uncrowded housing	71.88502502
Health Outcomes	—
Insured adults	42.7691518
Arthritis	0.0
Asthma ER Admissions	33.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	48.8
Cognitively Disabled	22.1
Physically Disabled	18.7

Heart Attack ER Admissions	44.6
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	73.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	41.8
Elderly	29.3
English Speaking	51.1
Foreign-born	35.7
Outdoor Workers	8.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.0
Traffic Density	4.5
Traffic Access	0.0
Other Indices	—
Hardship	59.1
Other Decision Support	—
2016 Voting	45.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	64.0
Healthy Places Index Score for Project Location (b)	48.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Acreage adjusted to match actual site
Construction: Construction Phases	Demolition removed
Operations: Fleet Mix	SJVAPCD Residential Fleet Mix for Year 2026
Operations: Hearths	No Hearths

APPENDIX C

HEALTH RISK ASSESSMENT MODELING FILES (ELECTRONIC)

APPENDIX B
CULTURAL RESOURCES REPORT

CULTURAL RESOURCE REPORT

WESTHAVEN II SUBDIVISION PROJECT

Prepared for:

City of Reedley

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August 2025

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Project #240227

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Executive Summary

A cultural resource assessment was prepared for the Westhaven II Subdivision Project in Fresno County, California. The proposed Project or Action will consist of the construction of 175 single-family residential units, an on-site stormwater retention basin and five outlots on an undeveloped 34-net acre parcel (APN 370-040-10), generally bounded by future East North Avenue to the north, South Buttonwillow Avenue to the east, Rancho Vista residential subdivision to the south, and Buttonwillow Ditch to the west within unincorporated Fresno County, immediately adjacent to the City of Reedley (City) corporate limits. Lot sizes vary from 6,000 to 11,478 square feet and the proposed drainage basin area is approximately 1.75 acres. The maximum depth for the vertical area of potential effect (APE) is 10 feet. Full buildout will take approximately four years from the time that the project Tentative Map is approved. It is situated within the Reedley, California United States Geological Survey (USGS) 7.5-minute topographic map, Section 25, Township 15 South, Range 23 East, M.D.M. The property is surrounded by agricultural and vacant land to the north, single-family residential to the east, vacant land and a school to the west, and single-family residential to the south.

This cultural resources report was prepared in order to identify any cultural resources that may exist within the Project's Area of Potential Effect (APE) that potentially could be impacted by construction and activities. No cultural resources, either prehistoric or historical, were identified within the Project as a result of the records search and none are expected to be impacted by the proposed Project. A *Less than Significant Impact* under CEQA for cultural resources is recommended for the Action. If, however, any as-yet unidentified (e.g., buried) resources are encountered during Project construction activities, work in the vicinity of the discovery should be halted until the finding can be evaluated by a qualified cultural resources specialist.

Project Description and Location

The City of Reedley initiated an Environmental Assessment the purpose of assessing the environmental effects of Vesting Tentative Tract Map No. 6497 (Westhaven II Subdivision) and related entitlements, herein referred to as "the project".

The project site is bounded by East Springfield Avenue to the east, a residential subdivision to the south, rural residential homes and East North Avenue to the north, and South Buttonwillow Avenue to the west, and is situated approximately nine miles northeast of State Route (SR) 99 and eight miles south of SR-180. Regional access to the project site is available by SR-99 and SR-180. Local access to the project site would be provided via South Buttonwillow Avenue and East North Avenue.

The project proposes the development of 175 single-family lots ranging in size from approximately 6,000 square feet to 11,478 square feet, development of an on-site storm drain basin, and five outlots. On- and off-site improvements including circulation roads, interior local streets, curb, gutter, sidewalk, open space, and landscaping are proposed as part of the project.

The project site is located within the City's Sphere of Influence (SOI) and has a planned land use designation of Low Density Residential (4-8 dwelling units per acre [du/acre]) and High Density Residential (15-29 du/acre) pursuant to the Reedley 2030 General Plan. The site is zoned Limited Agricultural (AL-20) according to the County of Fresno zoning map. The project proposes to amend the planned land use designation of an approximately 3.5-acre portion of the project site from High Density Residential to Low Density Residential. Additionally, the project proposes to pre-zone the project site and the three rural residential parcels to the northwest, APNs 370-040-13, 370-040-22, and 370-040-23, to the R-1-6 (One Family Residential) zone district in preparation for annexation of the parcels consistent with the Reedley 2030 General Plan. The annexation request would remove the area from the Fresno County Fire Protection District and the Kings River Conservation District service boundaries.

Water, sewer, solid waste and storm drainage utilities will be provided by the City of Reedley. Electricity will be provided by Pacific Gas and Electric and natural gas will be provided by Southern California Gas.

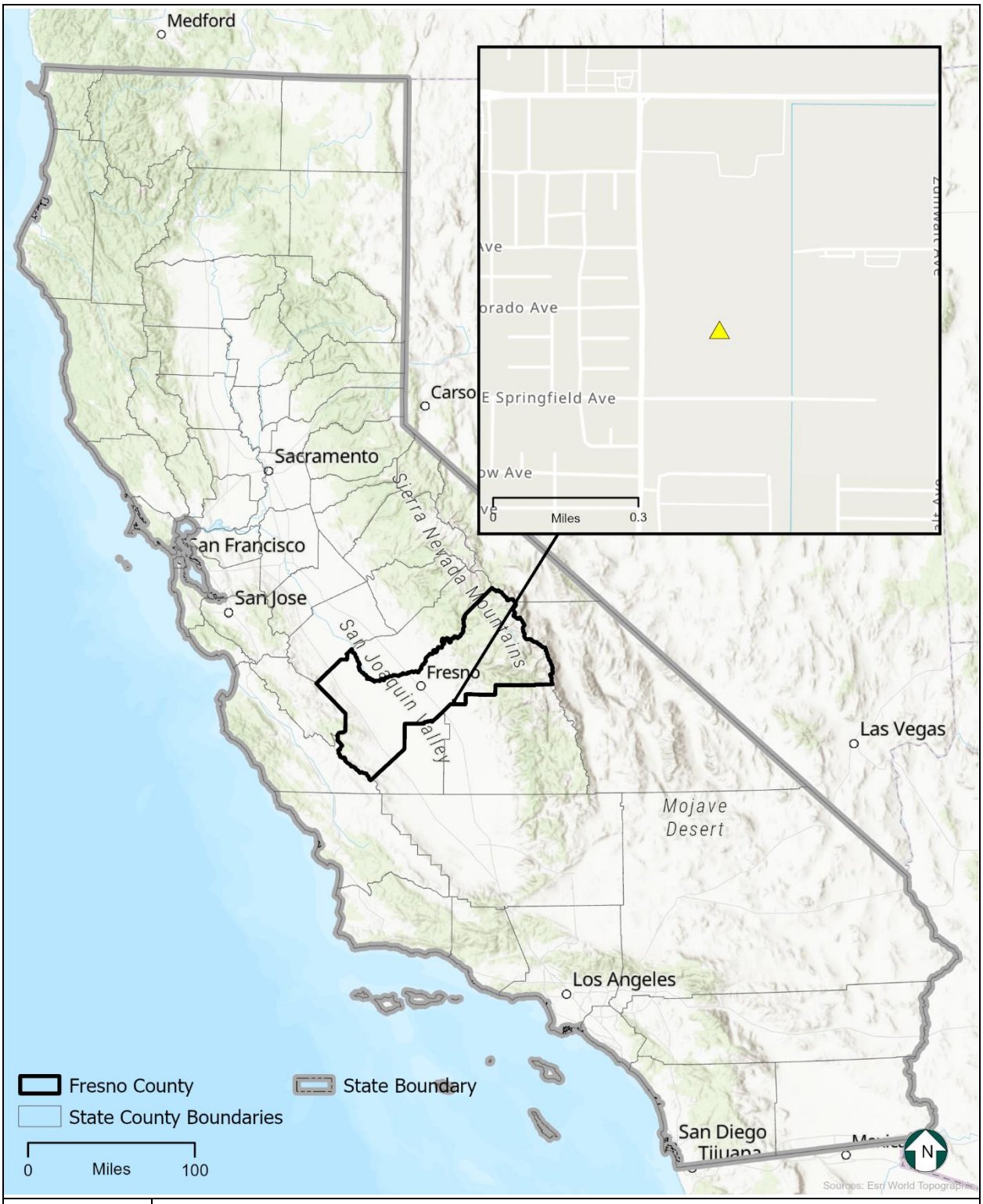


Figure 1
Regional Location

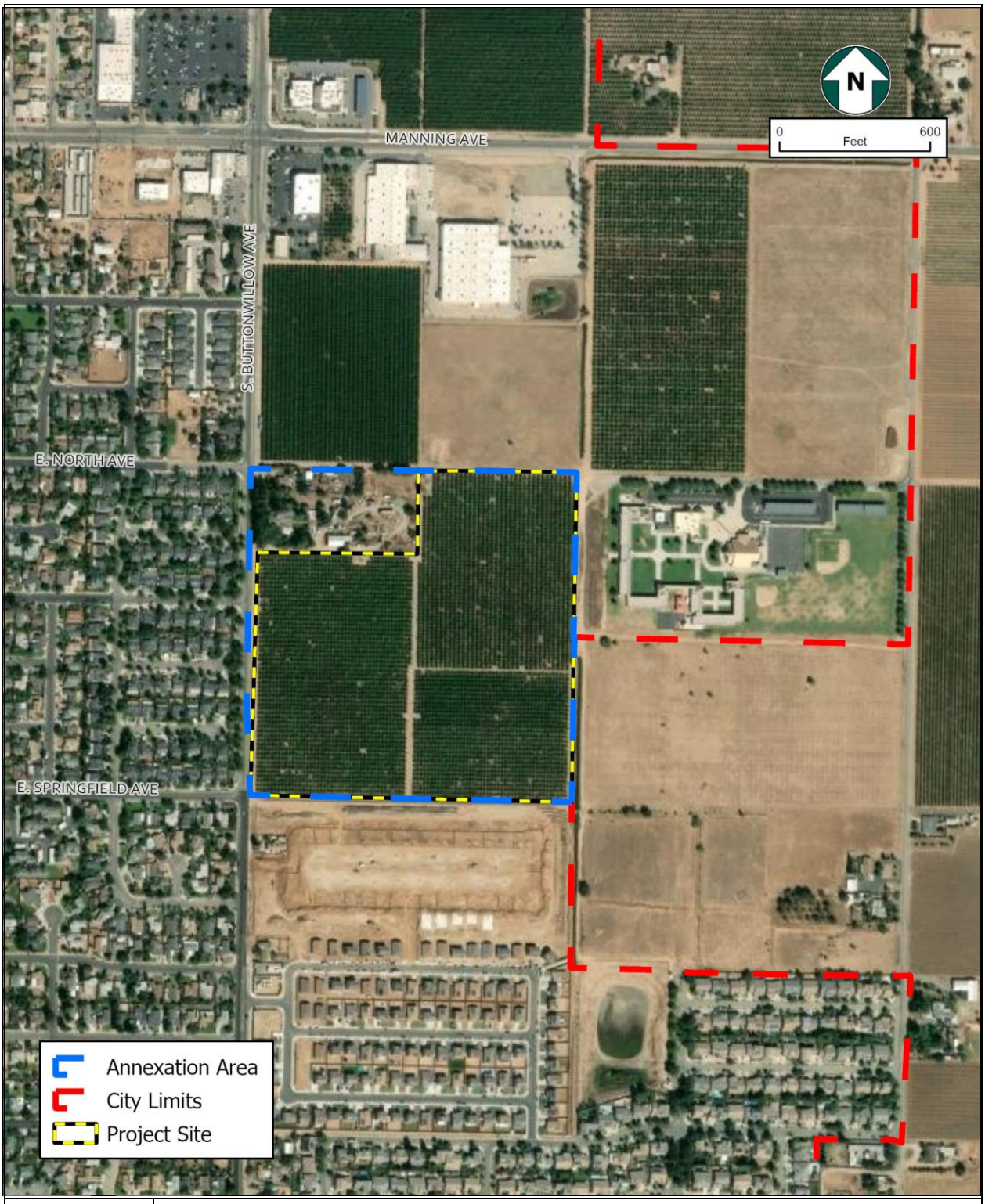


Figure 2
Action Area

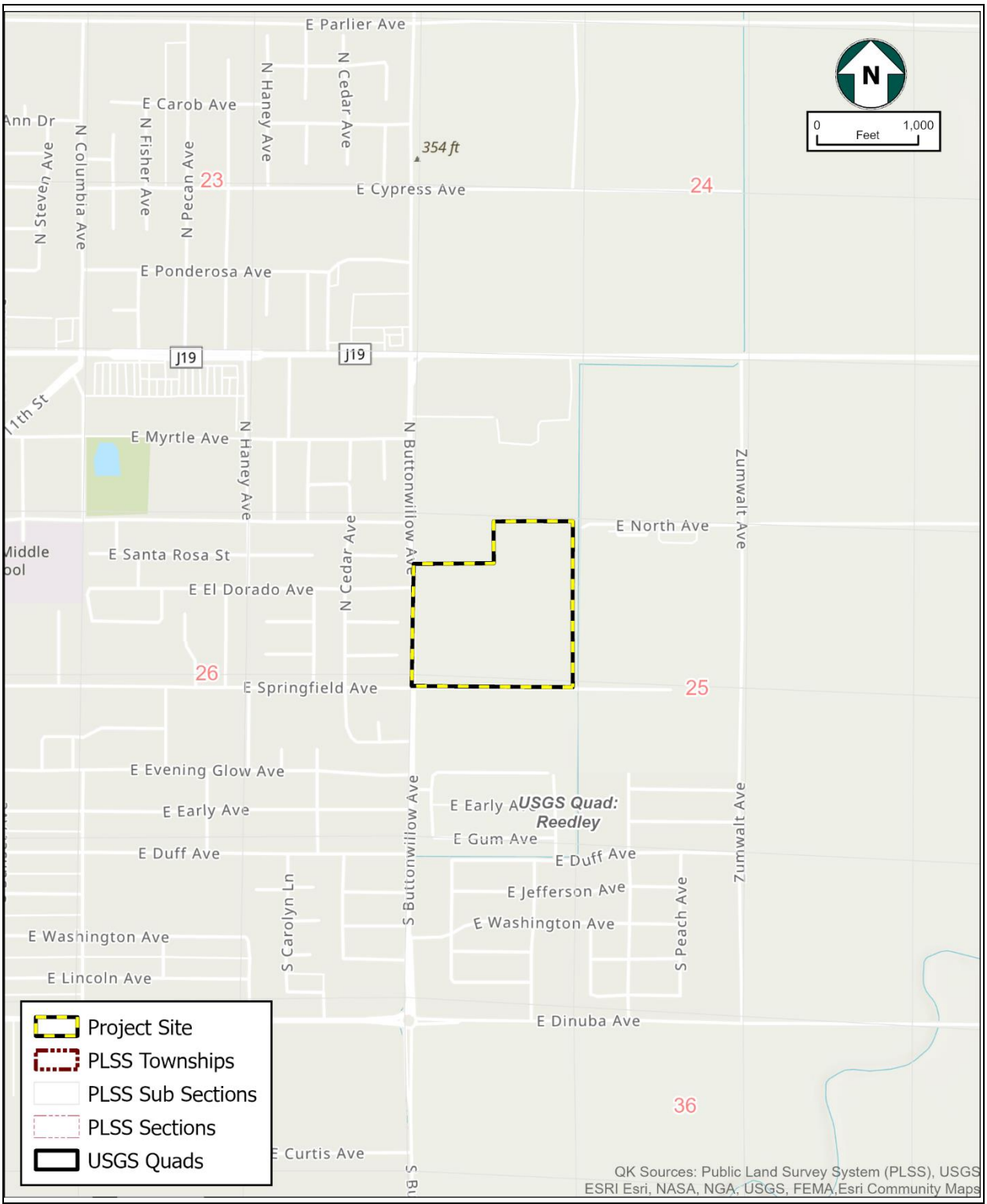


Figure 3
Public Land Survey System



Figure 4
Topo

California Environmental Quality Act

CEQA is the state law that applies to a project's impacts on cultural resources. A project is an activity that may cause a direct or indirect physical change in the environment and that is undertaken or funded by a state or local agency, or requires a permit, license, or lease from a state or local agency. CEQA requires that impacts to Historical Resources be identified and, if the impacts will be significant, then apply mitigation measures to reduce the impacts.

A Historical Resource is a resource that:

i. is listed in or has been determined eligible for listing in the California Register of Historical Resources (CRHR) by the State Historical Resources Commission, or has been determined historically significant by the CEQA lead agency because it meets the eligibility criteria for the CRHR;
ii. is included in a local register of historical resources, as defined in Public Resources Code (PRC) 5020.1(k); or
iii. has been identified as significant in a historical resources survey, as defined in PRC 5024.1(g) (California Code of Regulations [CCR] Title 14, Section 15064.5(a)).

The eligibility criteria for the CRHR are as follows (CCR Title 14, Section 4852(b)):

i. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
ii. It is associated with the lives of persons important to local, California, or national history;
iii. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
iv. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation

In addition, the resource must retain integrity, which is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (CCR Title 14, Section 4852(c)). Resources that have been determined eligible for the NRHP are automatically eligible for the CRHR.

Impacts to a Historical Resource, as defined by CEQA (listed in an official historic inventory or survey or eligible for the CRHR), are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired (CCR Title 14, Section 15064.5(b)). Demolition or alteration of eligible buildings, structures, and features that they would no longer be eligible would result in a significant impact. Whole or partial destruction of eligible archaeological sites would result in a significant impact. In addition to impacts from construction resulting in destruction or physical alteration of an eligible resource, impacts to the integrity of setting (sometimes termed visual impacts) of physical features in the Project Area could also result in significant impacts.

Tribal Cultural Resources (TCRs) are defined in Section 21074 of the California PRC as sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either included in or determined to be eligible for inclusion in the CRHR, or are included in a local register of historical resources as defined in subdivision (k) of Section 5020.1, or are a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. Section 1(b)(4) of Assembly Bill (AB) 52 established that only California Native American tribes, as defined in Section 21073 of the California PRC, are experts in the identification of TCRs and impacts thereto. Because ECORP does not meet the definition of a California Native American tribe, it only addresses information in this report for which it is qualified to identify and evaluate, and that which is needed to inform the cultural resources section of CEQA documents. This report, therefore, does not identify or evaluate TCRs. Should California Native American tribes ascribe additional importance to or interpretation of archaeological resources described herein, or provide information about non-archeological TCRs, that information is documented separately in the AB 52 tribal consultation record between the tribe(s) and lead agency and summarized in the TCRs section of the CEQA document, if applicable.

Records Search

A cultural resources records search (#25-025) was conducted at the Southern San Joaquin Valley Information Center (IC) at California State University, Bakersfield for the Vesting Tentative Tract Map 6497 (Westhaven II) Project in the city of Reedley, Fresno County, California. The purpose of the search was to determine whether any known cultural resources are located on or near the proposed project that might be impacted by project construction and/or activities.

The records search covered an area within one-half mile of the proposed project and included a review of the *National Register of Historic Places*, *California Points of Historical Interest*, *California Registry of Historic Resources*, *California Historical Landmarks*, *California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The records search indicated that the subject property has never been surveyed for cultural resources and it is not known if any exist on it. Five previous cultural resource studies have been conducted within a half mile of the project (Onchi and Varner 1980; Varner 1994; Wren 2003; Brady 2010; Whitley and Carey 2017). No cultural resources have been identified or recorded within one half mile of the project.

A records search of the Sacred Land File (SLF) was also prepared by the Native American Heritage Commission (NAHC). A response dated January 9, 2025, indicates negative results and is appended to this report (Appendix A).

Tribal Consultation

A letter inviting tribes was sent to the tribes listed on April 24, 2025 (Appendix B). The list of tribes was provided by the NAHC To date, one response was received. Table Mountain Rancheria responded stating they declined to participate in consultation at this time. No other tribal responses were received.

Conclusions

A *Less than Significant Impact* for cultural resources is recommended for the Project. The site is in an urbanized area, has been previously disturbed, and no cultural resources, either prehistoric or historical, were identified within the Project APE as a result of the records search. The following additional mitigation measures are recommended in the unlikely event that cultural resources are encountered during construction or use of the study area:

CUL-1: If previously unknown historical resources are encountered before or during grading activities, construction shall stop in the immediate vicinity of the find and a qualified historical resources specialist shall be consulted to determine whether the resource requires further study. The qualified historical resources specialist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines.

If the resources are determined to be unique historical resources as defined under Section 15064.5 of the CEQA Guidelines, measures shall be identified by the qualified historical resources specialist and recommended to the City. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the City approves the measures to protect these resources. Construction can recommence based on the direction of the qualified archaeologist and with the City's concurrence.

Any historical artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.

CUL-2: In the event that buried prehistoric archaeological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the developer and City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines.

If the resources are determined to be unique prehistoric archaeological resources as defined under Section 15064.5 of the CEQA Guidelines, mitigation measures shall be identified by the monitor and required to the developer and City. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the lead agency approves the measures to protect these resources.

Any prehistoric archaeological artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.

CUL-3: In the event that human remains are unearthed during excavation and grading activities of any future development project, all activity shall cease immediately. Pursuant to Health and Safety Code (HSC) Section 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98(a).

If the remains are determined to be of Native American descent, the Coroner shall within 24 hours notify the NAHC. The NAHC shall then contact the most likely descendent of the deceased Native American, who shall then serve as the consultant on how to proceed with the remains. Pursuant to PRC Section 5097.98(b), upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.



Robert E. Parr, MS, RPA
Senior Archaeologist

References

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1994 An Archaeological Study of Property on North Avenue in Reedley, Fresno County, California. (FR-00780)

Whitley, David S. and Peter A. Carey
2017 Class III Inventory/Phase I Survey, Self Help Industries Consolidation Project, George Cox Water Company, Fresno County, California. (FR-03043)

Wren, Donld G.
2003 A Cultural Resource Study of 19.73 Acres – APN 370-240-24 on E. Dinuba Avenue, Fresno County, California. (FR-01929)

ATTACHMENT A

SACRED LANDS FILE

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
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Miwok

PARLIAMENTARIAN
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Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok, Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,

January 9, 2025

Marisela Martinez
QK Inc.

Via Email to: marisela.martinez@qkinc.com

Re: Native American Consultation, Pursuant to Senate Bill 18 (SB18), Government Codes §65352.3 and §65352.4, as well as Assembly Bill 52 (AB52), Public Resources Codes §21080.1, §21080.3.1 and §21080.3.2, Vesting Tentative Tract Map 6497 (Westhaven II) Project, Fresno County

Dear Ms. Martinez:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties or projects.

Government Codes §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

Public Resources Codes §21080.3.1 and §21080.3.2 requires public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to tribal cultural resources as defined, for California Environmental Quality Act (CEQA) projects.

The law does not preclude local governments and agencies from initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

Best practice for the AB52 process and in accordance with Public Resources Code §21080.3.1(d), is to do the following:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The NAHC also recommends, but does not require that lead agencies include in their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential affect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

    - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE, such as known archaeological sites;
    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
    - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

      All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address:

Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

ATTACHMENT B

TRIBAL CONSULTATION DOCUMENTATION

City of Reedley
Community Development Department
1733 Ninth Street
Reedley, CA 93654
(559) 637-4200
https://reedley.com

August 8, 2025

FROM: Rodney Horton, Community Development Director, City of Reedley

RE: Westhaven II Residential Subdivision Project, located at the southeast corner of South Buttonwillow Avenue and East North Avenue, Reedley, Fresno County, California

Dear Tribal Leader:

D.R. Horton (Applicant) proposes to construct the Westhaven II Residential Subdivision Project (project). The City of Reedley is designated as Lead Agency under the California Environmental Quality Act (CEQA) and holds the environmental review responsibilities for this project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

The proposed project is located within unincorporated Fresno County, immediately adjacent to the city of Reedley corporate limits (APN 370-040-10). The project site is generally bounded by future East North Avenue to the north, South Buttonwillow Avenue to the east, Rancho Vista residential subdivision to the south, and Buttonwillow Ditch to the west, and is situated approximately nine miles northeast of State Route (SR) 99 and eight miles south of SR-180. Regional access to the project site is available by SR-99 and SR-180. Local access to the project site would be provided via South Buttonwillow Avenue and East North Avenue. The site is located within the Reedley, California United States Geological Survey (USGS) 7.5-minute topographic map, Section 25, Township 15 South, Range 23 East, M.D.M. (See Attachment A).

The project proposes the development of 175 single-family lots ranging in size from approximately 6,000 square feet to 11,478 square feet, development of an on-site storm drain basin, and five outlots. On- and off-site improvements including circulation roads, interior local streets, curb, gutter, sidewalk, open space, and landscaping are proposed as part of the project.

The project site is located within the City's Sphere of Influence (SOI) and has a planned land use designation of Low Density Residential (4-8 dwelling units per acre [du/acre]) and High Density Residential (15-29 du/acre) pursuant to the Reedley 2030 General Plan. The site is zoned Limited Agricultural (AL-20) according to the County of Fresno zoning map. The project proposes to amend the planned land use designation of an approximately 3.5-acre portion of the project site from High Density Residential to Low Density Residential. Additionally, the project proposes to pre-zone the project site and the three rural residential parcels to the northwest, APNs 370-040-13, 370-040-22, and 370-040-23, to the R-1-6 (One Family Residential) zone district in preparation for annexation of the parcels consistent with the Reedley 2030 General Plan. The annexation request would remove the area from the Fresno County Fire Protection District and the Kings River Conservation District service boundaries.

Water, sewer, solid waste and storm drainage utilities will be provided by the City of Reedley. Electricity will be provided by Pacific Gas and Electric and natural gas will be provided by Southern California Gas.

A cultural resources records search (#25-025) was conducted at the Southern San Joaquin Valley Information Center at California State University, Bakersfield. The records search covered an area within one-half mile of the project and included a review of the *National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory,* and a review of cultural resource reports on file. A Sacred Lands File Request (SLF) was also submitted to the Native American Heritage Commission (NAHC). The SLF letter dated January 9, 2025, indicated negative results, and no tribal cultural resources were known to exist within the APE. The NAHC letter and the Cultural Resources Report are included herein.

Pursuant to PRC § 21080.3.1 (b), you have 30 days from receipt of this letter to request consultation, in writing. Please submit your recommendations within thirty (30) days of your receipt of this request to Jaymie Brauer, QK, 5080 California Avenue, Suite 220, Bakersfield CA 93309, or jaymie.brauer@qkinc.com.

Sincerely,

/s/

Rodney Horton
Community Development Director

Enclosures:

- Attachment 1: Figures
- Attachment 2: NAHC Response Letter
- Attachment 3: Cultural Resources Report

Attachment A
Figures

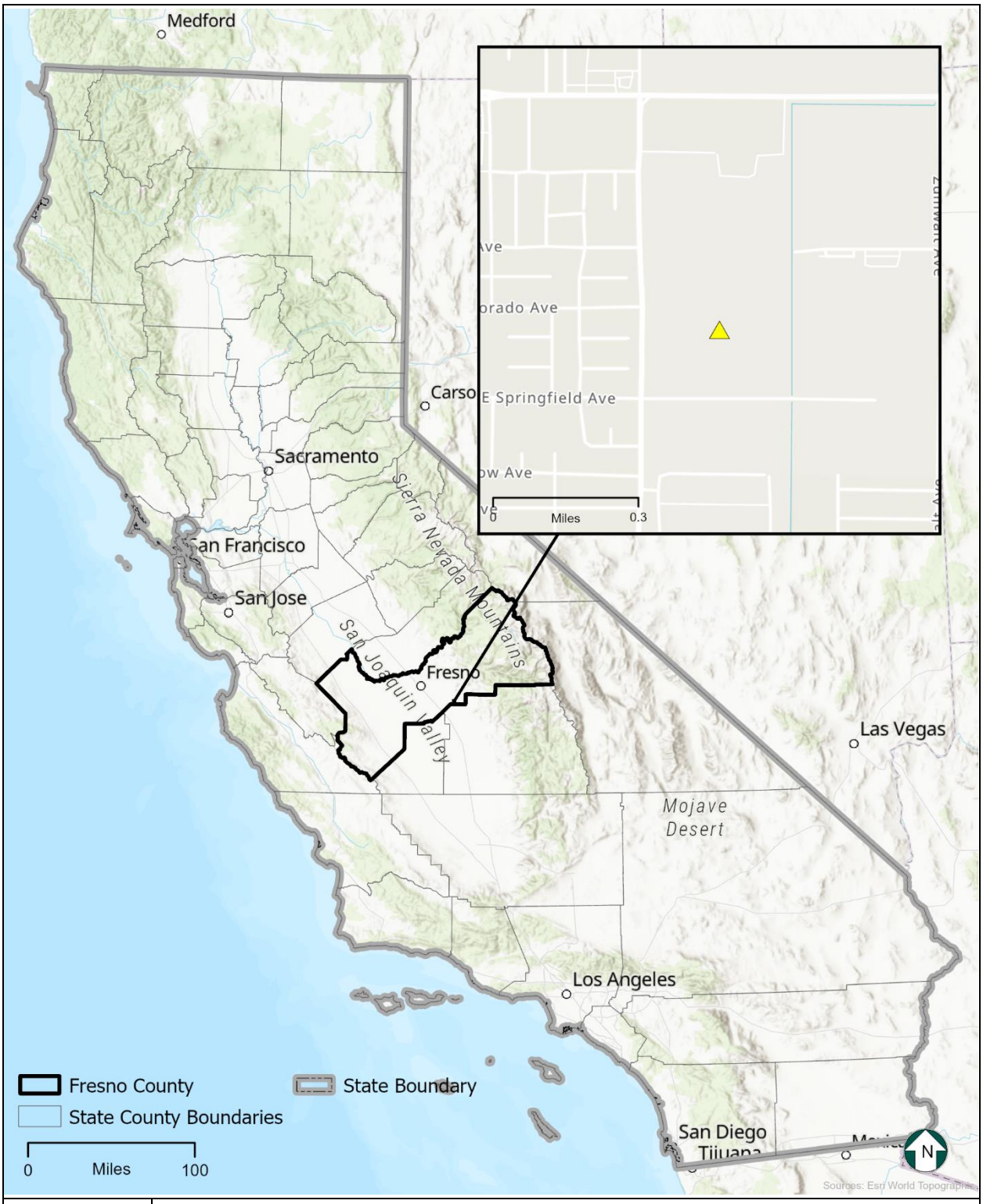


Figure 1
Regional Location

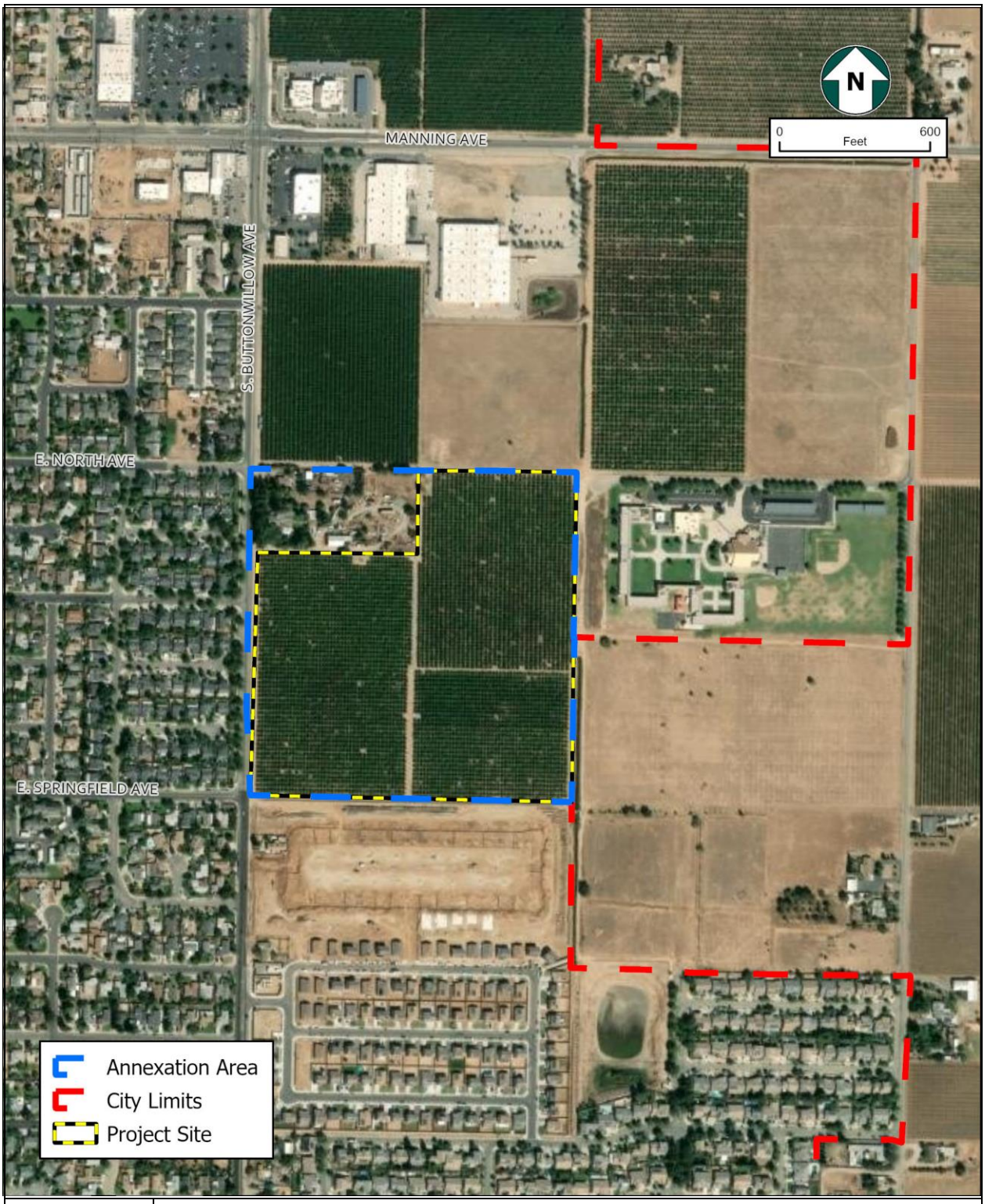


Figure 2
Action Area

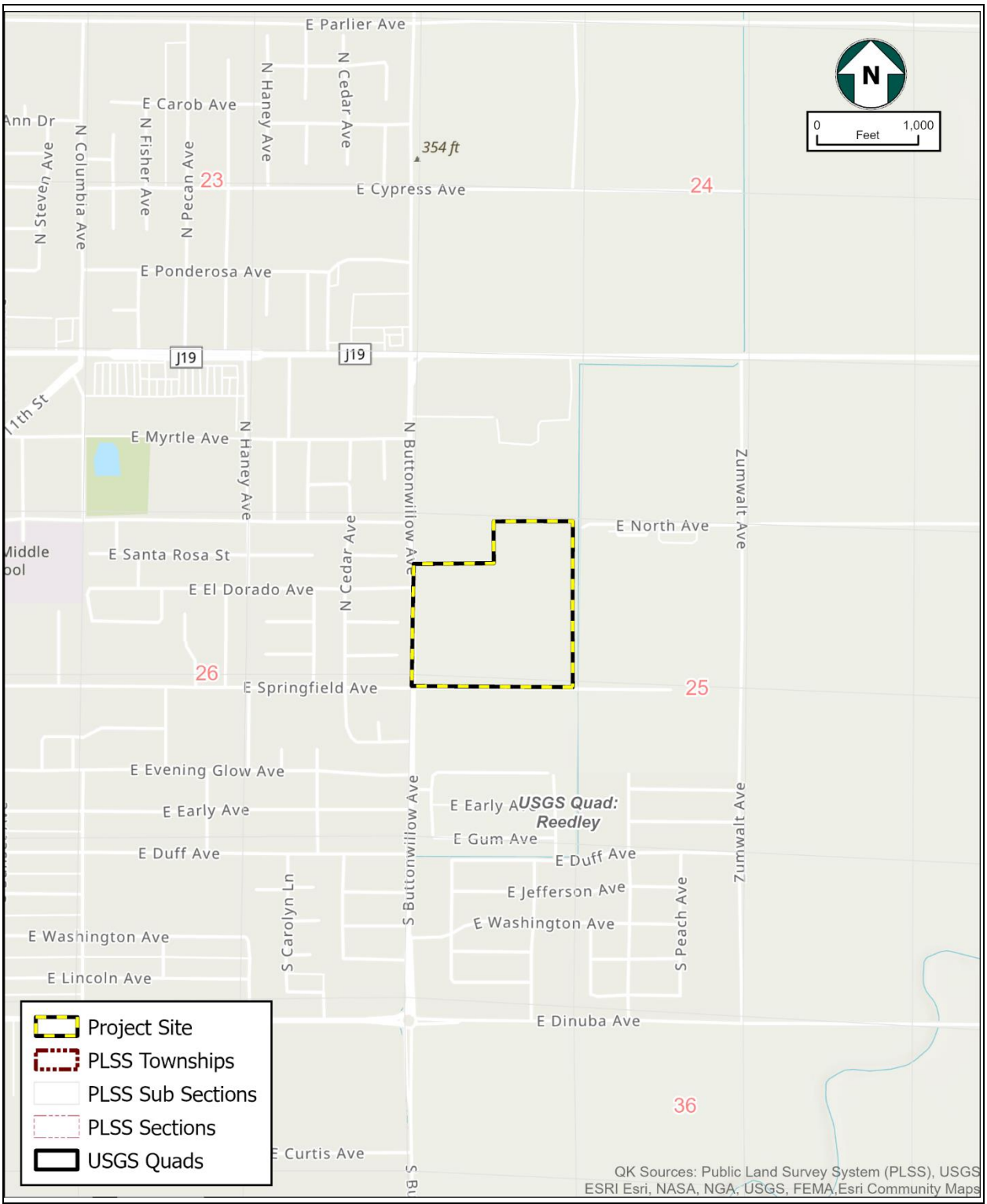


Figure 3
Public Land Survey System



Figure 4
Topo

TABLE MOUNTAIN RANCHERIA
TRIBAL GOVERNMENT OFFICE

April 30, 2025

Laura Friesen, Assistant Planner
City of Reedley
Community Development Department
1733 Ninth Street
Reedley, CA 93654

RE: General Plan Amendment Application No. 2025-01, Annexation Application No. 2025-01, and Re-zone Application No. 2025-01 proposing 166 lots for single unit development in the City of Reedley, Fresno County, California

To: Laura Friesen,

This is in response to your letter dated April 23, 2025, regarding General Plan Amendment Application No. 2025-01, Annexation Application No. 2025-01, and Re-zone Application No. 2025-01 proposing 166 lots for single unit development in the City of Reedley, Fresno County, California. Thank you for notifying us of the potential development and the request for consultation.

We decline participation at this time but would appreciate being notified in the unlikely event that cultural resources are identified.

Sincerely,

Robert Pennell
Tribal Cultural Resources Director
rpennell@tmr.org
559.325.0351

Michelle Heredia-Cordova
Tribal Chairperson

Richard L. Jones
Tribal Vice-Chairperson

Jenna Gosselaar
Tribal Secretary/Treasurer

Samantha Toles-Rodriguez
Tribal Council Member-At-Large

Mark Martinez
Tribal Council Member-At-Large

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California
93626
(559) 822-2587
Fax
(559) 822-2693

APPENDIX C
WATER SUPPLY ASSESSMENT

WATER SUPPLY ASSESSMENT

D.R. HORTON

TENTATIVE TRACT MAP 6497
WEST HAVEN II



FEBRUARY 2025

WATER SUPPLY ASSESSMENT

TENTATIVE TRACT MAP 6497 WEST HAVEN II

Prepared for:

D.R. Horton
419 W. Murray Avenue
Visalia, CA 93291
Contact: Matt Tranah
Phone: (559) 636-9850

Consultant:

5080 California Avenue, Suite 220
Bakersfield, CA 93309
Contact: Jaymie Brauer
Brian G. Shoener, P.E.
Phone: (559) 449-2400
Fax: (559) 733-7821

February 2025

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Project #240227

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SECTION 1 - INTRODUCTION

1.1 - Regulatory Requirement

Senate Bill 610 (Chapter 643, Statutes of 2001) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and land use decisions made by cities and counties. The statute requires detailed information regarding water availability to be provided to city and county decision-makers prior to approval of specified large development projects which are subject to CEQA (the California Environmental Quality Act) approval. These include residential, commercial, and industrial uses. The statute also requires this detailed information to be included in the administrative record that serves as the evidentiary basis for an entitlement action by the city or county on such projects. The statute-required water supply assessment (WSA) must examine the availability and sufficiency of an identified water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection, accounting for the projected water demand of the Project in addition to other existing and planned future uses of the identified water supply.

The State Department of Water Resources "Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001" (Guidebook) and the sample format presented in the Guidebook were used as guides in preparing this water supply assessment. Pertinent excerpts from the law stipulating requirements for water supply assessments precede Sections of this report. The full text of Chapter 643, Statutes of 2001 (SB 610) is included in Appendix A.

1.2 - Project Description and Location

The Project is a 34-acre residential development, to be developed by D.R. Horton on a site on the eastern side of the City of Reedley. The project site is bounded by East Springfield Avenue to the east, a residential subdivision to the south, rural residential homes and East North Avenue to the north, and South Buttonwillow Avenue to the west (Figure 1-1 and Figure 1-2). The Project is within Section 25, Township 15 South, Range 23 East.

The proposed Project site is currently agriculture. The project proposes the development of 176 single-family lots averaging 5,627 square feet per lot (Figure 1-3). The project site is located within the City of Reedley's Sphere of Influence (SOI) and has a planned land use designation of Low Density Residential (4-8 dwelling units per acre [du/acre]) and High Density Residential (15-29 du/acre) pursuant to the Reedley 2030 General Plan. The site is zoned Limited Agricultural (AL-20) according to the County of Fresno zoning map. The project proposes to amend the planned land use designation of an approximately 3.5-acre portion of the project site from High Density Residential to Low Density Residential. Additionally, the project proposes to pre-zone the project site and the three rural residential parcels to the northwest, APNs 370-040-13, 370-040-22, and 370-040-23, to the R-1-6 (One Family Residential) zone district in preparation for annexation of the parcels consistent with the Reedley 2030 General Plan.

1.3 - Project Water Requirements and Setting

Water needed for construction will be obtained from the City of Reedley which obtains groundwater from wells located on land within the City. The current water distribution system is adjacent to the project site. The construction process is estimated to take approximately 48 months. Construction water demands are estimated to be approximately 225 gpd/acre for the duration of construction or 12.21 acre-feet, which is equivalent to approximately 3,978,000 gallons. Bottled drinking water will be provided for crews during construction activities.

Initial construction water usage will be in support of site preparation and grading activities. During earthwork for grading of access road foundations, building foundations and project components, the principal use of water would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for foundations and other minor uses. After the earthwork activities, water usage will be used for dust suppression and normal construction water requirements that are associated with construction of the buildings, internal access roads, and revegetation.

The long-term average day operational water demand will be for the residential users and is anticipated to be approximately 35.08 million gallons per year or 107.64 acre-feet per year for the total build out of the Project. This is based on each residential unit having an average day water demand of 546 gallons per day (based on the 156-gallon per capita/day average in the 2020 City of Reedley Urban Water Management Plan and 3.5 people per unit) across the entire buildout of 176 units for the Project.

Figures 1-4 and 1-5 illustrate the location of the Project site within the Tulare Lake Hydrologic Region, the San Joaquin Valley Groundwater Basin and the Kings Subbasin, and the borders of these water resource areas. Construction and operational water for the Project will be from sources pumping groundwater from this basin. The Kings Subbasin does not have any adjudicated areas.

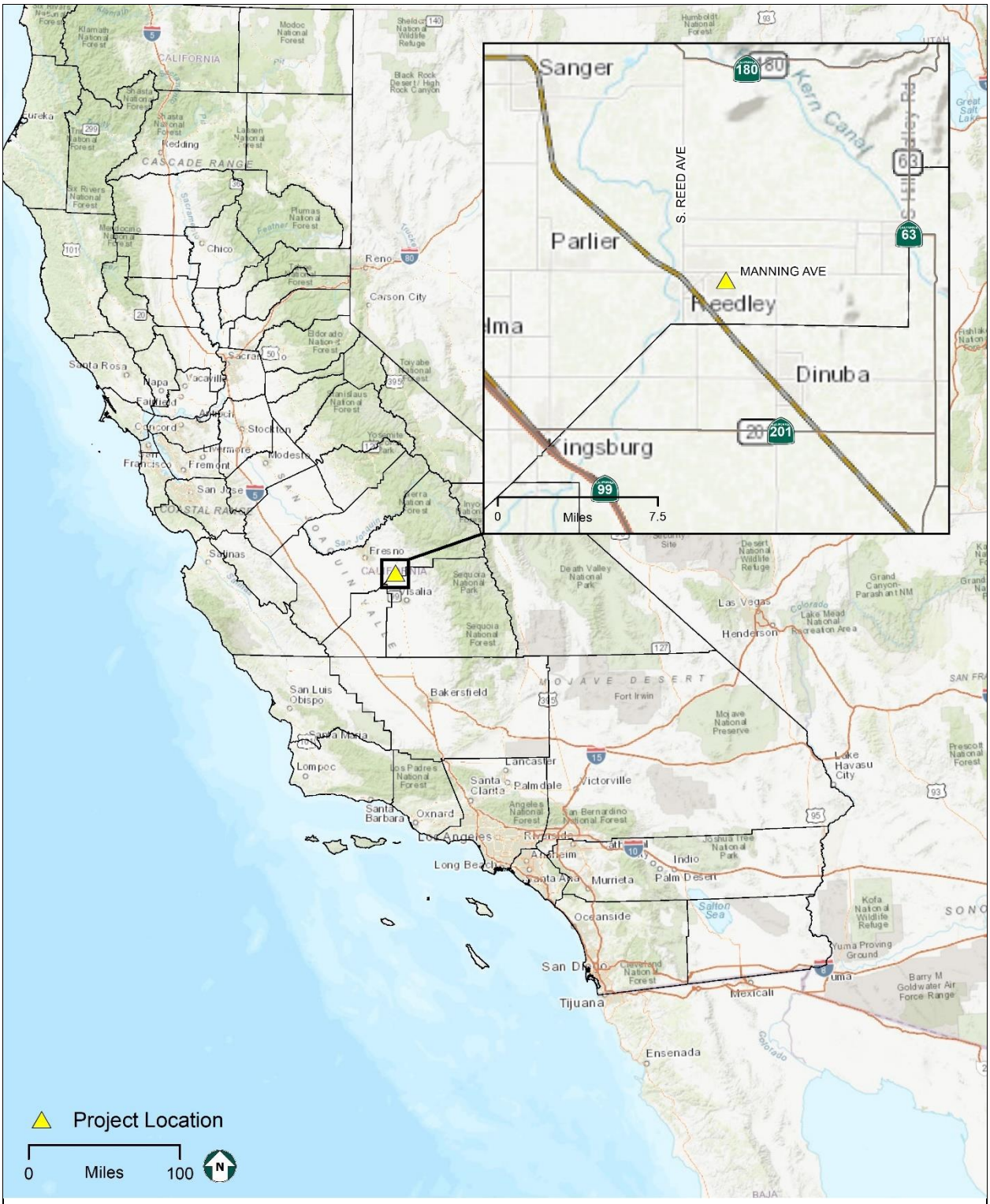


Figure 1-1
Regional Location



Figure 1-2
Project Site

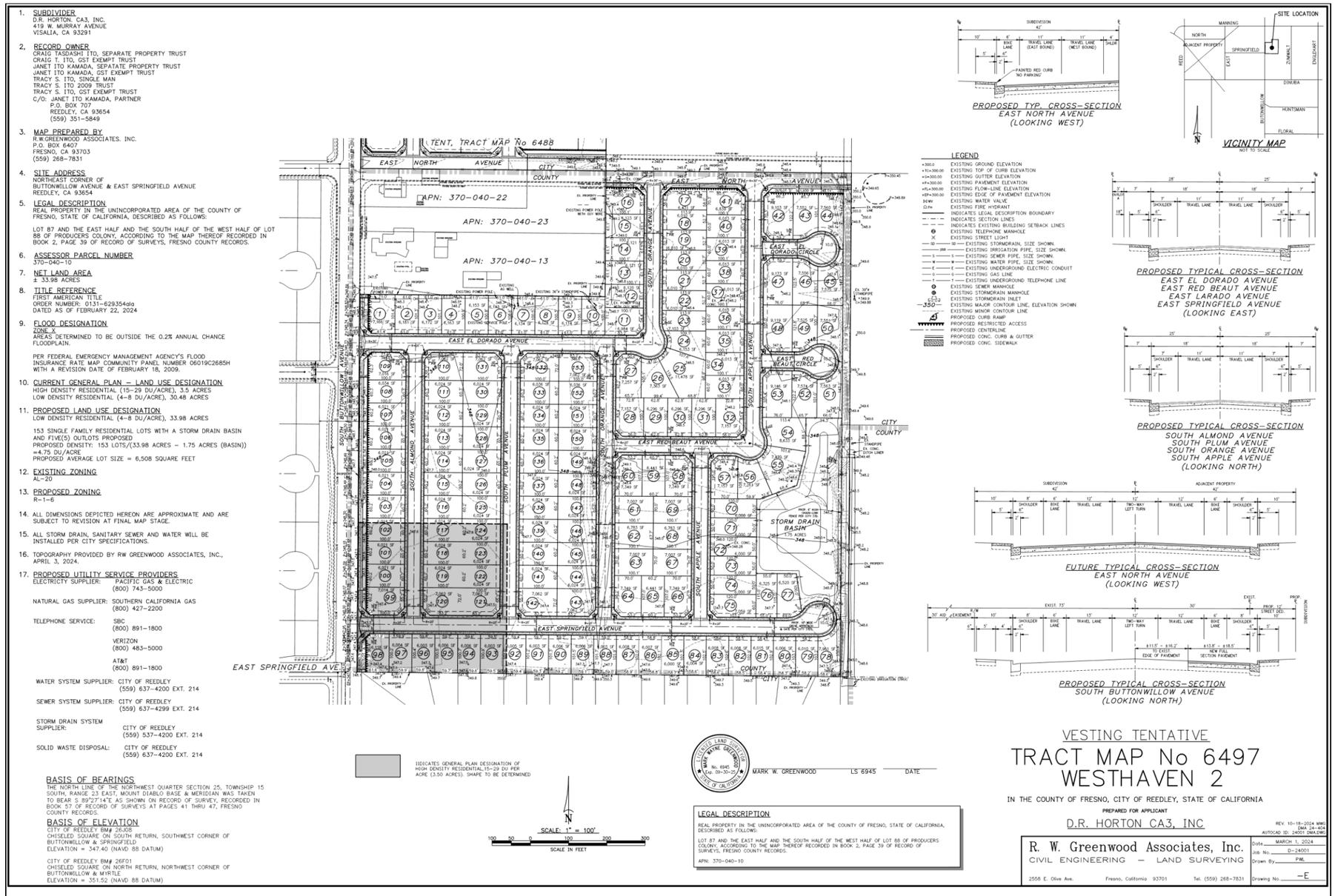


Figure 1-3
Project Site – Tentative Tract Map

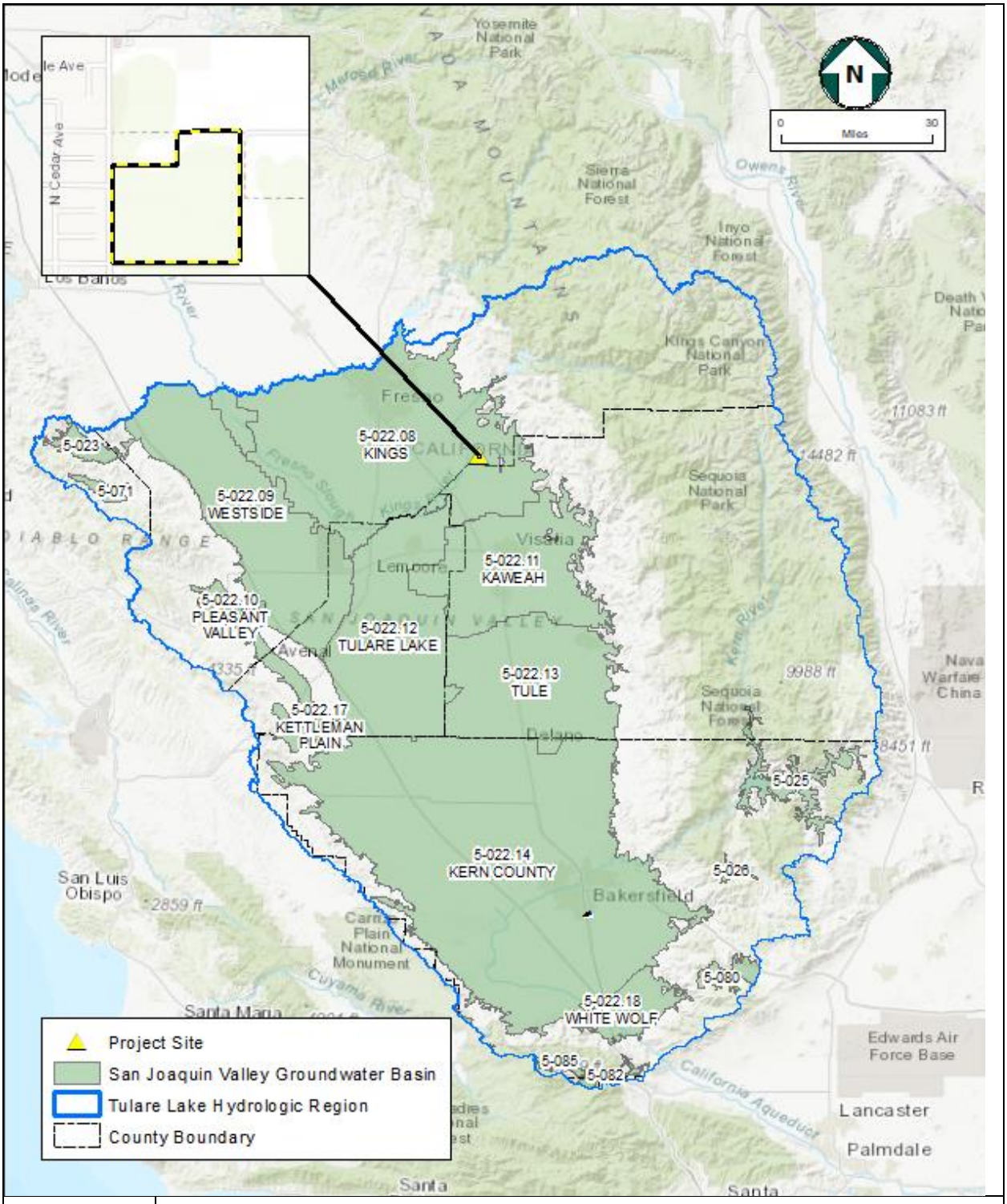


Figure 1-4
Project Location: Tulare Lake Hydrologic Region

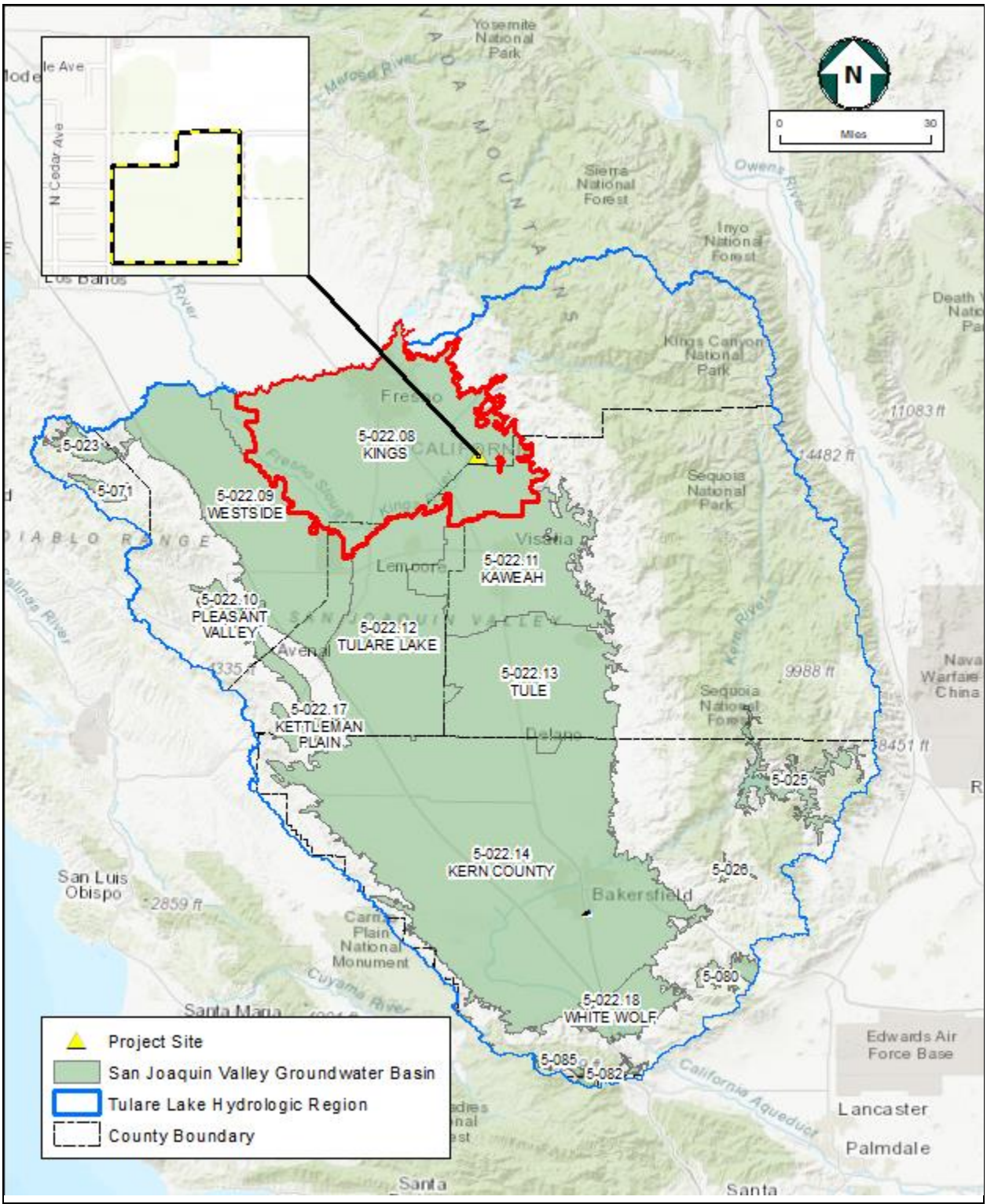


Figure 1-5
Project Location: Kings Groundwater Subbasin

SECTION 2 - WATER RESOURCES/WATER SUPPLY

2.1 - Proposed Water Supply

The project will be served by a public water system as required by Water Code section 10910(b). The purpose of the Water Supply Assessment is to determine "If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g). If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

The City of Reedley is required to adopt an urban water management plan since the city serves more than 3,000 connections. The 2020 UWMP will be used for this water supply assessment. The 2020 UWMP will be used to obtain the following:

> "a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project."

In making the sufficiency determination, the public water system shall include an assessment of the following from Water Code Section 10910.

Water Code Section 10910

> (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.
>
> (b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system whose service area includes the project site and any water system adjacent to the project site that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public

water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

The Project area consists of the General Plan land use of Low Density Residential. The long-term average day operational water demand will be for the residential users and is anticipated to be approximately 35.08 million gallons per year or 107.64 acre-feet per year for the total build out of the Project. This is based on each residential unit having an average day water demand of 546 gallons per day (based on the 156-gallon per capita/day average in the 2020 City of Reedley Urban Water Management Plan and 3.5 people per unit) across the entire buildout of 176 units for the Project.

Project water supply during construction and for the developed properties is proposed to be from the City of Reedley.

2.2 - Hydrologic Region

The Water Supply Assessment evaluates the physical availability of and adequate groundwater supply, in all "water years" for a 20-year period.

This Assessment describes the relevant Hydrologic Region, Basin, and Subbasin, describes the principal water agency (City of Reedley) serving and regulating Basin water planning and surface water importation, and lists water sufficiency and planning documents regarding the Basin. Section 3 includes the latest (2020) City of Reedley projection of water availability (ground) for the Basin for a 20-year period under the normal, single dry and multiple dry year scenarios, as required by SB 610.

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2)(A) A description of any groundwater basin or basins from which the proposed project will be supplied.

(B) For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree.

(C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4 , information regarding the following:

(i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924 .

(ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

(D) For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4 , information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

2.2.1 - GROUNDWATER - THE TULARE LAKE HYDROLOGIC REGION

The California Department of Water Resources, (DWR) has divided the State into 10 Hydrologic Regions. The Project site is located within the Tulare Lake Hydrologic Region in a Basin ranked as "high priority" in a statewide ranking of groundwater importance. The Region encompasses approximately 16,800 square miles (see Figure 1-4).

2.2.2 - THE KINGS GROUNDWATER SUBBASIN

As shown in Figure 2-1, the City of Reedley is located in the Kings Subbasin (DWR Subbasin 5-22.08) which is in the greater Tulare Lake hydrologic region (DWR Basin 5.22), and also within the larger San Joaquin Valley Groundwater Basin (CA Natural Resources Agency, 2018). The Kings Subbasin covers approximately 1,530 square miles. The Kings Subbasin is generally bounded: on the north by the San Joaquin River; on the west by the Fresno Slough; on the south by the Kings River and Cottonwood Creek; and on the east by the Sierra foothills.

Groundwater in the Basin is used for all water supply for the City of Reedley. The city participates in and is a member of the Kings River East Groundwater Sustainability Agency (KREGSA). The KREGSA adopted a Groundwater Sustainability Plan in January 2025.

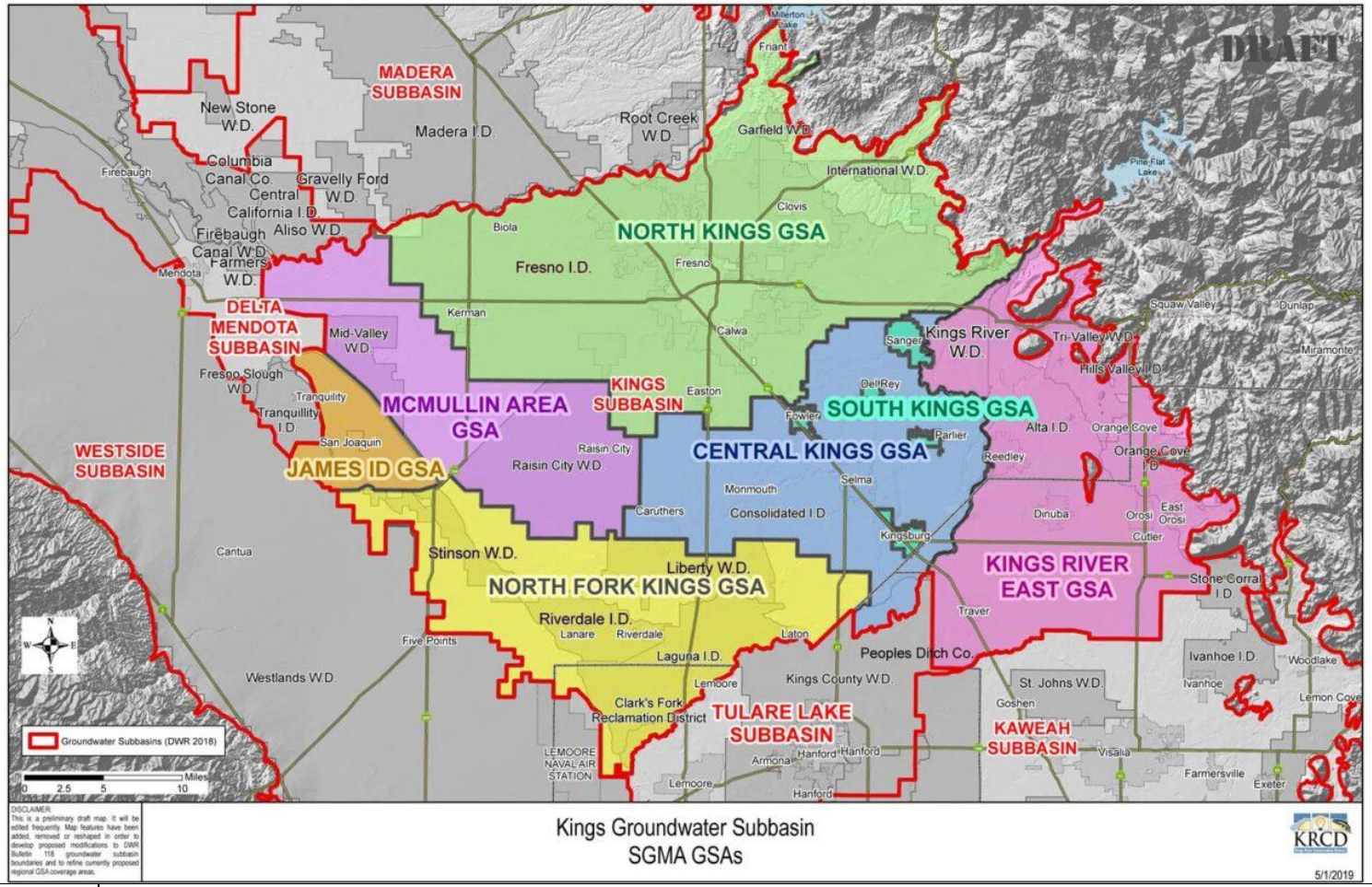


Figure 2-1
Kings Groundwater Subbasin

2.3 - City of Reedley – 2020 UWMP

The proposed water for the project is located within the City of Reedley Sphere of Influence. As such, the city has detailed information regarding groundwater in the area.

The city has an estimated service population of approximately 25,873 people. In 2020, approximately 5,030 acre-feet (1,639 million gallons) of water was delivered to an estimated 5,914 water service connections of which approximately 43% of the water use is for residential services. The remainder are for commercial, industrial uses and losses.

The city currently utilizes local groundwater and surface water as its source of water supply. Groundwater is extracted by seven wells located within the city's sphere of influence.

The Planning Documents

The following documents were essential to the development of this report:

- City of Reedley, 2020 Urban Water Management Plan, December 2021
- Kings River East GSA Groundwater Sustainability Plan (GSP), January 2025
- Department of Water Resources Bulletin 118

SECTION 3 - WATER SUPPLY SUFFICIENCY

Water Code Section 10910, Section 4.5

…(c)(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single, dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

The sufficiency of the Project water supply is analyzed on two bases: the physical availability of the city to provide water in the amounts required for Project construction and operation; and the estimates (in the 2020 City of Reedley Urban Water Management Plan) of normal water years, single dry water year and multiple dry water years, water supply and demand-related water availability with respect to projected water demand during a 20-year projection. The city is a participant in the Kings River East Groundwater Sustainability Agency (KREGSA) that adopted a GSP in January 2025. The 2020 Urban Water Management Plan is in compliance with the KREGSA GSPs.

3.1 - Physical Availability

The information regarding the physical availability of water at and near to the Project site supports the conclusion that the groundwater aquifer pumping history are sufficient for both Project construction and Project operation and that there will be sufficient water to serve project needs for 20 years under the water scenarios described below.

3.2 - The 2020 City of Reedley, Urban Water Management Plan – Water Years Adequacy Projections

The following text excerpted from the Urban Water Management Plan illustrates the total groundwater resources available to the City, and the projected usage demand on such supplies through 2045. The following text extract (Section 7.2.3 of the UWMP) explains the city water supply adequacy:

> *Based on the analysis of the City's current/projected water supply sources, the City has sufficient resources to serve existing and future demands under normal, single dry year, and five consecutive dry years conditions. The City's UWMP considers the reliability of meeting customer water use by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that could affect the City's water supply and its customers' water uses. No factors were found that indicate variation in supply reliability or customer demand due to drought.*

The following tables from the 2020 City of Reedley Urban Water Master Plan show the supply and demand comparisons for a normal year, single dry year, and five consecutive dry years.

3.2.1 - AVERAGE (OR NORMAL) YEAR

Normal year supply and demand projections and differences are presented in Table 3-1 (Table 7-2 in UWMP).

Table 3-1
Normal Year Supply and Demand Comparison (MG)

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045** *(opt)*
Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
Difference	0	0	0	0	0

As shown in Table 3-1, future water supplies are anticipated to be meet.

3.2.2 - SINGLE DRY YEAR

Projected supplies were compared to the increased demands for a single-dry year and are presented in Table 3-2 (Table 7-3 in UWMP).

Table 3-2
Single Dry Year Supply and Demand Comparison (MG)

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045** *(opt)*
Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
Difference	0	0	0	0	0

As shown in Table 3-2, anticipated groundwater supplies are sufficient to meet all demands through the year 2045 even under single-year drought conditions.

3.2.3 - FIVE CONSECUTIVE DRY-YEAR RELIABILITY ASSESSMENT

Projected supplies were compared to the increased demands for five-consecutive dry-year scenarios and are presented in Table 3-3 (Table 7-4 in UWMP).

Table 3-3
Retail: Five Consecutive Dry Years Supply and Demand Comparison (MG)

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025	2030	2035	2040	2045
First year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Second year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Third year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Fourth year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Fifth year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0

As shown in Table 3-3, anticipated groundwater supplies are sufficient to meet all demands through the year 2045 even under multiple-dry year drought conditions.

The long-term average day operational water demand will be for the residential users and is anticipated to be approximately 35.08 million gallons per year or 107.64 acre-feet per year for the total build out of the Project. This is based on each residential unit having an average day water demand of 546 gallons per day (based on the 156-gallon per capita/day average in the 2020 City of Reedley Urban Water Management Plan and 3.5 people per unit) across the entire buildout of 176 units for the Project.

The Project is within the City Sphere of Influence and growth within the Sphere of Influence is what the UWMP considered in growth from 2025 to 2045. The Project water demand is included in the projected increase in water demand of 1,022 MG from 2025 to 2045 (Table 3-3). The Project long-term operational water demand is 1.25% (35.08 MG/2,817 MG) of the available water supply in the city.

The tables and accompanying text indicate that the responsible water agency for the Project area has taken appropriate steps to assure that the total water supply for the service area will be adequate.

3.3 - Water Supply Management

California Water Resources has defined the Kings Subbasin as "critically overdrafted." Overdraft occurs where the average annual amount of groundwater extraction exceeds the long-term average annual supply of water to the basin. Sustainable yield is defined as the amount of groundwater pumping that can occur while maintaining groundwater at

sustainable levels and avoiding undesirable results. The KREGSA GSP estimates the sustainable yield of the Kings Subbasin at 1,240,000 acre-feet/year. This results in a shortfall of approximately -122,000 acre-feet/year for the entire subbasin (11,000 acre-feet/year initial responsibility for the Kings River East GSA).

The KREGSA, along with the other GSAs in the Kings Basin, have determined the overdraft responsibility for each of the GSAs in the Subbasin by estimating their "groundwater impact," which is essentially their groundwater pumping minus any natural and artificial forms of recharge.

According to the KREGSA's GSP, there are several projects within the City of Reedley's geographic area that may be implemented to offset a portion of the GSA's groundwater extraction and eliminate long term overdraft of the Kings subbasin. According to the GSP, each project with be implemented either by the City of Reedley or the GSA. The projects will primarily help stabilize groundwater levels and increase the amount of groundwater in storage. Additionally, the projects can also provide groundwater quality benefits and/or reduce land subsidence. The GSP estimates that these projects would yield an estimated average annual volume of approximately 200,000 acre-feet/year if fully implemented as envisioned.

The Project is accounted for in the UWMP and the UWMP is in agreement with the KREGSA GSP. Because of this, the Project water demand is available from the groundwater in the area.

SECTION 4 - CONCLUSIONS

This Water Supply Assessment has provided the data and analysis needed to verify that a sufficient Project water supply is physically available (Section 3.1) by the end of 2025, and that the Project water supply is in accord with SB 610's normal year/dry year/multiple dry year requirements, sufficient (Section 3.2).

It is recommended that the City of Reedley conclude that the proposed water supplies for the Project be found sufficient to meet the projected Project water demands.

SECTION 5 - REFERENCES

2003. Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001. (online): http://www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf. Accessed February 1, 2021

California Department of Water Resources (DWR). 2015. California's Groundwater Bulletin 118.135 p.

City of Reedley, 2020 Urban Water Management Plan

APPENDIX A

CHAPTER 643, STATUTES OF 2001 (SENATE BILL 610)

Senate Bill No. 610
CHAPTER 643

An act to amend Section 21151.9 of the Public Resources Code, and to amend Sections 10631, 10656, 10910, 10911, 10912, and 10915 of, to repeal Section 10913 of, and to add and repeal Section 10657 of, the Water Code, relating to water.

[Filed with Secretary of State October 09, 2001. Approved by Governor October 09, 2001.]

LEGISLATIVE COUNSEL'S DIGEST

SB 610, Costa. Water supply planning.

(1) Existing law requires every urban water supplier to identify, as part of its urban water management plan, the existing and planned sources of water available to the supplier over a prescribed 5-year period. Existing law prohibits an urban water supplier that fails to prepare or submit its urban water management plan to the Department of Water Resources from receiving drought assistance from the state until the plan is submitted.

This bill would require additional information to be included as part of an urban water management plan if groundwater is identified as a source of water available to the supplier. The bill would require an urban water supplier to include in the plan a description of all water supply projects and programs that may be undertaken to meet total projected water use. The bill would prohibit an urban water supplier that fails to prepare or submit the plan to the department from receiving funding made available from specified bond acts until the plan is submitted. The bill, until January 1, 2006, would require the department to take into consideration whether the urban water supplier has submitted an updated plan, as specified, in determining eligibility for funds made available pursuant to any program administered by the department.

(2) Existing law, under certain circumstances, requires a city or county that determines an environmental impact report is required in connection with a project, as defined, to request each public water system that may supply water for the project to assess, among other things, whether its total projected water supplies will meet the projected water demand associated with the proposed project. Existing law requires the public water system to submit the assessment to the city or county not later than 30 days from the date on which the request was received and, in the absence of the submittal of an assessment, provides that it shall be assumed that the public water system has no information to submit. Existing law makes legislative findings and declarations concerning "Proposition C," a measure approved by the voters of San Diego County relating to regional growth management, and provides that the procedures established by a specified review board established in connection with that measure are deemed to comply with the requirements described above relating to water supply planning by a city or county.

This bill would revise those provisions. The bill, instead, would require a city or county that determines a project is subject to the California Environmental Quality Act to identify any public water system that may supply water for the project and to request those public water systems to

prepare a specified water supply assessment, except as otherwise specified. The bill would require the assessment to include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts. The bill would require the city or county, if it is not able to identify any public water system that may supply water for the project, to prepare the water supply assessment after a prescribed consultation. The bill would revise the definition of "project," for the purposes of these provisions, and make related changes.

The bill would prescribe a timeframe within which a public water system is required to submit the assessment to the city or county and would authorize the city or county to seek a writ of mandamus to compel the public water system to comply with requirements relating to the submission of the assessment.

The bill would require the public water system, or the city or county, as applicable, if that entity concludes that water supplies are, or will be, insufficient, to submit the plans for acquiring additional water supplies.

The bill would require the city or county to include the water supply assessment and certain other information in any environmental document prepared for the project pursuant to the act. By establishing duties for counties and cities, the bill would impose a state-mandated local program.

The bill would provide that the County of San Diego is deemed to comply with these water supply planning requirements if the Office of Planning and Research determines that certain requirements have been met in connection with the implementation of "Proposition C."

(3) The bill would incorporate additional changes in Section 10631 of the Water Code proposed by AB 901, to be operative only if this bill and AB 901 are enacted and become effective on or before January 1, 2002, each bill amends Section 10631 of the Water Code, and this bill is enacted last.
(4) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

DIGEST KEY

BILL TEXT
THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1.

(a) The Legislature finds and declares all of the following:

(1) The length and severity of droughts in California cannot be predicted with any accuracy.

(2) There are various factors that affect the ability to ensure that adequate water supplies are available to meet all of California's water demands, now and in the future.

(3) Because of these factors, it is not possible to guarantee a permanent water supply for all water users in California in the amounts requested.

(4) Therefore, it is critical that California's water agencies carefully assess the reliability of their water supply and delivery systems.

(5) Furthermore, California's overall water delivery system has become less reliable over the last 20 years because demand for water has continued to grow while new supplies have not been developed in amounts sufficient to meet the increased demand.

(6) There are a variety of measures for developing new water supplies including water reclamation, water conservation, conjunctive use, water transfers, seawater desalination, and surface water and groundwater storage.

(7) With increasing frequency, California's water agencies are required to impose water rationing on their residential and business customers during this state's frequent and severe periods of drought.

(8) The identification and development of water supplies needed during multiple-year droughts is vital to California's business climate, as well as to the health of the agricultural industry, environment, rural communities, and residents who continue to face the possibility of severe water cutbacks during water shortage periods.

(9) A recent study indicates that the water supply and land use planning linkage, established by Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code, has not been implemented in a manner that ensures the appropriate level of communication between water agencies and planning agencies, and this act is intended to remedy that deficiency in communication.

(b) It is the intent of the Legislature to strengthen the process pursuant to which local agencies determine the adequacy of existing and planned future water supplies to meet existing and planned future demands on those water supplies.

SEC. 2.

Section 21151.9 of the Public Resources Code is amended to read:

21151.9.

Whenever a city or county determines that a project, as defined in Section 10912 of the Water Code, is subject to this division, it shall comply with Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code.

SEC. 3.

Section 10631 of the Water Code is amended to read:

10631.

A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of such savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

SEC. 3.5.

Section 10631 of the Water Code is amended to read:

10631.

A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that

characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed

description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

SEC. 4.

Section 10656 of the Water Code is amended to read:

10656.

An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

SEC. 4.3.

Section 10657 is added to the Water Code, to read:

10657.

(a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

SEC. 4.5.

Section 10910 of the Water Code is amended to read:

10910.

(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

(d) (1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water

systems or water service contractholders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

(g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

(2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.

(3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

(h) Notwithstanding any other provision of this part, if a project has been the subject of a water supply assessment that complies with the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project for which a water supply assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.

(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.

(3) Significant new information becomes available which was not known and could not have been known at the time when the assessment was prepared.

SEC. 5.

Section 10911 of the Water Code is amended to read:

10911.

(a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

SEC. 6.

Section 10912 of the Water Code is amended to read:

10912.

For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system which is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

SEC. 7.

Section 10913 of the Water Code is repealed.

SEC. 8.

Section 10915 of the Water Code is amended to read:

10915.

The County of San Diego is deemed to comply with this part if the Office of Planning and Research determines that all of the following conditions have been met:

(a) Proposition C, as approved by the voters of the County of San Diego in November 1988, requires the development of a regional growth management plan and directs the establishment of a regional planning and growth management review board.

(b) The County of San Diego and the cities in the county, by agreement, designate the San Diego Association of Governments as that review board.

(c) A regional growth management strategy that provides for a comprehensive regional strategy and a coordinated economic development and growth management program has been developed pursuant to Proposition C.

(d) The regional growth management strategy includes a water element to coordinate planning for water that is consistent with the requirements of this part.

(e) The San Diego County Water Authority, by agreement with the San Diego Association of Governments in its capacity as the review board, uses the association's most recent regional growth forecasts for planning purposes and to implement the water element of the strategy.

(f) The procedures established by the review board for the development and approval of the regional growth management strategy, including the water element and any certification process established to ensure that a project is consistent with that element, comply with the requirements of this part.

(g) The environmental documents for a project located in the County of San Diego include information that accomplishes the same purposes as a water supply assessment that is prepared pursuant to Section 10910.

SEC. 9.

Section 3.5 of this bill incorporates amendments to Section 10631 of the Water Code proposed by both this bill and AB 901. It shall only become operative if (1) both bills are enacted and become effective on or before January 1, 2002, (2) each bill amends Section 10631 of the Water Code, and (3) this bill is enacted after AB 901, in which case Section 3 of this bill shall not become operative.

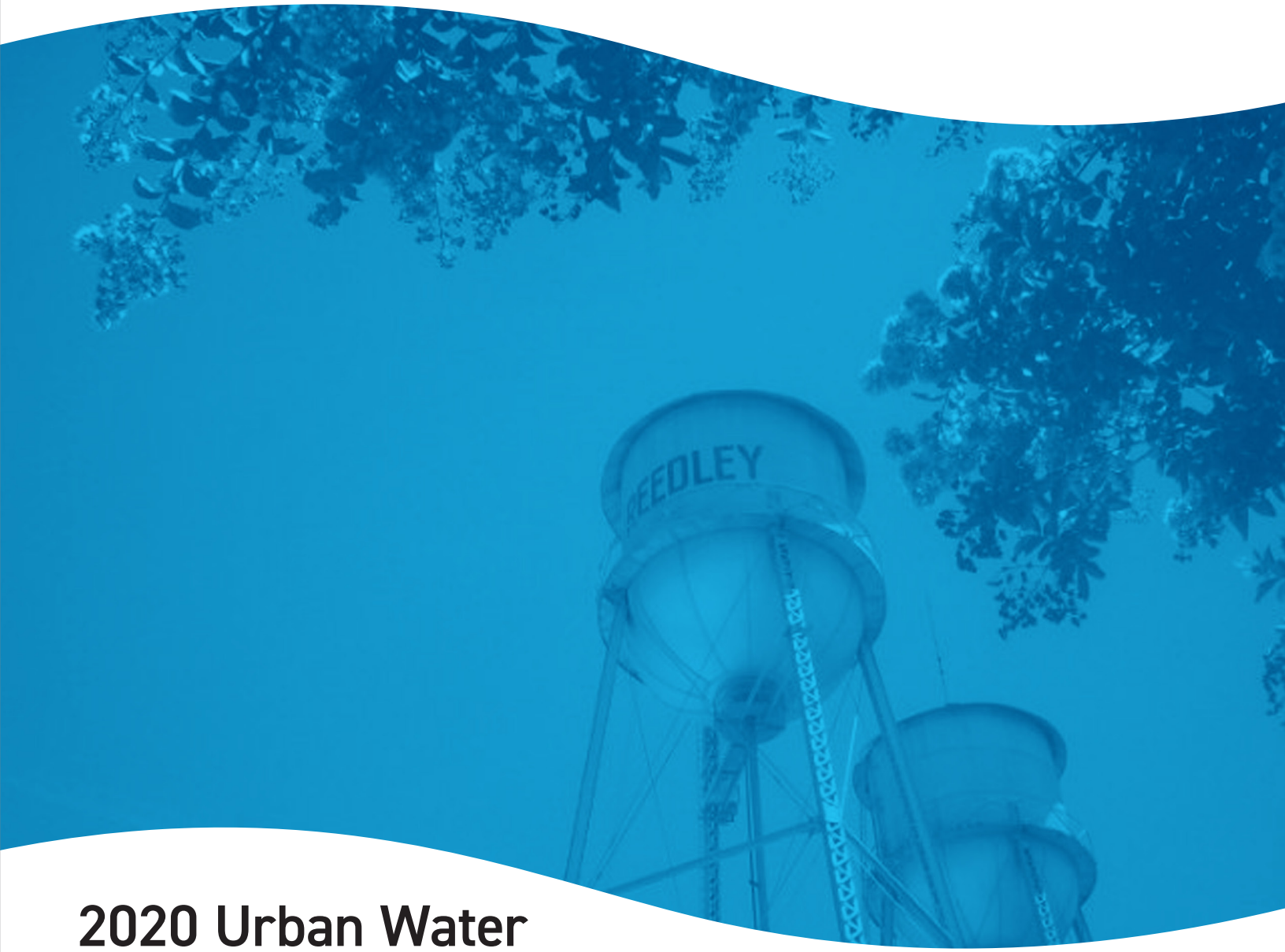
SEC. 10.

No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

APPENDIX B

2020 CITY OF REEDLEY, URBAN WATER MANAGEMENT PLAN

City of Reedley



2020 Urban Water Management Plan

December 2021

Prepared for:
City of Reedley
1733 Ninth Street
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Prepared by:
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City of Reedley

2020 Urban Water Management Plan

March 2022

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Appendix J - Newspaper Notification

Appendix K - Adoption Resolution

Appendix L - 2020 UWMP Checklist

Appendix M - UWMP Water Code

Bibliography

The following reports, studies, and other material were reviewed during preparation of this Urban Water Management Plan update.

1) 2020 Urban Water Management Plans Guidebook for Urban Water Suppliers dated March 2021 and prepared by the California Department of Water Resources.

2) Completed American Water Works Association 2015 to 2019 Water Audits.

3) AWIA Risk and Resilience Assessment dated April 2021 and prepared by MKN & Associates.

4) 2015 Urban Water Management Plan dated June 2016 and prepared by AM Consulting Engineers, Inc.

5) City of Reedley Integrated Master Plan dated June 2014 and prepared by HDR.

6) City of Reedley General Plan 2030 dated February 2014 and prepared by the City of Reedley.

7) Upper Kings Basin Integrated Regional Water Management Plan (IRWMP) dated July 2007 and prepared by wRIME.

List of Acronyms

AB - Assembly Bill
AF - Acre-Foot
AFY - Acre-Feet per Year
AID – Alta Irrigation District
AWIA - America's Water Infrastructure Act
AWWA - American Water Works Association
BMP - Best Management Practice
CA - California
CASGEM - California Statewide Groundwater Elevation Monitoring Program
City - City of Reedley
CD - Compact Disc
CII - Commercial, Industrial, Institutional, water use sectors
CID – Consolidated Irrigation District
CIMIS - California Irrigation Management Information System
CUWCC - California Urban Water Conservation Council
CWC - California Water Code
DMMs - Demand Management Measures
DOF - Department of Finance
DRA - Drought Risk Assessment
DU – Dwelling Unit
DWR - Department of Water Resources
eARDWP - Electronic Annual Reports to the Drinking Water Program (SWRCB)
EIR - Environmental Impact Report
EPA - Environmental Protection Agency
ETo - Reference Evapotranspiration
GAC - Granular Activated Carbon
GIS - Geographic Information System
GHG – Greenhouse Gase
GPCD - Gallons per Capita per Day
GSA - Groundwater Sustainability Agency
GSP - Groundwater Sustainability Plan
HECW - High-Efficiency Clothes Washer
HET/DFT - High-Efficiency Toilet
ID - Identifier
IRWM - Integrated Regional Water Management
ITP - Independent Technical Panel
JPA- Joint Powers Authority
KRCD – Kings River Conservation District
MOA – Memorandum of Agreement
MOU- Memorandum of Understanding
MG - Million Gallons
MGY - Million Gallons per Year
NA - Not Applicable
NOAA - National Oceanic and Atmospheric Administration
NPDES - National Pollutant Discharge Elimination System
PSA – Public Service Announcement
PWS - Public Water System
RUWMP - Regional Urban Water Management Plan
RWQCB - Regional Water Quality Control Board
SB - Senate Bill
SB X7-7 - Senate Bill Seven of the Senate's Seventh Extraordinary Session of 2009
SGMA - Sustainable Groundwater Management Act
SQ FT – Square Feet
SOI – Sphere of Influence
SWP - State Water Project
SWRCB - State Water Resources Control Board
UWMP - Urban Water Management Plan
WBIC - Weather-Based Irrigation Controllers
WDR - Waste Discharge Requirement
WRF - Water Reclamation Facility
WRR - Water Recycling Requirement
WSCP - Water Shortage Contingency Plan
WUE - Water Use Efficiency
WWTP - Wastewater Treatment Plant

CHAPTER 1 UWMP INTRODUCTION AND OVERVIEW

The majority of the information contained in this chapter was taken from the State of California, Department of Water Resources Urban Water Management Plan Guidebook March 2021 to provide a general overview of the purpose of the UWMP update.

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Act). The law required an urban water supplier (Supplier), providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet annually, to adopt an Urban Water Management Plan (UWMP) every five years demonstrating water supply reliability in normal, single dry, and multiple dry years. The original Act also required the California Department of Water Resources (DWR) to provide a report to the California Legislature on the status of water supply planning in California.

Since the Act was passed, it has undergone significant expansion and revision since the last UWMP Guidebook was prepared in 2015. Prolonged droughts, groundwater overdraft, regulatory revisions, and changing climatic conditions not only affect each Supplier's water reliability determinations, but also the broad picture of statewide water reliability overseen by DWR, the State Water Resources Control Board (State Water Board), and the State of California Legislature (Legislature). Accordingly, the Act has grown to address changing conditions and it guides California's water resource management.

This report comprises the 2020 UWMP update for the City of Reedley (City). The City is located along the Kings River in Fresno County, lying just inland between the State's coastal mountain range and the Sierra Nevada Mountains. The City is a public agency that provides water and sewer service to all residential, commercial, and industrial customers and for fire protection uses. Covering approximately 5.08 square miles, the City serves a current population of 25,873 through approximately 5,914 active service connections.

New Requirements for 2020 Update

Per the California Water Code (Water Code), the following new requirements have been identified in the 2020 Urban Water Management Plan Guidebook for Urban Water Suppliers and have been addressed throughout the report:

- ❑ Five Consecutive Dry-Year Water Reliability Assessment
- ❑ Drought Risk Assessment
- ❑ Seismic Risk
- ❑ Energy Use Information
- ❑ Water Loss Reporting for Five Years
- ❑ Water Shortage Contingency Plan (WSCP)
- ❑ Groundwater Supplies Coordination
- ❑ Lay Person Description

1.1 UWMP Organization

This UWMP update was prepared based on guidance from the final draft of the California Department of Water Resources (DWR) "2020 Urban Water Management Plan Guidebook for Urban Water Suppliers" dated March 2021 and follows the recommended chapter formatting identified in the guidebook and briefly described below.

Chapter 1 – UWMP Introduction and Lay Description. This chapter identifies changes since the 2015 UWMP, fundamentals of the 2020 UWMP, and the required lay description of the City and its service area. Some subsequent chapters also include an initial lay description.

Chapter 2 – Plan Preparation. This chapter provides information on processes used to develop the UWMP, including efforts in coordination and outreach.

Chapter 3 – System Description. This chapter includes maps of the service area, an explanation of the service area and climate, and detail on the public water system.

Chapter 4 –Water Use Characterization. This chapter provides a description and quantification of the current and projected water uses within the City's service area.

Chapter 5 – Conservation Target Compliance. This chapter describes the City's compliance with the 2020 per-capita water conservation mandate, presents the City's 2020 per-capita target value that was adopted in the 2015 UWMP, and compliance with per-capita target based upon actual 2020 customer water use.

Chapter 6 – Water Supply Characterization. This chapter provides a description and quantification of current and projected potable and non-potable water supplies. A narrative description of each supply source and quantification of the supply availability for each supply source was identified.

Chapter 7 – Water Service Reliability and Drought Risk Assessment. This chapter describes the City's water system reliability through at least a 20-year planning horizon. The description includes normal, single dry year, and five consecutive dry years. The water system reliability differs from the Drought Risk Assessment (DRA) by allowing a different basis for characterizing the five consecutive dry years.

Chapter 8 – Water Shortage Contingency Plan. This chapter provides a structured plan for dealing with water shortages, incorporating prescriptive information and standardized action levels, along with implementation actions in the event of a catastrophic supply interruption.

Chapter 9 – Demand Management Measures. This chapter identifies the City's efforts to promote conservation and to reduce demand on the water supply; specifically including a narrative describing efforts to implement demand management measures.

Chapter 10 – Plan Adoption, Submittal, and Implementation. This chapter describes and documents the steps taken to make the UWMP publicly available, as well as the steps taken to adopt and submit the UWMP in accordance with the Water Code, and also describes the City's plan to implement the UWMP.

Appendices – To support and further clarify information included in the main chapters of the UWMP, relevant information has been included in the appendix of this UWMP.

Table 1-1 provides an overview of the applicable changes to the Water Code since the 2015 UWMP, which have been included in this 2020 update.

Table 1-1 Water Code Changes since 2015 UWMP				
Change Number	**Topic**	**CWC Section**	**Summary**	**Guidebook Section**
1	System Description	10631(a)	Suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land uses information for projecting water use in five-year increments, up to the year 2045.	3.0
2	Other Social, Economic, and Demographic Factors	10631	Describe the service area of the supplier, including current and projected population, climate, and other social, economic and demographic factors affecting the supplier's water management planning.	3.4.2
3	Land Uses within Service Area	10631(a)	The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning.	3.5
4	Distribution System Water Loss	10635	Suppliers shall provide a simple lay description of their projected water use for the foreseeable future.	4.2.4
5	Distribution System Water Loss	10631(d)(3) (A) and (C)	Suppliers shall provide quantified distribution system losses for each of the five preceding years and whether or not the state standard was met.	4.2.4
6	Characteristic Five-Year Water Use	10635(b)	Consideration of climate change in future projections in regards to water supply.	4.2.7
7	Climate Change Effects	10635(b)(1)	Consideration of climate change in future projections in regards to water supply.	6.2 & 10.1
8	Drought Risk Assessment	10635(b)	DRA prepared as a component of the 2020 UWMP	7.3
9	Water Service Reliability – Five Consecutive Dry Years	10635(b)(1)	Submittal Table 7-4 is used for the Supplier's water service reliability assessment for five consecutive dry years, for each of the five-year projection increments out to at least 2040	7.2.1 & 7.2.3.3
10	Water Supply Reliability Analysis	10632(a)(1)	Key attributes of its water supply reliability analysis	8.1
11	Six Standard Water Shortage Levels	10632 (a)(3)(A)	Six standard water shortage levels corresponding to progressive ranges of up to 10-, 20-, 30-, 40-, and 50-percent shortages and greater than 50-percent shortage.	8.3
12	Shortage Response Actions	10632 (a)(4)	Locally appropriate "shortage response actions" for each shortage level, with a corresponding estimate of the extent the action will address the gap between supplies and demands.	8.4
13	Annual Water Supply and Demand Assessment Procedures	10632 (a)(2)	Suppliers are required to submit, by July 1 of each year, beginning in the year following adoption of the 2020 UWMP, an annual water shortage assessment report to the California Department of Water Resources (DWR).	8.2

Table 1-1 Water Code Changes since 2015 UWMP				
14	Communication Protocols	10632 (a)(5)	Communication protocols and procedures to inform customers, the public, and government entities of any current or predicted water shortages and associated response actions.	8.5
15	Monitoring and reporting	10632(a)(9)	Monitoring and reporting procedures to assure appropriate data is collected to monitor customer compliance and to respond to any state reporting requirements.	8.9
16	WSCP Refinement Procedures	10632(a)(10)	A reevaluation and improvement process to assess the functionality of its WSCP and to make appropriate adjustments as may be warranted.	8.10

1.2 UWMP in Relation to Other Efforts

A UWMP is prepared by local Suppliers that have the in-depth and practical knowledge of their water systems. The information contained in each Supplier's UWMP reflects the operations of its system in the context of the Supplier's customers, supplies, and service area. This local planning and preparation remains the fundamental focus of the UWMP.

In addition to the local Supplier focus, the UWMP requires coordination with other planning agencies and is most effective when integrated with other planning efforts. Land-use planning agencies, such as cities and counties, prepare General Plans and Specific Plans that affect a Supplier's analysis provided in its UWMP, and vice versa. Moreover, Water Master Plans, facilities' plans, Recycled Water Master Plans, Integrated Regional Water Management Plans, Regional Climate Action Plans, Groundwater Sustainability Plans, AB 3030 Groundwater Management Plans, local or regional Hazard Mitigation Plans, and others need to be synthesized with a Supplier's UWMP to ensure a holistic planning process.

For this UWMP, elements of the following reports and documents were utilized to develop the required sections of the plan (a brief description is provided for the relevant information contained in each document):

- 2015 Urban Water Management Plan: Served as the basis for the 2020 update.
- City of Reedley General Plan 2030 (February 2014): Contains historical and future population projections.
- City of Reedley Integrated Master Plan (June 2014): Contains future projects and project projections.
- Upper Kings Basin Integrated Regional Water Management Plan (IRWMP) (July 2007): Contains information to address climate change within the service area.

1.3 UWMPs and Grant or Loan Eligibility

In order for a Supplier to be eligible for any water grant or loan administered by DWR, the Supplier must have a current UWMP on file that has been determined by DWR to address the requirements of the Water Code. A current UWMP must also be maintained by the Supplier throughout the term of any grant or loan administered by DWR. A UWMP may also be required in order to be eligible for other state funding, depending on the conditions that are specified in the funding guidelines. Suppliers are encouraged to seek guidance on the specifics of any state funding source from the respective funding agencies. The following sections of the Water Code are pertinent to Suppliers considering pursuit of grants or loans.

Law

CWC 10608.56
(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

CWC 10608.56
An urban water supplier is not eligible for a water grant or loan awarded or administered by the state unless the urban water supplier complies with this part.

California Code of Regulations Section 596.1
(b)(2) "disadvantaged community" means a community with a median household income that is less than 80 percent of the statewide annual median household income.

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CHAPTER 2 PLAN PREPARATION

New Requirements for 2020 Update

Per the Guidebook, the preparation and periodic update of a Water Shortage Contingency Plan (WSCP) is now required, which is included in the UWMP but adopted and amended independent of the UWMP. Coordination with land use agencies, GSAs, and other relevant regional or local authorities is now required as part of preparing the UWMP and the WSCP.

2.1 Plan Preparation

This chapter includes information about the following elements required for the City of Reedley 2020 UWMP update:

- ❑ Basis for Preparing a Plan
- ❑ Regional Planning
- ❑ Individual or Regional Planning and Compliance
- ❑ Fiscal or Calendar Year and Units of Measure
- ❑ Coordination and Outreach

2.2 Basis for Preparing a Plan

Law

CWC 10617
"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems.

CWC 10620
(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

CWC 10621
(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

(d) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

2.2.1 Public Water Systems

Law

CWC 10644
(a)(2) The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department.

California Health and Safety Code 116275
(h) "Public Water System" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Table 2-1 provides a summary of the number of connections and total volume of water supplied by the City to their customers for calendar year 2020.

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	**Public Water System Name**	**Number of Municipal Connections 2020**	**Volume of Water Supplied 2020 (MG)**
CA4010002	City of Reedley	5,914	1,639
	TOTAL	**5,914**	**1,639**

2.2.2 Suppliers Serving Multiple Service Areas/Public Water Systems

The City is a water retailer and only provides service to customers within the City limits, therefore this section is not applicable to the City's UWMP update.

2.3 Regional Planning

The City is a member of the Upper Kings Integrated Regional Water Management Plan (IRWMP). As a member of the IRWMP, the City coordinates with all water suppliers and users. The City developed the 2020 UWMP Update solely on the City's service area.

2.4 Individual or Regional Planning and Compliance

2.4.1 Regional UWMP

Law

CWC 10620
(d)(1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

The City has developed an UWMP that reports solely on its service area and will not be participating in a regional UWMP update.

2.4.2 Regional Alliance

Law

CWC 10608.20
(a)(1) …Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis as provided in subdivision (a) of Section 10608.28…

CWC 10608.28
(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement by any of the following:

(1) Through an urban wholesale water supplier.
(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).
(3) Through a regional water management group as defined in Section 10537.
(4) By an integrated regional water management funding area.
(5) By hydrologic region.
(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

The City has developed an UWMP that reports solely on its service area and will not participate in a Regional Urban Water Management Plan, as stated in **Table 2-2**.

Table 2-2: Plan Identification

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance *if applicable*
☑	**Individual UWMP**		
		Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		

2.5 Fiscal or Calendar Year and Units of Measure

2.5.1 Fiscal or Calendar Year

Law

CWC 1608.20
(a)(1) Urban retail water suppliers…may determine the targets on a fiscal year or calendar year basis

The City has reported water-related information included in this UWMP on a calendar year basis and all units are measured in million gallons (MG) as identified in **Table 2-3**.

Table 2-3: Supplier Identification

Type of Supplier	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of Measure Used in UWMP	
Unit	MG

2.5.2 Reporting Complete 2020 Data

This 2020 UWMP includes water use and planning data for the entire calendar year of 2020.

2.5.3 Units of Measure

Water volumes presented in this 2020 UWMP are measured in million gallons (MG) as identified in **Table 2-3**.

2.6 Coordination and Outreach

2.6.1 Wholesale and Retail Coordination

Law

CWC 10631

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

When a water supplier relies upon a wholesale agency for a water supply, both suppliers are required to provide each other with information regarding projected water supply and demand. The projections should be consistent with each agency's supply and demand projections. The City does not receive water from any wholesale agency. **Table 2-4** is included below indicating that the information requested does not apply to the City.

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name
NA

2.6.2 Coordination with Other Agencies and the Community

Law

CWC 10620

(d)(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC 10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

The City coordinated with multiple neighboring and stakeholder agencies in the preparation of this UWMP. The coordination efforts were conducted to: 1) inform the agencies of the activities of the City; 2) gather high quality data for use in developing this UWMP; and 3) coordinate planning activities with other related regional plans and initiatives. The coordination activities conducted by the City in preparation of this plan are summarized in **Table 2-5**.

Table 2-5 Agency Coordination							
Agency	**Sent a notice of public hearing for draft UWMP**	**Commented on the Draft**	**Attended public meetings**	**Contacted for assistance**	**Sent a copy of the draft plan**	**Sent a notice of intention to adopt**	**Notice of Plan Availability**
County of Fresno	X						
Kings River Conservation District	X						
Upper Kings Water Integrated Regional Management Authority	X						
Alta Irrigation District	X						
Consolidated Irrigation District	X						
General Public	X						

2.6.3 Notice to Cities and Counties

Law

CWC 10621 (b)
Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

The City has notified Fresno County of the public hearing and this notification has been reported in Chapter 10 **Table 10-1**. A copy of the notification is included in **Appendix K** of this UWMP.

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CHAPTER 3 SYSTEM DESCRIPTION

New Requirements for 2020 Update

Per the Water Code the following new requirements are necessary for this chapter of the UWMP 2020 update.

- ❑ Inclusion of service area socioeconomic information as part of the system description
- ❑ Coordination with land use agencies and a description of current and projected land uses within the service area

Law

CWC Section 10631
Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

3.1 General Description

The City is located along the Kings River in Fresno County, lying just inland between the State's coastal mountain range and the Sierra Nevada Mountains. The City is a public agency that provides water and sewer service to all residential, commercial, and industrial customers and for fire protection uses. Covering approximately 5.08 square miles, the City serves a current population of 25,873 through approximately 5,914 active service connections.

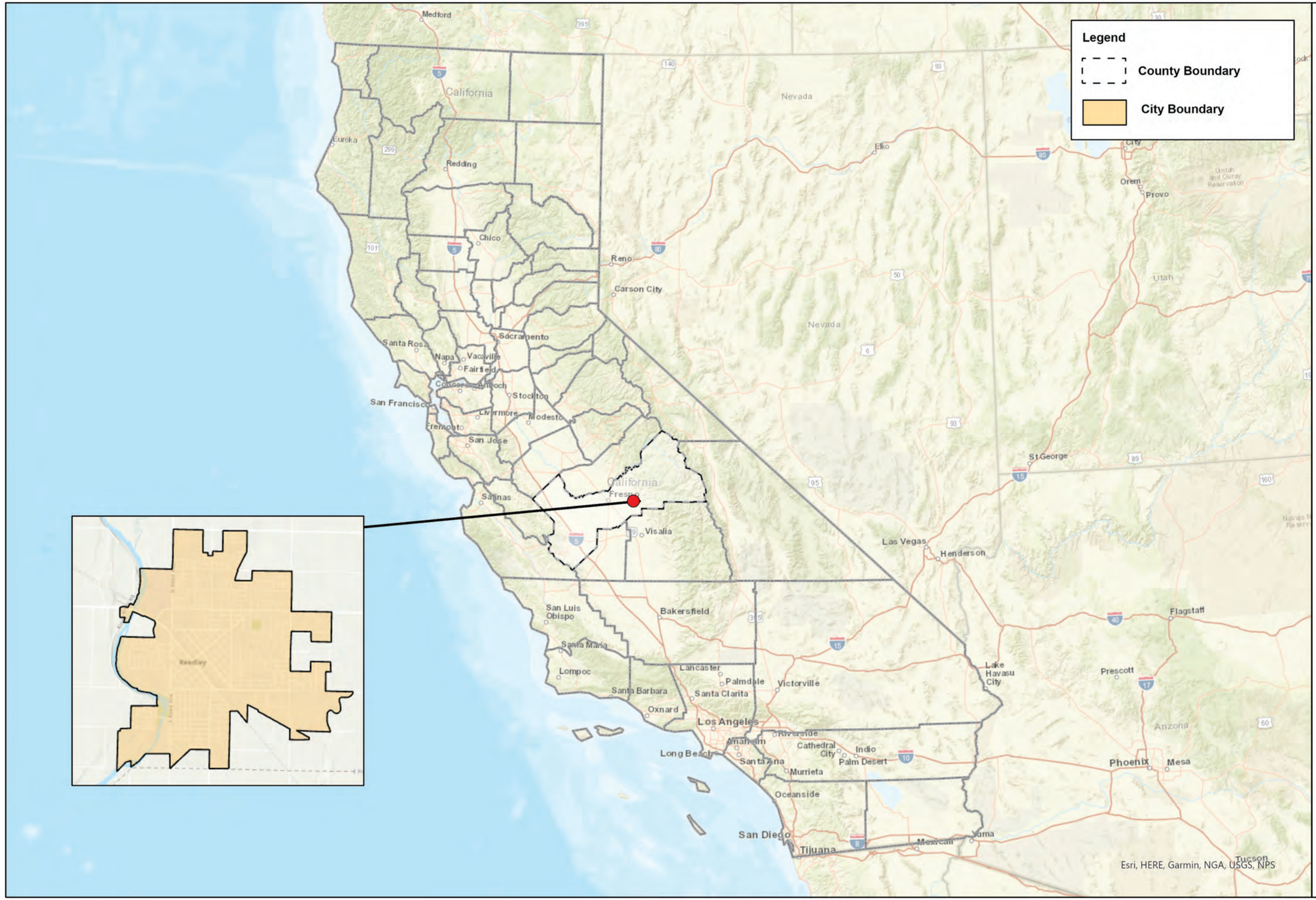
The City is the governing agency and the sole purveyor of water within the city limits. The City adopted the Reedley 2030 General Plan (General Plan) in February 2014. The General Plan assesses delineated land use areas referred to as the Sphere of Influence (SOI), which is larger than the proposed City limits. The SOI includes land over which the City does not have complete jurisdiction; however, the City has the option to annex land and develop it in the future. The SOI area encompasses approximately 11 square miles (7,050 acres). The SOI is recognized as the ultimate City growth boundary over the life of the City's current General Plan. This 2020 Urban Water Management Plan assumes that the SOI describes the future water system service area.

The land uses in the 2030 General Plan include residential (suburban, low density, medium density, and high density), commercial (community, service, downtown, neighborhood, and office), industrial (light and heavy), public and recreational. Existing land uses are primarily residential and industrial. Single-family residential represents 56.4 percent of overall land use and industrial 12.5 percent. **Table 3-3** provides the land use acreages for the most current estimate (2030 General Plan), and the projected land use acreages at build-out of the City limits and build-out of the primary and secondary SOIs.

3.2 Service Area Boundary Maps

The City's location and service area is shown on **Figure 3-1** and **Figure 3-2**.

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City of Reedley

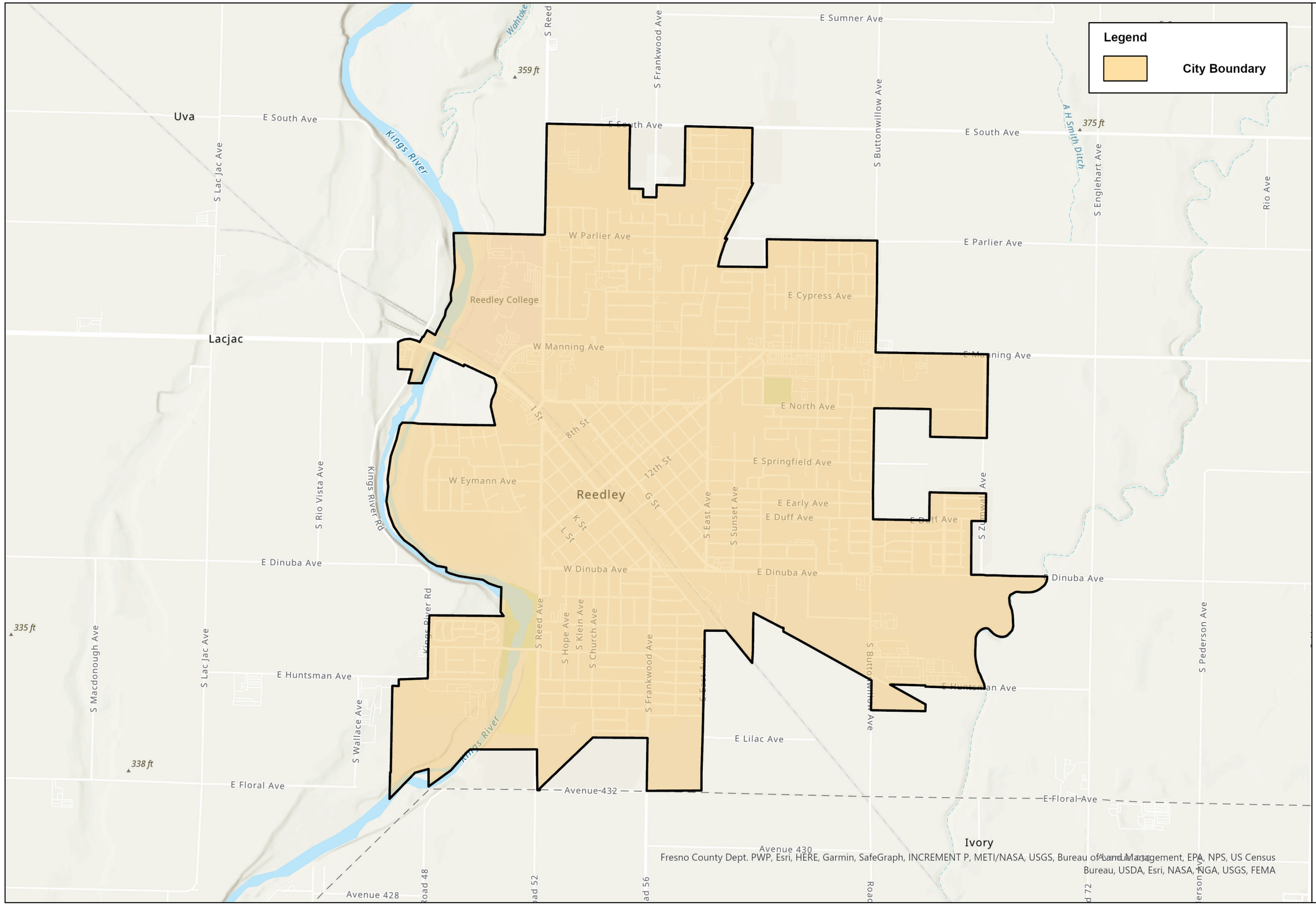
2020 Urban Water Management Plan

Figure 3-1:

City of Reedley Location Map

Scale: NTS

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City of Reedley

2020 Urban Water Management Plan

Figure 3-2:

City of Reedley Service Area Map

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3.3 Service Area Climate

Law

CWC Section 10631(a)
Describe the service area of the supplier, including climate.

CWC Section 10630
It is the intention of the Legislature, in enacting this part, to permit levels of water management planning… while accounting for impacts of climate change.

The City has a semi-arid climate. Summers are hot and dry with average monthly highs near 100˚F, and winters are mild and slightly wetter with average monthly lows near 35˚F. Rainfall during the summer is rare and very light. The evapotranspiration rate (ET_o), which is an indicator of how much water is required to maintain healthy agriculture and landscaping, ranges from 1.38 and 9.53 inches per month and averages 5.0 inches per year, with the highest ET_o occurring during the month of July. ***Table 3-1*** summarizes the temperature, monthly rainfall, and ET_o averages for the service area.

Table 3-1: Climate Conditions for Calendar Year 2020

Month	Monthly Average ETo*	Monthly Rainfall*	Monthly Average Temperature*
	Inches	Inches	Fahrenheit
Jan	1.38	0.57	57.2
Feb	2.95	0.04	67.2
Mar	3.45	2.97	65.7
Apr	4.92	1.61	73.6
May	7.98	0.39	85.7
Jun	8.93	0	93.3
Jul	9.53	0	99.3
Aug	8.08	0	99.6
Sep	5.03	0	91.6
Oct	3.99	0	84.2
Nov	2.22	0.37	67.0
Dec	1.47	0.99	59.9

NOTE: Source – DWR California Irrigation Management Information System (CIMIS) Station 142 (Orange Cove)

3.4 Service Area Population and Demographics

3.4.1 Service Area Population

Law

CWC Section 10631(a)
Describe the service area of the supplier, including current and projected population …The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

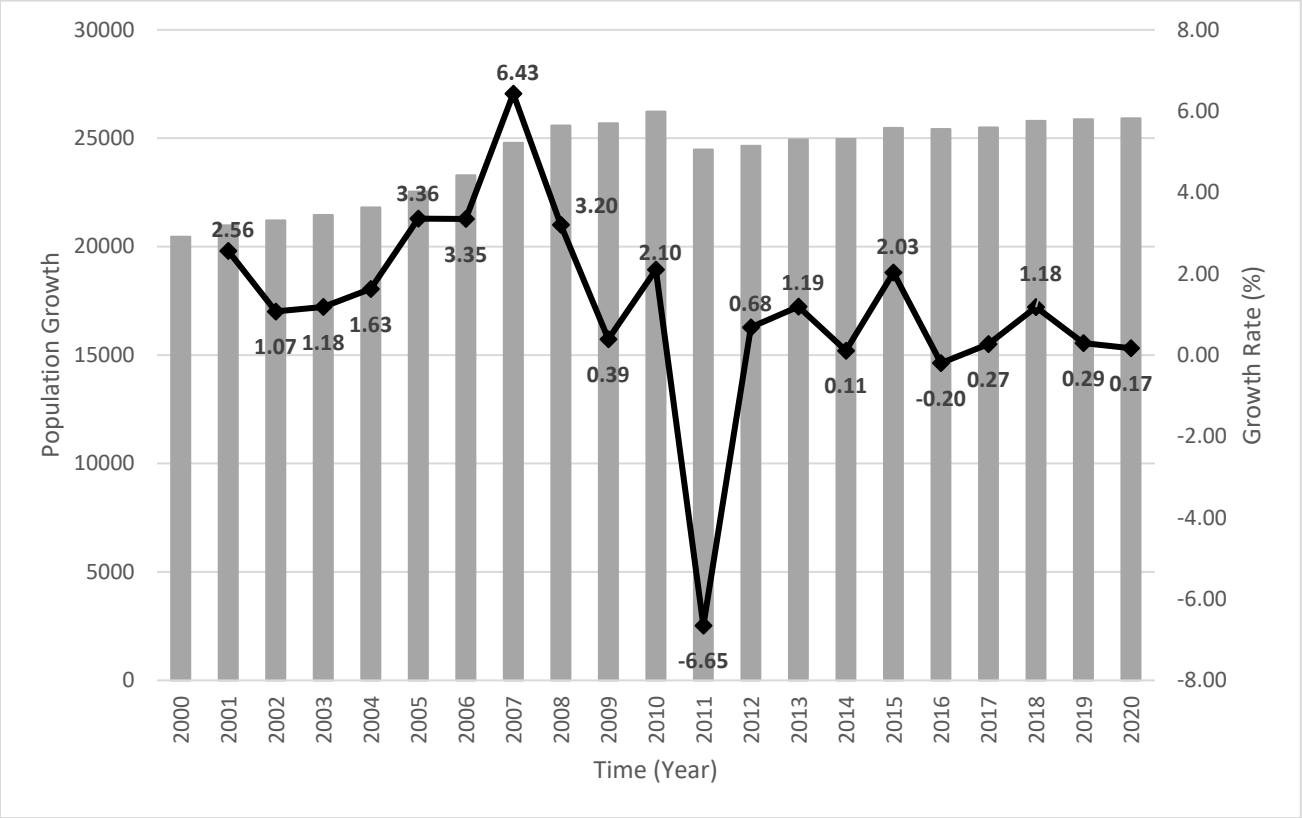
Growth in the City, mainly residential in nature, has averaged approximately 3 percent per year since 1945. The 1990s and early 2000s had a declining trend from 3.6 percent to 2.4 percent per year. In the past ten year, the City's population growth rate has not changed as greatly compared to the early 2000s. The Department of Finance population data from 2019 to 2020 shows the City's population changed by 0.2%. The following planning document included growth rate and proposed population estimates through 2030 for the City:

- City of Reedley General Plan 2030 (February 2014)
  - 2030 population of 47,369 with an annual average growth rate of 3% (2010 to 2030)

Figure 3-3 provides a summary of historical growth rates from the city's service area over the last twenty years (based on values from the Department of Finance Data) with the following average growth rates:

- 5-year growth rate of 0.34% (2015-2020)
- 10-year growth rate of 0.72% (2010-2020)
- 20-year growth rate of 1.13% (2000-2020)

Figure 3-3: 20-year Population and Growth Rate Chart



The 2020 population estimate was based on the Department of Finance 2020 population data for the City. The City's General Plan 2030 estimated population of 47,369 was used for the 2045 projection. Population for the years 2025 to 2040 were estimated by interpolation. Current and estimated population projections for the City's service area through the year 2045 are provided in **Table 3-2**.

Table 3-2 Retail: Population - Current and Projected

Population Served	2020[1]	2025[2]	2030[2]	2035	2040	2045
	25,873	30,172	34,471	38,771	43,070	47,369

NOTES:
1. Department of Finance Data Table E-1.
2. Population estimate assuming the City's General Plan population estimate for 2030.

3.4.2 Other Social, Economic, and Demographic Factors

Law

> ***CWC Section 10631***
> *Describe the service area of the supplier, including… other social, economic and demographic factors affecting the supplier's water management planning.*

The City is located approximately 25 miles southeast of the City of Fresno and equidistant from the City of Visalia. The majority of the City's water connections are residential and commercial. Agriculture is a major industry in the City, which also accounts for a significant portion of water consumption. In the City's 2030 General Plan, the agriculture land use designation was included in open space.

The following information was obtained from the 2020 US Census Bureau to describe the demographics of the City:

- ❑ The population includes 51.4% male and 48.6% female with 22.7% of the population under the age of 18
- ❑ Approximately 60.7% of the population is Hispanic or Latino
- ❑ The median household income was identified to be $64,126

3.5 Land Uses within Service Area

Law

> ***CWC Section 10631(a)***
> *The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities…*

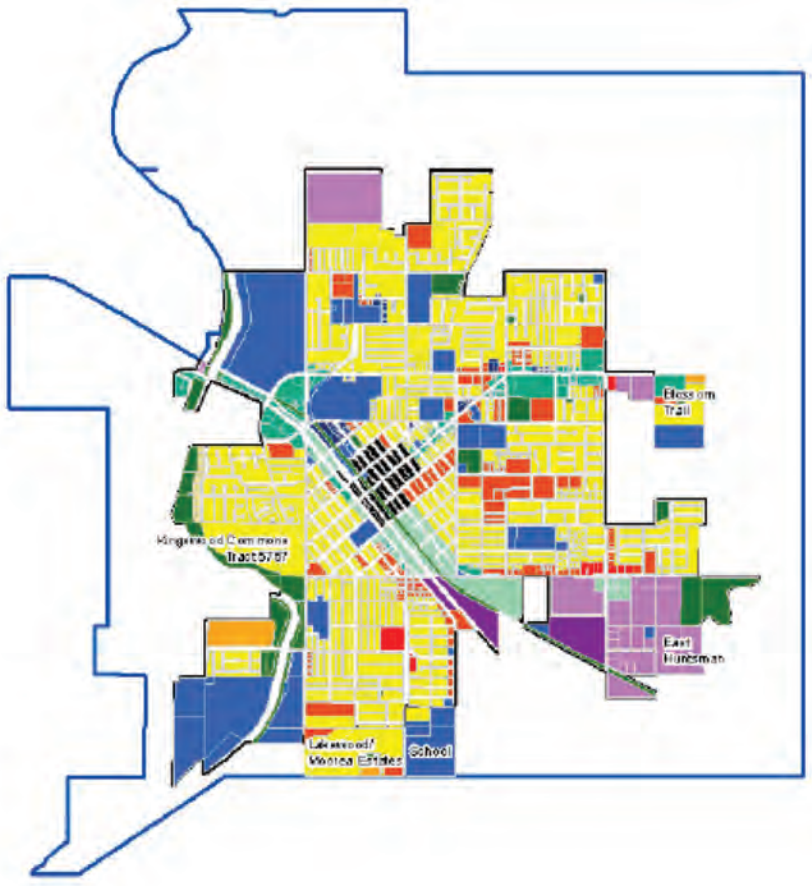
Figure 3-4 shows the planned future land uses including the City's Sphere of Influence (SOI), as described in the General Plan 2030. As described in the City's 2014 Integrated Master Plan, an interim planning period, Phase 1, was developed to reflect the near-term development projects that were anticipated to occur between 2014 and 2020.

Phase 2 corresponds to build out of the City's General Plan at 2030. As development occurs in the future, the City limits and water infrastructure will expand to serve new development beyond the current limits.

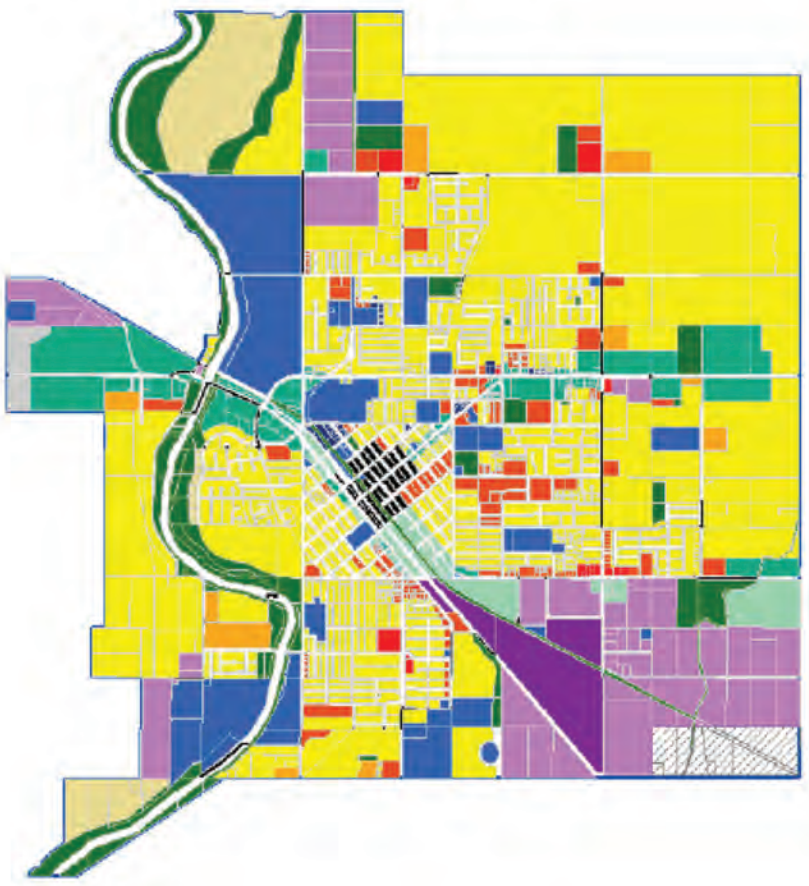
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Notes:
Figure 3-4. Land Use Map from the City of Reedley Integrated Master Plan (June 2014)

Phase 1: Projected 2020 Land Use



Phase 2: Projected 2030 Land Use



Legend

Reedley Land Use Areas

- Suburban Residential
- Low Residential
- Medium Residential
- High Residential
- Neighborhood Commercial
- Community Commercial
- Service Commercial
- Office
- Central Downtown
- Public/Institutional Facility
- Light Industrial
- Heavy Industrial
- Open Space
- Buffer
- Future Development Area
- Reedley City Limits
- Reedley Proposed SOI

Figure 3-4
Land Use Map

City of Reedley

2020 Urban Water Management Plan

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Table 3-3 provides a summary of the planned land uses, as proposed in the General Plan 2030. These planned future land uses and acreages are used to project expected future needs for water supply.

Table 3-3: Existing and Projected Land Use			
General Plan Land Use	**2014 Existing Land Area (Acres)[1]**	**Projected 2020 Land Area (Acres)[1]**	**Projected 2030 Land Area (Acres)[1]**
Residential			
Suburban Residential	7	10	276
Low Density Residential	959	1,181	4,075
Medium Density Residential	27	35	111
High Density Residential	156	202	251
Commercial and Industrial			
Central Downtown	40	40	40
Community Commercial	92	111	434
Neighborhood Commercial	11	23	44
Service Commercial	75	78	140
Office	16	17	17
Light Industrial	142	225	809
Heavy Industrial	54	54	179
Other			
Public/Institutional Facility	408	511	752
Open Space	96	188	636
Community Buffer	-	-	112
Total (Acres)	**2,083**	**2,675**	**7,876**
NOTES: Data from City of Reedley Integrated Master Plan (2014)			

As shown in **Table 3-3**, the City anticipates the addition of approximately 600 acres in Phase 1. The projected 2030 land area presented in **Table 3-3** is based on the General Plan 2030. However, as described in the City's 2014 Integrated Master Plan, the City conducted an environmental review as part of the General Plan 2030 that considered three future development alternatives. As described in the City's program EIR for the General Plan 2030, Alternative 3 was selected as the environmentally superior alternative. Alternative 3 included fewer acres in the future SOI. At 7,057 acres, Alternative 3 has approximately 820 fewer acres of future development compared to the 7,876 presented in **Table 3-3**.

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CHAPTER 4 WATER USE CHARACTERIZATION

New Requirements for 2020 Update

Per Water Code, the following new requirements are necessary for this chapter of the UWMP 2020 update.

- ❑ Suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land uses information for projecting water use in five-year increments, up to the year 2045.
- ❑ Suppliers shall provide a simple lay description of their projected water use for the foreseeable future.
- ❑ If available, water use projections must display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified. [Water Code Section 10631(d)(4)(A)]
- ❑ Suppliers shall provide quantified distribution system losses for each of the five preceding years and whether or not the state standard was met.
- ❑ Both Wholesale and Retail Suppliers shall include a DRA for a drought period that lasts five consecutive water years, starting from the year following the assessment, which would be 2021 for this round of UWMPs (see Chapter 7). The DRA requires a comparison of water supplies with total projected water use. Therefore, the Supplier must produce a projected water use for the years 2021 through 2025 as part of the water use projections, up to the year 2040.
- ❑ Both Wholesale and Retail Suppliers will have to conduct an annual water supply and demand assessment on or before July 1 of each year, starting in 2022. The annual assessment will include current year unconstrained demand. Suppliers are encouraged to consider unconstrained demand as the expected water use in the upcoming year, based on recent water use, and before any projected response actions a Supplier may trigger under its Water Shortage Contingency Plan (see Chapter 8).

4.1 Non-Potable Versus Potable Water Use

The City's water supply is exclusively groundwater. The City currently does not use recycled water to meet water demands.

4.2 Past, Current, and Projected Water Use by Sector

Law

CWC 10635
(a) Every urban water Supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631 (d)
(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…
(2). The water use projections shall be in the same five-year increments described in subdivision (a).

(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.
(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections. (ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

In this section current and projected water usage is addressed. **Table 4-3** displays water use in five-year increments from 2025 till 2045.

4.2.1 Water Use Sectors Listed in Water Code

CWC 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural
(J) Distribution system water loss

The City's service area includes the following water demand sectors listed in the California Water Code:

- ❑ Single Family: Single family detached dwellings
- ❑ Multi-Family: Apartments, condominiums, town houses, duplexes and trailer parks
- ❑ Commercial: Retail establishments, office buildings, laundries, schools, prisons, hospitals, dormitories, nursing homes, hotels, churches, campgrounds
- ❑ Industrial: All manufacturing
- ❑ Institutional and governmental: Tracked under Commercial customer class
- ❑ Landscape: Parks, play fields, cemeteries, median strips, golf courses
- ❑ Distribution system water loss

The following sectors are not applicable to the City's UWMP:

- ❑ Sales to other agencies
- ❑ Saline water intrusion barriers, groundwater recharge, or conjunctive use
- ❑ Agricultural

4.2.2 Water Use Sectors in Addition to Those Listed in Water Code

To provide clarity, acknowledgment of these additional sectors is being addressed. However, the following sectors are not applicable to the City's UWMP:

- ❑ Exchanges
- ❑ Surface Water Augmentation
- ❑ Transfers
- ❑ Wetlands or Wildlife Habitat

4.2.3 Past Water Use

Table 4-0 provides historical water usage by customer type from 2015 through 2019.

Table 4-0: Historical Water Usage						
Use Type	**Water Use (MG)**					**% of Total**
	2015	**2016**	**2017**	**2018**	**2019**	
Single Family	497	466	525	527	518	35
Multi-Family	118	108	109	108	110	8
Commercial	137	185	184	207	201	13
Industrial	70	120	30	34	48	4
Landscape	109	34	63	77	67	5
Losses	367	454	492	581	564	34
Total (MG)	**1,298**	**1,367**	**1,403**	**1,534**	**1,509**	**100**
NOTES: Values represent metered use as reported to DWR for 2020. Percentage total based on average of the last 5 years.						

4.2.4 Distribution System Water Loss

Law

CWC 10631(d)(1)
For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

(J) Distribution system water loss….

CWC 10631(d)(3)
(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34
(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.
(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Table 4-2 includes projected water losses, reported in five-year increments for the next 20 years. Section 4.2.6 contains **Table 4-4** which identities distribution system water losses for each of the five years preceding the plan update.

4.2.5 Current Water Use

Table 4-1 provides an overview of the existing water demands by use type within the City's service area for calendar year 2020.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual		
Use Type	**2020 Actual**	
May select each use multiple times. These are the only Use Types that will be recognized by the WUEdata online submittal tool	**Level of Treatment When Delivered**	**Volume (MG)**
Single Family	Drinking Water	578
Multi-Family	Drinking Water	116
Commercial	Drinking Water	186
Industrial	Drinking Water	46
Landscape	Drinking Water	79
Losses	Drinking Water	634
	Total (MG)	**1,639**
NOTES: Values represent metered use as reported to DWR for 2020.		

4.2.6 Projected Water Use

Law

CWC 10635

(a) Every urban water Supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631 (h)

An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

CWC 10631 (d)(4)

(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

Table 4-1a provides a summary of historical Gallons per Capita per Day (GPCD) within the service area and years of mandatory conservation with requested conservation level (percent reduction).

Table 4-1a: Historical Use Rates (GPCD)						
Year	Service Area Population	Water Production (MG)	Gross Water Use (gpcd)	Meter Residential Use (MG)	Residential Water Use (gpcd)	Mandatory Conservation
2010	24,139	1,539	175	836	92	10%
2011	24,194	1,450	164	983	111	10%
2012	24,649	1,640	182	1,026	114	10%
2013	24,943	1,600	176	650	71	10%
2014	24,970	1,500	165	675	74	10%
2015	25,477	1,302	140	615	66	20%
2016	25,427	1,366	147	574	62	20%
2017	25,496	1,403	151	634	68	20%
2018	25,797	1,534	163	635	67	10%
2019	25,873	1,509	160	628	66	10%
2020	25,917	1,639	173	694	73	10%
5-Year Average			**156**			
10-Year Average			**163**			
NOTES: Potable Demand based on historical production values provided by the City. 5-year average includes 2015-2020 and 10-year average includes 2010-2020.						

4.2.6.1 20-Year Planning Horizon

Annual water demands were assumed to increase proportionally to populations projected in Section 3.4. Future water demand projections are based on population projections multiplied by the 10-year average GPCD of 163 and aggregated for each use type per the customer type percentages in **Table 4-0**. The following equation was used to determine demand projections:

$$Demands = Population\ x\ 163\ GPCD\ x\ Use\ Type\ Percentage$$

Table 4-2 summarizes projected demands from 2025 to 2045.

Table 4-2 Retail: Demands for Potable and Non-Potable Water - Projected					
Use Type	Projected Water Use (MG)				
	2025	2030	2035	2040	2045
Single Family	628	718	807	897	986
Multi-Family	144	164	185	205	225
Commercial	233	267	300	333	366
Industrial	90	103	115	128	141
Landscape	72	82	92	102	113
Losses	628	718	807	897	986
TOTAL (MG)	**1,795**	**2,052**	**2,306**	**2,562**	**2,817**
NOTES: Future demands based on future population projections and 10-year average GPCD.					

Table 4-3 summarizes projected water demands through 2045 including potable water only.

Table 4-3 Retail: Total Water Demands						
	2020	2025	2030	2035	2040	2045
Potable and Raw Water (MG)	1,639	1,795	2,052	2,306	2,562	2,817
Total (MG)	**1,639**	**1,795**	**2,052**	**2,306**	**2,562**	**2,817**
NOTES Future demands based on future population projections and 10-year average GPCD..						

Table 4-4 summarizes the distribution system water losses for each of the five years preceding the plan update.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date	Volume of Water Loss (MG)
1/2015	366
1/2016	265
1/2017	431
1/2018	515
1/2019	509
NOTES: Water loss based on AWWA worksheet values.	

4.2.6.2 Water Year Types

Water year types including a normal, single dry year and multiple dry years for the City's service area have been identify and reported in Submittal **Table 7-1**.

4.2.7 Characteristic Five-Year Water Use

Law

> ***CWC 10635(b)***
> *Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following…*
>
> *(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period. [Emphasis added]*
>
> *(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.*

In accordance with Assembly Bill 11X, the City adopted Ordinance No. 2015-002, which established a Water Conservation Program. Title 8, Chapter 1, Article 12 (8-1-12) of the City's Municipal Code established mandatory prohibitions related to water conservation. The City adopted this Ordinance in response to water supply conditions associated to drought conditions and to comply with State Emergency Water Conservation Regulations. The permanent water use prohibitions described are required reduction measures associated with the City's 2020 Water Shortage Contingency Plan (WSCP) mandated shortage levels 1 and 2 (requiring up to 20% of supply reduction). Additionally, Section 7.2 contains the drought risk assessment for this update. **Table 4-4a** provides a summary of the characteristic five-year use with and without the normal Level 1 and 2 conservation actions.

Table 4-4a: Characteristic Five-Year Water Use					
	2021	**2022**	**2023**	**2024**	**2025**
Unconstrained Potable and Raw Water (MG) with conservation	1,670	1,701	1,733	1,764	1,795
Unconstrained Potable and Raw Water (MG) without conservation	1,837	1,871	1,906	1,940	1,975
NOTES: Future demands based on future population projections and 10-year average GPCD.					

4.3 Worksheets and Reporting Tables

All required worksheets and reporting tables have been provided throughout this Chapter.

4.4 Water Use for Lower Income Households

Law

CWC 10631.1
(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

California Health and Safety Code Section 50079.5 (a)
"Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families… In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.

The Fresno Council of Governments (COG) 2016 Multi-Jurisdictional Housing Element estimates that a total of 41,470 housing units will be needed in the County through the end of year 2023. The City's share of those units is 1,311 or approximately 3.2 percent. The 2016 Multi-Jurisdictional Housing Element also estimates that approximately 45.6 percent of the total housing needs in the City are for low-income households. The needs allocation is further classified as low income, very low income and extremely low income. The extremely low-income families require rental assistance and these units are assumed to be multi-family residential (MFR) units. The low income and very low income are assumed to be single-family residential (SFR) units. The projected water demands for lower income housing are included in the projections of water demands shown in **Tables 4-3** and **4-4**. Demand for existing lower income housing is being met and is included in the volumes shown in **Tables 4-3** and **4-4**. A summary of these projections is shown in **Table 4-5**.

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections?	No
If "Yes" to above, state the section/page where citations of the codes, are found.	-
Are Lower Income Residential Demands Included In Projections?	Yes

4.5 Climate Change Considerations

DWR Guidelines recommend that the 2015 UWMP include a discussion of potential climate change impacts on projected demand. The City is part of the Upper Kings Integrated Regional Water Management Plan. **Appendix A** contains the climate change assessment found in Chapter 17 of the Upper Kings IRWM Regional Water Management Plan. There is mounting scientific evidence that global climate conditions are changing and will continue to change as a result of the continued build-up of greenhouse gases (GHGs) in the Earth's atmosphere. Changes in climate can affect municipal water supplies through modifications in the timing, amount, and form of precipitation, as well as water demands and the quality of surface runoff. These changes can affect all elements of water supply systems, from watersheds to reservoirs, conveyance systems, and treatment plants.

Indications of climate change have been observed over the last several decades throughout California. Although the State's weather has followed the expected pattern of a largely Mediterranean climate throughout the past century, no consistent trend in the overall amount of precipitation has been detected, except that a larger proportion of total precipitation is falling as rain instead of snow.

The correlation between temperature and water demand is well documented and understood. A large percentage of the City's water demand is driven by outdoor irrigation. Higher temperatures will increase evapotranspiration rates and increase demands. Higher temperatures will also extend the duration of the outdoor landscaping growing season increasing the maximum day demands on the spring and fall seasons. It is evident that climate change adds new uncertainties to the challenges of planning. Changes in weather could significantly affect water supply planning. Since climatic pressures could potentially affect supply reliability, continual attention to this issue will be necessary in the future. A copy of the Kings Subbasin Water Authority IRWMP Climate Change Vulnerability Assessment is included in **Appendix A**.

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CHAPTER 5 SB X7-7 BASELINE, TARGETS, AND 2020 COMPLIANCE

With the adoption of the Water Conservation Act of 2009, also known as the SB X7-7, the State is required to set a goal of reducing urban water use by 20 percent by the year 2020. Each retail urban water supplier must determine baseline water use during their baseline period and also target water use for the years 2020 and 2025 in order to help the State achieve the 20 percent reduction. Per the Water Code there are no new requirements for this chapter of the UWMP 2020 update.

New Requirements for 2020 Update

Per the Water Code there are no new requirements for this chapter of the UWMP 2020 update.

5.1 Guidance for Wholesale Suppliers

Law

CWC 10608.12. (w)
"Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

The City is a retail water supplier and this section does not apply.

5.2 SB X7-7 Forms and Summary Tables

Law

CWC 10608.20
(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

5.2.1 SBX7-7 Verification Form (Baselines and Targets)

The City's SB X7-7 Verification Form submitted for the 2015 UMWP has been included as a reference document in the 2020 UWMP as **Appendix B**.

5.2.2 SB X7-7 Compliance Form

The City has completed the 2020 SB X7-7 Compliance Form and included as **Appendix C**.

5.2.3 Submittal Tables 5-1 and 5-2

Submittal **Table 5-1** and **Table 5-2** from the 2020 SB X7-7 Compliance are included in Section 5.5.

5.2.4 Regional UWMP/Regional Alliance

The City has developed an UWMP that reports solely on its service area and will not be participating in a regional UWMP update.

5.3 Baseline and Target Calculations for 2020 UWMPs

General requirements for determining the baseline period, Baseline GPCD, Target Confirmation, and 2020 Target can be found in **Appendix C**. Suppliers that have submitted a 2015 UWMP with the SB X7-7 Verification Form and have not had a change to their service area will not need to recalculate their baselines and targets in their 2020 UWMPs.

5.3.1 Supplier Submitted 2015 UMWP, No Change to Service Area

The City submitted a 2015 UWMP and has had no change to the service area since the submittal of the plan.

5.3.2 Supplier Did Not Submit 2015 UWMP

The City submitted a 2015 UWMP, therefore, this topic does not apply to the City.

5.3.3 Supplier Newly Subject to UWMP Requirements

This topic does not apply to the City.

5.3.4 Distribution Area Expansion

The City did not expand its area in the last 5 years, therefore, this topic does not apply to the City.

5.3.5 Distribution Area Contraction

The City did not contract its area in the last 5 years, therefore, this topic does not apply to the City.

5.3.6 Large Partial Customers Become Whole Customers

The City has never had large partial customers, therefore, this topic does not apply to the City.

5.4 Methods for Calculating Population and Gross Water Use

5.4.1 Service Area Population

Law

> ***CWC 10608.20***
> *(e) An urban retail water supplier shall include in its urban water management plan due in 2010…the baseline per capita water use…along with the bases for determining those estimates, including references to supporting data.*
>
> *(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.*
>
> ***CWC 10644***
> *(a)(2) The plan…shall include any standardized forms, tables or displays specified by the department.*

The Department of Finance 2020 population data was used for the City.

5.4.2 Gross Water Use

Law

> ***CWC 10608.12***
> *(g) "Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:*
>
> *(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier*
>
> *(2) The net volume of water that the urban retail water supplier places into long term storage*
>
> *(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier*
>
> *(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.*

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article
Section 596 (a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

Historical gross water use for this UWMP was obtained from the City's records for years 2010-2020.

5.5 2020 Compliance Daily Per-Capita Water Use (GPCD)

Law

CWC 10608.12
(f) "Compliance daily per-capita water use" means the gross water use during the final year of the reporting period…

CWC 10608.20
(e) An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

The baseline daily per capita water use for the City for this UWMP update is shown in **Table 5-1**.

Table 5-1 Baselines and Targets Summary

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*1999*	*2008*	*269*	*242*	*215*
5 Year	*2003*	*2007*	*305*		
*All values are in Gallons per Capita per Day (GPCD)					

The City has not applied any adjustments to the 2020 gross water use for this UWMP update. **Table 5-2** shows the City achieved targeted 2020 reduction.

Table 5-2: 2020 Compliance

2020 GPCD			2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD	2020 TOTAL Adjustments	Adjusted 2020 GPCD		
173	0	0	215	Y
**All values are in Gallons per Capita per Day (GPCD)*				

5.5.1 2020 Adjustments for Factors Outside of Supplier's Control

Law

CWC 10608.24
(d)(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

> *(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.*
>
> *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Methodology 4*
> *This section discusses adjustments to compliance-year GPCD because of changes in distribution area caused by mergers, annexation, and other scenarios that occur between the baseline and compliance years.*

The City has not included any adjustments (including Extraordinary Institutional Water Use, Economic Adjustment (CII), or Weather Normalization) for their 2020 GPCD compliance.

5.5.2 Special Situations

The City does not have any special situations that require them to recalculate their baselines and 2020 Target in the 2020 UWMP.

5.5.3 If Supplier Does Not Meet 2020 Target

As shown in **Table 5-2**, the City has met the 2020 GPCD compliance target.

5.6 Regional Alliance

The City has developed an UWMP that reports solely on its service area and will not be participating in a regional UWMP update and SB X7-7 compliance will be for the City's service area only.

CHAPTER 6 WATER SUPPLY CHARACTERIZATION

New Requirements for 2020 Update

Per Water Code, the following new requirements are necessary for this chapter of the UWMP 2020 update.

- ❑ The new requirements for a water supply analysis are largely in the application of that analysis to the new DRA, WSCP, and consideration of climate change in future projections.
- ❑ The conclusions drawn from the water supply characterization integrate into a specific understanding of a Supplier's new drought risk in the DRA and inform the management and mitigation actions a Supplier must address in the newly required WSCP, along with consideration of climate change and coordination with land use and planning authorities for future projections. For example, an analysis that concludes that a water supply portfolio is reliable under all conditions conceivable may have fewer supply augmentation actions or demand management actions in a WSCP.
- ❑ Water supply analysis conclusions translate into a realistic DRA and implementable actions listed in the WSCP in the event of water shortage conditions.

6.1 Water Supply Analysis Overview

Law

CWC 10631 (b)
Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier [in five-year increments to 20 years or as far as data is available]1 providing supporting and related information, including all of the following:

(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.
(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

CWC 10631 (h)
An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.2 Water Supply Characterization

6.2.1 Purchased or Imported Water

The City does not purchase water from any other urban water suppliers or other entities.

6.2.2 Groundwater

Law

CWC 10631 (b)(4)
If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

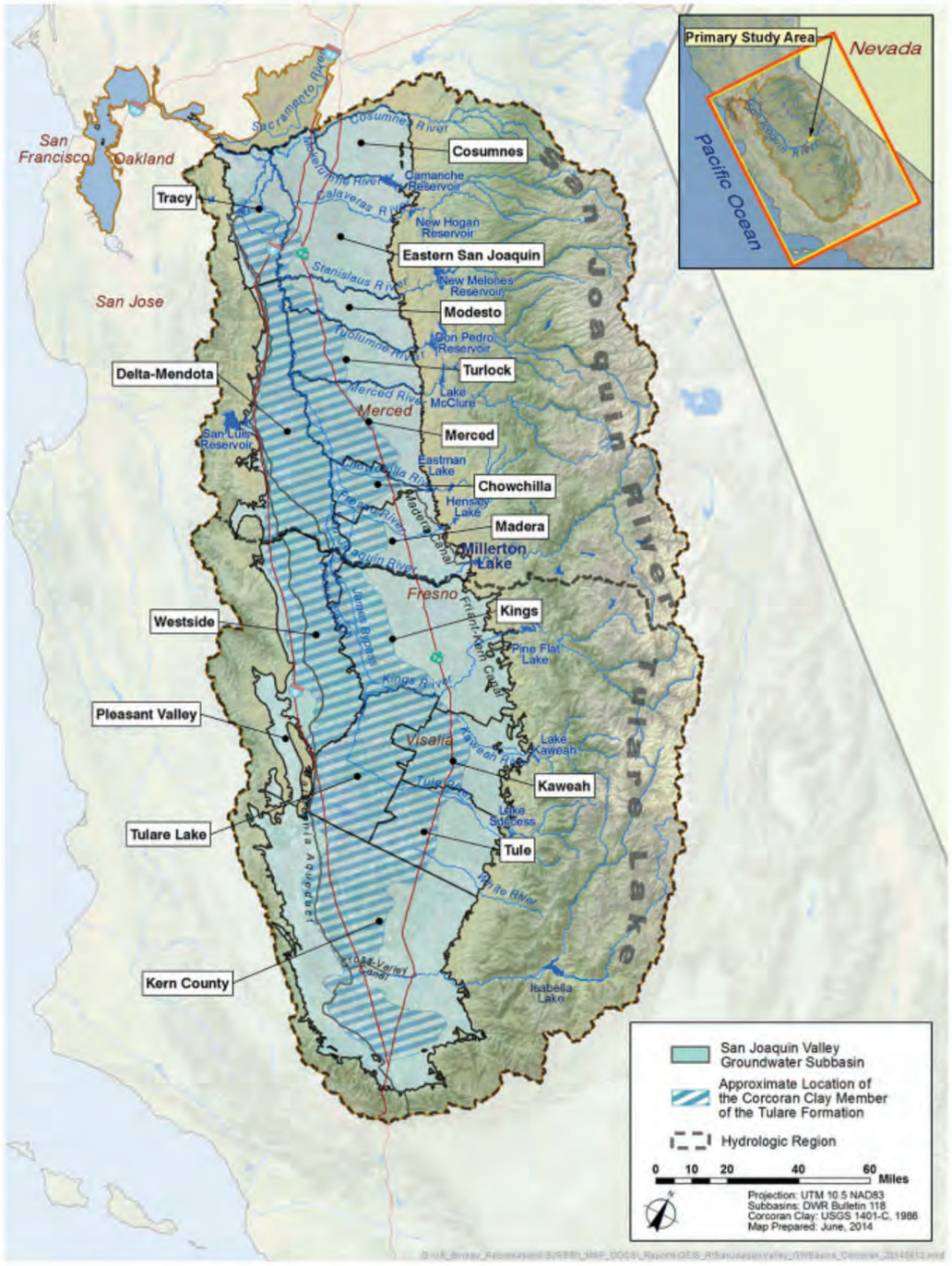
(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(D) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

The City obtains its entire water supply from the Kings Subbasin (**Figure 6-1**). There are seven active domestic water supply wells that provide potable water to City customers. One of the seven wells currently acts as a standby. Each well pumps water directly into the water system which includes approximately 82 miles of pipeline and three elevated storage tanks.

The City added Well No. 14 to the water system in April of 2014. The existing well capacities range from 750 to 2,500 gallons per minute (gpm), with a total combined capacity of approximately 11,250 gpm. With the largest well out of service, Well No. 14, the combined capacity of the system is approximately 8,750 gpm.

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City of Reedley

2020 Urban Water Management Plan

Figure 6-1:

San Joaquin Valley Groundwater Basin

Scale: NTS

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6.2.2.1 Basin Description

The City is located in the San Joaquin River Hydrologic Region (groundwater basin) and extracts groundwater from the Kings Subbasin. DWR Bulletin 118 – Update 2003, "California's Groundwater" contains a detailed description of the Kings Subbasin and its characteristics and conditions. A copy of this description is included in **Appendix D**.

As part of the San Joaquin Hydrogeological Basin, the Kings Subbasin straddles portions of both the Sacramento and San Joaquin Valleys in Fresno, Kings, and Tulare County. The subbasin occupies approximately 976,000 acres, and is bordered to the north by the San Joaquin River. The subbasin is bordered on the south by the southern fork of the Kings River and the northern boundaries of the Empire West Side Irrigation District and Kings County Water District, southern boundaries of Laguna, Consolidated, and Alta Irrigation Districts, and western boundary of Stone Corral Irrigation District. The eastern boundary of the subbasin is the alluvium-granite rock of the Sierra Nevada. The western boundary is the eastern boundaries of the Delta-Mendota and Westside Subbasins.

The subbasin is primarily comprised of marine deposits from periodic inundation of the Pacific Ocean and continental deposits from erosion of surrounding mountains. The principal aquifers consist of unconsolidated continental deposits (older deposits from the Tertiary and Quaternary age overlain with younger deposits from the Quaternary age), and coarse oxidized deposits of the alluvium. Quaternary deposits consist of older alluvium, lacustrine and marsh deposits, younger alluvium, flood-basin deposits, and sand dunes. The older alluvium is the most important aquifer in the subbasin and yields from these wells can reach above 3,000 gpm. The flood-basin, lacustrine, and marsh deposits located in the western part of the sub-basin consist of silt and clay that restrict vertical movement of water and do not produce appreciable wells. In the Reedley area, the soils are typically coarse sands with high percolation rates and specific yields, but areas of clay soils exist in some areas.

Groundwater recharge comes from river, stream, and canal seepage, percolation of irrigation water, and intentional recharge. For the most part, the groundwater table in the Reedley area is dependent on snow melt and runoff in canals and ditches of the Alta Irrigation District as well as recharge from the Kings River. Snow pack in the Sierra Nevada to the east is variable and total water supply to the area is subject to wide fluctuations in volume. Groundwater pumping is inversely proportional to the surface water supply available in the region, and in years when there is limited surface water available for irrigation, the groundwater levels experience a decline.

In general, groundwater flow is to the southwest based on contours mapped by DWR in recent years, including the area of the City and vicinity. The estimated storage in the subbasin is 93 million ac-ft with a depth of 1,000 ft or less. Well depths range from 100 to 500 ft, with an average depth of 210 ft. Well yields range from 20,000-30,000 gpm and average 500-1,500 gpm for municipal and irrigation wells. Specific yield in the subbasin ranges from 0.2 percent to 36 percent, with an average specific yield estimated to be 11.3 percent.

6.2.2.2 Multiple Groundwater Basins

The City only extracts groundwater from the Kings Subbasin. Therefore, this section is not applicable to the City.

6.2.2.3 Other Considerations

The City relies 100% on local groundwater for its water supplies. The San Joaquin River Groundwater Basin is not adjudicated. The City is not restricted to a specific volume of groundwater from the Kings Subbasin, but groundwater must be beneficially used. The City is responsible for monitoring groundwater levels, quantities, and quality of its potable supply wells and makes all of the information available to the Community, agencies, and stakeholders, including the State of California.

The City is engaged in groundwater recharge projects and activities to reduce the consumptive use of groundwater. For example, the City currently recharges treated wastewater effluent from the Wastewater Treatment Plant (WWTP) using percolation ponds on site. The City also maintains nine stormwater percolation basins that also provide groundwater recharge, although the volume has not been quantified. The percolated wastewater and stormwater are subsequently pumped as groundwater for local crop irrigation.

The Sustainable Groundwater Management Act (SGMA), which became effective January 1, 2015, established a framework of priorities and requirements to help local agencies sustainably manage groundwater within a basin or subbasin (basin). The SGMA allows local agencies to form a Groundwater Sustainability Agency (GSA) through either a Joint Powers Authority (JPA), a Memorandum of Agreement (MOA), or another legal agreement. In March 2016, the City entered into a Memorandum of Understanding (MOU) with other local agencies to from the Kings River East GSA. The primary purpose of the MOU is facilitating a cooperative and ongoing working relationship among the agencies and to develop and implement mutually beneficial approaches and strategies for implementing the Act in the Kings subbasin. The MOU also desires to facilitate contracts with other agencies, both current and prospective, overlying the subbasin, in order to coordinate with the GSA to implement a Groundwater Sustainability Plan (GSP) and satisfy the requirements of the Act.

The Alta Irrigation District (AID) is currently addressing overdraft and declining groundwater supplies in the area by engaging in groundwater recharge and banking projects. AID uses surface water to recharge groundwater both directly (when excess surface water is available) and indirectly (via unlined canals). AID also has two groundwater banking projects located in the eastern part of the District, Harder Pond and Traver Pond, that provide surface water to mitigate groundwater quality issues (used for drinking water) in the area. AID has also entered into a groundwater banking project with the City of Dinuba (a few miles southeast of the City) to help with a localized overdraft problem.

The 2003 update to the DWR Bulletin 118 identifies groundwater overdraft as the condition of a groundwater basin or subbasin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions. Conditions of critical overdraft result in undesirable impacts which can include land subsidence, groundwater depletion, and/or chronic lowering of groundwater levels. All basins designated as high or medium priority and subject to critical conditions of overdraft are required to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020.

In Chapter 6 of Bulletin 118, the DWR identifies the Kings Subbasin as critically over drafted subbasins; the conditions were not reevaluated for the 2003 update to Bulletin 118. Overdraft conditions in the Kings subbasin were previously estimated by the Kings River Conservation District (KRCD) to be an average of 52,462 MG/yr from 1964-2004, with approximately 3.2 million gallons of groundwater mined in the last 50 years or so. The KCRD models also project that overdraft conditions will average around 3,975 MG/yr through 2035.

As the City grows, further reliance on groundwater for the primary water supply could result in an overdraft of the subbasin. Further evaluation of the aquifer should be made to confirm long-term yields.

6.2.2.4 Groundwater Volume Pumped in Last Five Years

Law

> ***CWC 10631***
> *(b) ...If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:*
>
> *(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

The City is not restricted to a specific volume of groundwater from the Kings Subbasin. **Table 6-1** provides an overview of the groundwater sources and the annual quantity pumped to meet the demands of City's customers from 2016 to 2020.

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type	**Location or Basin Name**	**2016**	**2017**	**2018**	**2019**	**2020**
Alluvial Basin	Kings Subbasin	1,366	1,403	1,534	1,509	1,639
	TOTAL (MG)	**1,366**	**1,403**	**1,534**	**1,509**	**1,639**

6.2.3 Surface Water

As previously stated, the City's source of supply is groundwater from municipal wells. Currently, the City does not use self-supplied surface water as part of its water supply.

6.2.4 Stormwater

The City does not capture or utilize stormwater for water supply.

6.2.5 Wastewater and Recycled Water

Law

CWC 10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Previous studies, including most recently the 2011 City of Reedley WWTP Effluent Recycling Study found effluent recycling to be infeasible and/or too costly to be recommended as viable. The reuse alternatives considered direct farm irrigation of both private and City-owned land, landscape and golf course irrigation, reuse by nearby irrigation districts, and reuse by an agricultural research field station. These alternatives would require costly tertiary treatment and disinfection to meet effluent requirements for irrigation of non-fodder farmland. In addition, irrigation by recycled water is more expensive than irrigation by groundwater or water provided by irrigation districts. Therefore, there is currently no recycled water program in the City and no projections for the use of recycled water in the future, although

the City will continue to monitor effluent reuse options. Currently, the City's wastewater effluent is discharged to percolation ponds for groundwater recharge which is subsequently pumped as groundwater for local crop irrigation.

6.2.5.1 Recycled Water Coordination

Law

> ***CWC 10633***
> *The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.*

The City does not currently or intend to provide recycled water services to customers within the service area.

6.2.5.2 Wastewater Collection, Treatment, and Disposal

Law

> ***CWC 10633 (a)***
> *A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*

The City collects, treats, and recycles both municipal wastewater generated from a combination of residential, commercial, and industrial sources. Wastewater is collected and treated at the City's Wastewater Treatment Plant (WWTP) located approximately 1.5 miles southwest of the center of the City and on the west bank of the Kings River. The Kings River forms the east and south boundaries of the WWTP. Land on the west and north boundaries is primarily agriculture.

The City's WWTP provides primary and secondary treatment along with centrifuge dewatering of solids and effluent reclamation via percolation ponds. The City's secondary effluent is not disinfected and is therefore classified as an "oxidized" (undisinfected secondary) wastewater according to California Code of Regulations (CCR) Title 22. Undisinfected secondary effluent is severely limited by Title 22 for effluent allowable uses. Currently, the treated wastewater does not meet the recycled water standard. **Table 6-2** provides a total volume of wastewater collected within the service area in 2015.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2020

☐	There is no wastewater collection system. The supplier will not complete the table below.						
Wastewater Collection			**Recipient of Collected Wastewater**				
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area in 2020	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party?	
City of Reedley	Metered	643	City of Reedley	City of Reedley	Yes	No	
Total Wastewater Collected from Service Area in 2020 (MG):		**643**					

The City expanded the WWTP in November 2009 from a capacity of 3.0 million gallons per day (MGD) to 5.0 MGD. The expanded WWTF consists of headworks, two oxidation ditches, one anoxic basin, four secondary clarifiers, three return

sludge holding tanks, and three centrifuges. Effluent is discharged to six percolation ponds spanning approximately 36 acres adjacent to the Kings River.

In the past, the City discharged small portions of wastewater effluent to the Kings River, until the City's NPDES permit was rescinded in 2006. Currently, the City discharges undisinfected secondary effluent to six percolation ponds adjacent to the Kings River. The percolation ponds span approximately 36 acres.

Table 6-3 provides a summary of the volume of wastewater treated and disposed of for calendar year 2020 by the City.

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020

☐ No wastewater is treated or disposed of within the UWMP service area.
The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (*optional*)	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2020 volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
City of Reedley	Percolation Ponds	Percolation		Percolation	No	Secondary Undisinfected	643	643			
						Total (MG)	**643**	**643**			

6.2.5.3 Recycled Water System Description

Law

CWC 10633 (c)
(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

The City does not currently treat any wastewater to disinfected tertiary water standards to allow it to be used as a component of its water supply. Treated effluent is discharged into percolation ponds where it either evaporates or percolates. **Table 6-4** shows the current and projected recycled water uses through year 2040, but is not applicable to the City. Although not recognized as a beneficial reuse percolation provides additional groundwater recharge.

6.2.5.4 Potential, Current, and Projected Recycle Water Uses

Law

CWC 10633
(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect

potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) (Provide) a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

The City has no intentions to implement a recycled water system or use recycled water at any location in the immediate future. Therefore, **Table 6-4** is not applicable to the City.

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area									
☑	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.								
Name of Agency Producing (Treating) the Recycled Water:									
Name of Supplier Operating the Recycled Water Distribution System									
Supplemental Water Added in 2020									
Source of 2020 Supplemented Water									
Beneficial Use Type	**Potential Beneficial Use of Recycled Water**	**General Description of 2020 Uses**	**Level of Treatment**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045 (opt)**
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Total (MG):	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

As shown in **Table 6-5**, recycled water was not used in 2015 nor projected for use in 2020.

Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☑	Recycled water was not used in 2015 nor projected for use in 2020 The supplier will not complete the table below.	
Use Type	**2015 Projection for 2020**	**2020 Actual Use**
N/A	N/A	N/A
Total (MG):	**N/A**	**N/A**

6.2.5.5 Actions to Encourage and Optimize Future Recycled Water Use

Law

CWC 10633
(f) (Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

CWC 10633
(g) (Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

As previously stated in the above sections, the City's water recycling options have been determined to be infeasible or too expensive. Therefore, the City is not planning to change recycled water use in the near future. Given the current usage of treated wastewater for recharge purposes, there is no hydrological benefits to increasing such recycling use. The City will expand the percolation areas as needed to be able to dispose 100 percent of the treated effluent.

The City's Public Works Department will encourage industrial and commercial customers to implement recycled water use programs within their sites. The City will assist industrial and commercial customers in designing recycling projects conducive to City operations. As part of the educational efforts of the City, recycling and conservation issues are included in school and public education forums. Since recycled water options have been determined to be infeasible, **Table 6-6** shows no methods to expand the City's recycled water use. The City does not currently or intend to provide recycled water service to customers within the service area.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
6-9	Provide page location of narrative in UWMP		
Name of Action	**Description**	**Planned Implementation Year**	**Expected Increase in Recycled Water Use**
N/A	N/A	N/A	N/A

6.2.6 Desalinated Water Opportunities

Law

CWC 10631
(g) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply

The City lies inland and is not located in a coastal area; therefore, desalination of seawater is not practical. In addition, because the groundwater below the City it not brackish, there are no plans to develop brackish groundwater desalination projects. As a result, the City does not intend to pursue desalination to augment water supplies at this time.

6.2.7 Water Exchanges and Transfers

Law

CWC 10631 (c)
Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

The municipal water system that supplies the City's water has historically been a consistent, reliable source of water; therefore, the City has not been required to exchange or transfer water to meet its demands. There are also no short-term or long-term planned or potential future water exchanges in the region. In the event that untreated groundwater can no longer provide a consistent potable water source, new wells or a well head treatment will be used as needed to avoid a supply deficit.

Currently, it is not feasible for the City to purchase surface water rights. According to the Consolidated Irrigation District (CID) Groundwater Management Plan, if urban lands continue to develop and rely exclusively on groundwater, and if recharge facilities are not developed to help meet future urban demands, treatment of surface water for municipal use in lieu of groundwater may be needed. Due to the City's proximity to AID and CID, it is conceivable that surface water could be supplied by these Districts. Direct recharge or groundwater banking projects could also facilitate exchanges in the future; however, nothing is planned at this time.

6.2.8 Future Water Projects

Law

CWC 10631

(f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs… that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The City currently relies solely on groundwater for its water supply. The City's Integrated Master Plan establishes two planning phase periods: Phase 1 represents the period of 2014 to 2020 and Phase 2 represents the period beyond 2020 through the build out of the City's SOI (approximately 2030). As the City continues to expand and reach Phase 2 planned growth, additional wells will be required. A total of ten additional wells, each with a capacity of 2,000 gpm, will be needed to meet a maximum day demand (MDD) of 39.1 MGD by the end of Phase 2. If the yield is determined to be less than 2,000 gpm per well on average, additional wells will be required to make up the difference. **Table 6-7** lists the proposed water supply projects.

Table 6-7 Retail: Expected Future Water Supply Projects or Programs

☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
6-12	Provide page of narrative location in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency (MGY)
New 2,000 gpm groundwater well (North Central Well)	No	NA	Phase 1	2020	Average Year	0.7
New 2,000 gpm groundwater well (North Central Well)	No	NA	Phase 2	2030	Average Year	4.8

6.2.9 Summary of Existing and Planned Sources of Water

Water supplies are summarized in **Tables 6-7** and **6-8**.

Law

CWC 10631

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision 10631(a), providing supporting and related information, including all of the following…

(b)(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.2.9.1 Description of Supplies

The City relies 100% on local groundwater for its water supplies. The San Joaquin River Groundwater Basin is not adjudicated. The City is not restricted to a specific volume of groundwater from the Kings Subbasin. There are seven active domestic water supply wells that provide potable water to City customers.

6.2.9.2 Quantification of Supplies

Table 6-8 provides an overview of the sources and volume of water that were available to the City for 2020.

Table 6-8 Retail: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2020		
		Actual Volume	Water Quality	Total Right or Safe Yield
Groundwater	Kings Subbasin	1,639	Drinking Water	
Total (MG)		**1,639**		

Table 6-9 provides an overview of the projected water supplies available to the City to serve future demands through 2045.

Table 6-9 Retail: Water Supplies — Projected

Water Supply	Description	Projected Water Supply				
		2025	2030	2035	2040	2045
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Groundwater	Kings Subbasin	1,795	2,051	2,307	2,562	2,818
Total (MG)		**1,795**	**2,051**	**2,307**	**2,562**	**2,818**

6.2.10 Special Conditions

The following provides a summary of special conditions identified in the UWMP guidebook and their impact on future water supplies.

6.2.10.1 Climate Change Effects

As mentioned in Section 4.5, **Appendix A** contains the climate change assessment found in Chapter 17 of the Upper Kings IRWM Regional Water Management Plan. There is mounting scientific evidence that global climate conditions are changing and will continue to change as a result of the continued build-up of greenhouse gases (GHGs) in the Earth's

atmosphere. Changes in climate can affect municipal water supplies through modifications in the timing, amount, and form of precipitation, as well as water demands and the quality of surface runoff. These changes can affect all elements of water supply systems, from watersheds to reservoirs, conveyance systems, and treatment plants. A copy of the Kings Basin Water Authority IRWMP Climate Change Vulnerability Assessment is included in **Appendix A.**

6.2.10.2 Other Locally Applicable Criteria

There are no known local flow criteria that would impact future water supply within the City's service area.

6.3 Submittal Tables

All required submittal tables for the City's water supply characterization are included throughout this chapter.

6.4 Energy Intensity

Law

> ***CWC 10631.2. (a)***
> *In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:*
>
> *(1) An estimate of the amount of energy used to extract or divert water supplies.*
>
> *(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.*
>
> *(3) An estimate of the amount of energy used to treat water supplies.*
>
> *(3) An estimate of the amount of energy used to distribute water supplies through its distribution systems.*
>
> *(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.*
>
> *(6) An estimate of the amount of energy used to place water into or withdraw from storage.*
>
> *(7) Any other energy-related information the urban water supplier deems appropriate.*

There are seven active domestic water supply wells that provide potable water to City customers. One of the seven wells currently acts as a standby. Each well pumps water directly into the water system which includes approximately 82 miles of pipeline and three elevated storage tanks. There are three reporting options included in the guidebook based on available data which include the following:

- ❑ Option 1: Energy Intensity – Water Supply Process Approach by the individual Water Management Processes
- ❑ Option 2: Energy Intensity – Total Utility Approach using the sum of all Water Management Processes and total energy for the system
- ❑ Option 3: Energy Intensity – Multiple Water Delivery Products by breaking down percentages for retail potable, retail non-potable, agricultural, etc.

Table 6-10 summarizes the City's supply facilities energy intensity using Option 2: Energy Intensity- Total Utility Approach.

Table 6-10: Recommended Energy Intensity- Total Utility Approach				
Enter Start Date for Period	1/1/2020	**Urban Water Supplier Operational Control**		
End Date	12/31/2020	**Sum of all Water Processes**	**Non-Consequential Hydropower**	
		Total Utility	**Hydropower**	**Net Utility**
Volume of Water Entering Process (MG)		1,639		
Energy Consumed (kWh)		2,385,479		
Energy Intensity (kWh/MG)		1,455		

CHAPTER 7 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

New Requirements

Per the Water Code, the following new requirements are necessary for this chapter of the UWMP 2020 update.

- ❑ The new UWMP requirements appear in the application of new criteria to the Water Use Analysis in Chapter 4, the Water Supply Analysis in Chapter 6, and the resulting Water Service Reliability Assessment in this chapter—including the requirement for a five-consecutive dry years analysis compared to the 2015 UWMPs, which included only a three-year analysis.
- ❑ A Drought Risk Assessment (DRA) is now also required under Water Code Section 10635, and it must be prepared as a component of the 2020 UWMP. The DRA requires a methodical assessment of water supplies and water uses under an assumed drought period that lasts five consecutive years.

7.1 Introduction

Assessing water service reliability is the fundamental purpose for an urban water supplier to prepare and update their UWMP. Water service reliability reflects the Supplier's ability to meet the water needs of its customers with water supplies under varying conditions. The City's UWMP considers the reliability of meeting customer water use by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that could affect the City's water supply and its customers' water uses. This chapter synthesizes the details imbedded in the other chapters (including 4, 6, 8, and 9) and it provides a rational basis for future decision-making related to supply management, demand management, and project development. In addition, this chapter includes a new requirement for a DRA that enables the City to evaluate its risk under a severe drought period lasting for the next five consecutive years.

7.2 Water Service Reliability Assessment

Law

CWC 10635

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of the urban water supplier.

As described in Chapter 6, the City's water portfolio consists of groundwater from the Kings Subbasin. To identify potential water supply reliability concerns, the City completed a preliminary climate change vulnerability screening analysis (including impacts from extreme heat, water quality, sea level rise, flooding and wildfire) for its supplies as shown in **Table 7-0**.

Table 7-0: Climate Change Vulnerability Screening	
Assessment	**Groundwater – Kings Subbasin**
Notes: Level of Risk: 1 - low, 3-medium, 5-high	
	Level of Risk
I. Water Supply and Demand	
Are the water supply diversions sensitive to climate change?	1
Is the water supply source affected by urban or agricultural water demand that might be climate sensitive?	1
Is groundwater a major supply source?	3
Does the water supply source rely on or could it be affected by snowmelt?	1
Does the water supply source come from or could it be affected by coastal aquifers? Has saltwater intrusion been a problem in the past?	1
Does the water supply source rely on or could it be affected by changes in stored water supplies?	2
II. Extreme Heat	
Could extreme heat impact operations of the water supply project or diversions?	2
Does the supply source rely on equipment or infrastructure that could be impacted by extreme or prolonged heat?	2
III. Water Quality	
Could water quality issues, such as low dissolved oxygen, algal blooms, disinfectant biproducts affect the water supply source?	1
Could reduction in assimilative capacity of a receiving water body affect the water supply source?	NA
Could the water supply source be affected by water quality shifts during rainfall/runoff events?	1
IV. Sea Level Rise	
Is any of the water supply source infrastructure located in area that could be exposed to rising tides?	NA
Could coastal erosion affect the water supply source?	1
Is the water supply source dependent on coastal structures, such as levees or breakwaters, for protection from flooding?	1
V. Flooding	
Is the water supply or any of its associated infrastructure located within the 200-year floodplain? Does the water supply source rely on flood protection infrastructure such as levees or dams?	2
VI. Wildfire	
Is the water supply source located in an area that is expected to experience an increase in wildfire activity or severity? Would a wildfire result in damage to the water supply source infrastructure or interruption of its ability to perform as designed? Could the water supply source be affected by an increase in wildfire activity or severity in an upstream watershed or other adjacent area?	2

There is no basis in the hydrologic record for reducing supply reliability based upon single and/or multiple dry year conditions when groundwater water supply is available. The Kings River East Groundwater Sustainability Agency (KREGSA) does not identify any constraints to supply availability. City has historically pumped groundwater to meet all of its water demands. On this assumption, the City's supply is presented as 100% reliable for single and multiple dry year periods as summarized in the following sections.

7.2.1 Service Reliability – Constraints on Water Sources

Law

> ***CWC 10631***
> *(b)(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.*

As described in Chapter 6, the City's water supply portfolio only consists of groundwater. The Groundwater Sustainability Plan for the Kings River East Groundwater Sustainability Agency (KREGSA) mentions the decrease in groundwater levels over the last century in the San Joaquin Valley. The KREGSA intends to expand its groundwater level network as additional well construction information is obtained. At the moment, management actions do not include setting groundwater pumping limitations and the KREGSA does not identify any constraints to supply availability. The City is part of the King's Subbasin GSA and will continue to proactively manage groundwater resources in the Kings Subbasin to serve existing and future demands within the service area.

With respect to water quality, the City's Consumer Confidence Report (2020) in **Appendix F** describes existing water quality. As shown, the City's water supply meets all United States Environmental Protection Agency (US EPA) and SWRCB water quality standards.

7.2.2 Service Reliability – Year Type Characterization

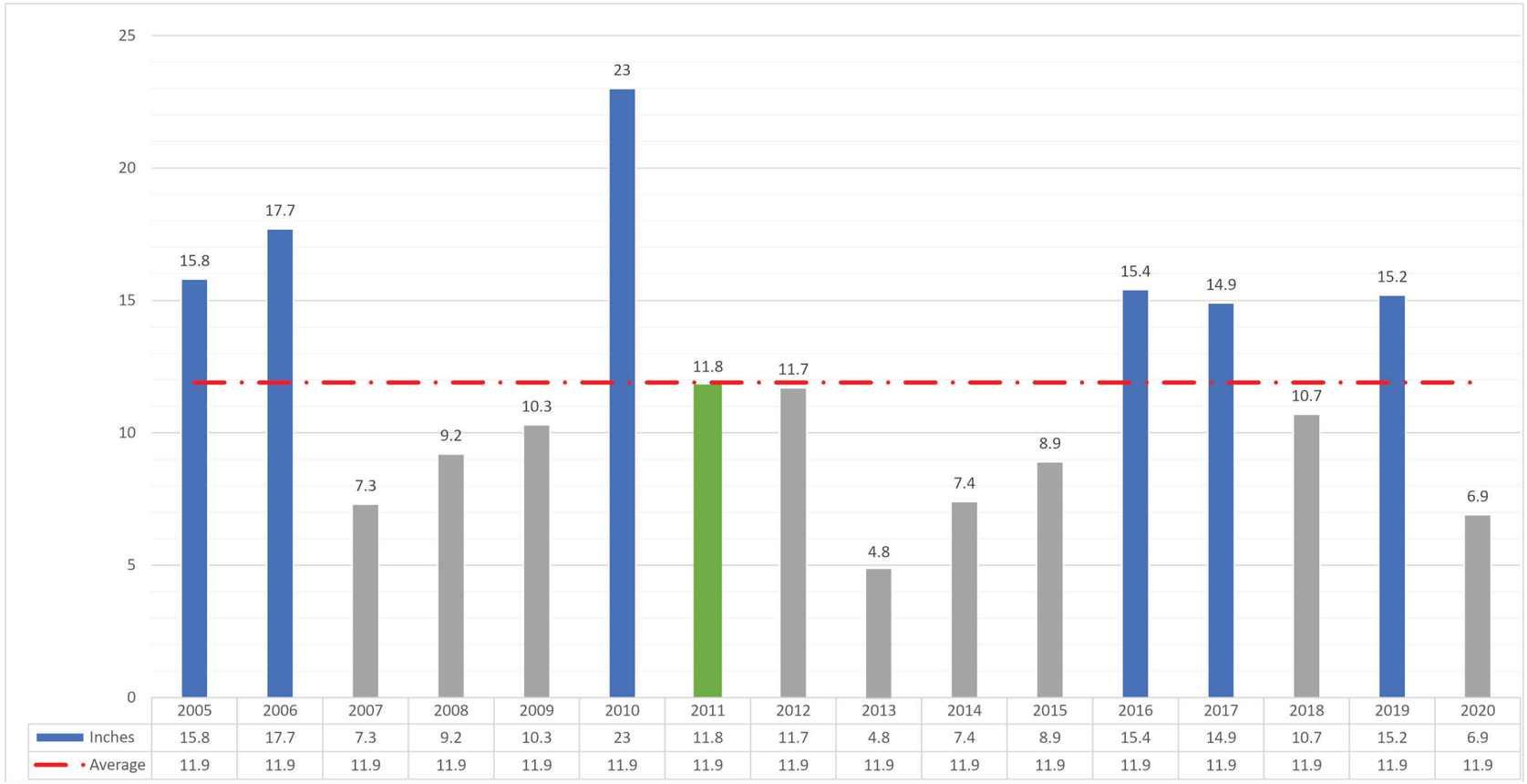
To determine the typical normal, single dry year, and five consecutive dry years within the service area, the City reviewed historical rainfall data from the precipitation gauge station 142 (Orange Cove). The results of the historical rainfall data review are presented in **Figure 7-1**.

Table 7-1 identifies the basis of water year data as required by the UWMP for projecting supply available during single and multiple dry year conditions.

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		☑ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP	
		☐ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Produced (MG)	% of Average Supply
Average Year	2011	1,450	100
Single-Dry Year	2012	1,640	113
Multiple-Dry Years 1st Year	2012	1,640	113
Multiple-Dry Years 2nd Year	2013	1,600	110
Multiple-Dry Years 3rd Year	2014	1,500	103
Multiple-Dry Years 4th Year	2015	1,302	90
Multiple-Dry Years 5th Year	2016	1,366	94
NOTE: % Of Average Supply in the table represents the City's ability to reduce water demands and does not reflect supply limitations.			

Figure 7-1: City Historic Rainfall Data

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City of Reedley

2020 Urban Water Management Plan

Figure 7-1:

City of Reedley Historic Rainfall Data

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7.2.3 Water Service Reliability – Supply and Demand Comparison

Law

CWC 10631

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

The future demand projections are based on future population projections as described in Section 3.4.1 and historical per capita demands including the implementation of the required SBX7-7 as described in Section 5.6. The future supply projections are based on the reasonably available groundwater as described in Section 6.2.9. The City produces only what it needs and considers this quantity to be the volume reasonably available as shown in **Table 6-9**. Based on the analysis of the City's current/projected water supply sources, the City has sufficient resources to serve existing and future demands under normal, single dry year, and five consecutive dry years conditions. The City's UWMP considers the reliability of meeting customer water use by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that could affect the City's water supply and its customers' water uses. No factors were found that indicate variation in supply reliability or customer demand due to drought.

7.2.3.1 Water Service Reliability – Normal Year

Table 7-2 provides a summary of the City's projected supply and water demands through 2045.

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045** *(opt)*
Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
Difference	0	0	0	0	0

7.2.3.2 Water Service Reliability – Single Dry Year

Table 7-3 provides a summary of City's projected supply and demand through 2045 for a single dry year.

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045** *(opt)*
Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
Difference	0	0	0	0	0

7.2.3.3 Water Service Reliability – Five Consecutive Dry Years

Table 7-4 provides a summary of City's projected supply and demand through 2045 for multiple dry years.

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025	**2030**	**2035**	**2040**	**2045**
First year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Second year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Third year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Fourth year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0
Fifth year	Supply totals (MG)	1,795	2,052	2,306	2,562	2,817
	Demand totals (MG)	1,795	2,052	2,306	2,562	2,817
	Difference	0	0	0	0	0

7.2.4 Description of Management Tools and Options

Law

CWC 10620 (f)
An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

The City coordinated closely with the Kings River Conservation District, Upper Kings Water Integrated Regional Management Authority, Alta Irrigation District and Consolidated Irrigation District with respect to regional water resource management. The City has and will continue to participate in the following regional water resource planning efforts:

- ❑ Kings River East Groundwater Sustainability Agency

7.3 Drought Risk Assessment

Law

CWC 10635(b)
Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria..

7.3.1 DRA Data, Methods, and Basis for Water Shortage Condition

The following information was used to support the City's DRA to identify water production and consumption to its customers and determine restrictions to supply sources:

- ❑ Annual AWWA Water Loss Audit Worksheet
- ❑ City of Reedley Integrated Master Plan
- ❑ Kings River East Groundwater Sustainability Agency GSP
- ❑ Historical rainfall data from the precipitation gauge 142 Orange Cove

7.3.2 DRA Individual Water Source Reliability

As identified in Section 7.2.2, the City has never had a single year or multiple dry years in which it did not meet 100% of its demand, regardless of regional hydrology. Therefore, there is no basis in the hydrologic record for reducing supply reliability based upon single and/or multiple dry year conditions when imported water supply is available in addition to historical groundwater production. On this assumption, the City's supply is presented as 100% reliable for single and multiple dry year periods as summarized in the following sections.

7.3.3 DRA Total Water Supply and Use Comparison

Sustainable management of its existing groundwater resources through water-use efficiency measures will allow the City to serve existing and future water demands during normal years, single dry years, or multiple dry years. **Table 7-5** shows a five-year drought risk assessment for the City.

Table 7-5: Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)	
2021	**Total**
Gross Water Use	1,670
Total Supplies	1,670
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP – supply augmentation benefit	0
WSCP – use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0
2022	**Total**
Gross Water Use [Use Worksheet]	1,701
Total Supplies [Supply Worksheet]	1,701
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP – supply augmentation benefit	0
WSCP – use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0
2023	**Total**
Gross Water Use [Use Worksheet]	1,733
Total Supplies [Supply Worksheet]	1,733
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP – supply augmentation benefit	0
WSCP – use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0
2024	**Total**
Gross Water Use [Use Worksheet]	1,764
Total Supplies [Supply Worksheet]	1,764
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP – supply augmentation benefit	0
WSCP – use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0
2025	**Total**
Gross Water Use [Use Worksheet]	1,795
Total Supplies [Supply Worksheet]	1,795
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP – supply augmentation benefit	0
WSCP – use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0

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CHAPTER 8 WATER SHORTAGE CONTINGENCY PLANNING

New Requirements

Per the Water Code the following new requirements are necessary for this chapter of the UWMP 2020 update.

- ❑ Key attributes of the water supply reliability analysis conducted pursuant to Water Code Section 10635. [Water Code Section 10632(a)(1)]
- ❑ Six standard water shortage levels corresponding to progressive ranges of up to 10-, 20-, 30-, 40-, and 50-percent shortages and greater than 50-percent shortage. [Water Code Section 10632 (a)(3)(A)]
- ❑ Locally appropriate "shortage response actions" for each shortage level, with a corresponding estimate of the extent the action will address the gap between supplies and demands. [Water Code Section 10632 (a)(4)]
- ❑ Procedures for conducting an annual water supply and demand assessment with prescribed elements. Under Water Code Section 10632.1, urban water Suppliers are required to submit, by July 1 of each year, beginning in the year following adoption of the 2020 UWMP, an annual water shortage assessment report to the California Department of Water Resources (DWR). [Water Code Section 10632 (a)(2)]
- ❑ Communication protocols and procedures to inform customers, the public, and government entities of any current or predicted water shortages and associated response actions. [Water Code Section 10632 (a)(5)]
- ❑ Monitoring and reporting procedures to assure appropriate data is collected to monitor customer compliance and to respond to any state reporting requirements. [Water Code Section 10632(a)(9)]
- ❑ A reevaluation and improvement process to assess the functionality of its WSCP and to make appropriate adjustments as may be warranted. [Water Code Section 10632(a)(10)]

8.1 Water Supply Reliability Analysis

Law

CWC 10632(a)(1)
The analysis of water supply reliability conducted pursuant to Section 10635.

As described in Chapter 7 of this UWMP, the City's water supply has been determined to be reliable. More detail about this section can be found in the City's WSCP in **Appendix G.**

8.2 Annual Water Supply and Demand Assessment Procedures

Law

CWC 10632(a)(2)
The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

CWC 10632.1.

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

In accordance with CWC 10632, the City will conduct an annual water supply and demand assessment, or annual assessment by July 1st of each year. The City will draft and prepare a written report that discusses the results of the annual water supply and demand assessment. Descriptions of the methodology, key data inputs, and a timeline for the annual assessment can be found in the WSCP.

8.2.1 Decision-Making Process

The written decision-making process can be found in the WSCP.

8.2.2 Data and Methodologies

The data and methodologies can be found in the WSCP.

8.3 Six Standard Water Shortage Levels

Law

CWC 10632(a)(3)

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

The WSCP establishes six stages of drought response actions to be implemented in times of shortage, with increasing restrictions on water use in response to decreasing supplies. The WSCP includes both voluntary and mandatory rationing depending on the causes, severity, and anticipated duration of the water supply shortage. A summary of the response actions taken for each shortage level are described in **Table 8-1**, shown below.

Table 8-1: Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** ***(Narrative Description)***
1	Up to 10%	- Waste of Water Prohibition: The following uses of water are defined as "waste of water" and are hereby prohibited exceptions unless otherwise stated: 1. The use of water which allows excess water to run off a gutter, ditch, or drain. 2. The excessive use, loss, or escape of water through breaks, leaks or malfunctions in the water user's plumbing or distribution facilities for any period of time after such escape of water should reasonably have been discovered or corrected. It shall be presumed that a period of forty-eight (48) hours after discovery is a reasonable time within which to correct such a leak or break. 3. The washing of vehicles, building exteriors, sidewalks, driveways, parking areas, tennis courts, patios or other paved areas without the use of positive shutoff nozzle on the hose, which results in excessive runoff. - Landscape Irrigation 1. Installation of lawn sprinkling systems: Lawn sprinkling system/devices shall be properly designed, installed, maintained and operated to prevent overuse of water. Modifying Duration of Watering: The "water customer" shall modify watering duration and frequency schedules so that the sprinkler's application does not exceed the irrigated area's absorption rate and generate surface runoff.
2	Up to 20%	- During anytime in which Level 2 restrictions are imposed, the following mandatory conservation measures shall apply in addition to all non-conflicting Level 1 restrictions. 1. Hours of irrigation: All outdoor irrigation of lawns, gardens, landscaped areas, plants, trees, shrubs, or other greenscape areas shall occur only between the hours of twelve o'clock (12:00) midnight and eight o' clock (8:00) a.m., and between eight o'clock (8:00) p.m. and twelve o' clock midnight on designated days during the summer watering schedule. During the winter water schedule, water customers may water anytime during the designated day. 2. Summer Watering Schedule (April 2 through October 30): All dwellings or establishments with even numbered street addresses (addresses ending in 0,2,4,6,8) shall only water on Wednesday, Friday and Sunday. Dwelings or establishments with odd numbered addresses (1,3,5,7,9) shall water only on Tuesday, Thursday and Saturday. There shall be no watering on Mondays. 3. Winter Water Schedule (November 1 through April 1): All dwellings or establishments shall water on Wednesday or Sunday. Specific irrigation times shall not be enforced. During rain events, water customers should turn automatic sprinkler timers off or place them on pause.
3	Up to 30%	- During anytime in which Level 3 restrictions are imposed, the following mandatory conservation measures shall apply in addition to all non-conflicting Level 1 and 2 restrictions. 1. Washing paved surfaces is prohibited, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards 2. Two Day Summer Watering Schedule (April 2 through October 30) for all residential and commercial landscape irrigation. All landscape irrigation

Table 8-1: Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** ***(Narrative Description)***
		watering in the City shall be limited to two days per week as follows: dwellings, establishments, and properties with even numbered street addresses (addresses ending in 0,2,4,6,8) shall only water on Wednesdays and Sundays. Dwellings or establishments with odd numbered addresses (1,3,5,7,9) shall water only on Tuesdays and Saturdays. There shall be no watering on Mondays, Thursdays, and Fridays. All outdoor landscape irrigation watering shall be limited to using sprinklers for no more than ten (10) minutes per washing station. This provision does not apply to landscape irrigation systems using drip/micro-irrigation systems.
4	Up to 40%	- During anytime in which Level 4 restrictions are imposed, the following mandatory conservation measures shall apply in addition to all non-conflicting Level 1, 2 and 3 restrictions. 1. Hours of irrigation: All outdoor irrigation of lawns, gardens, landscaped areas, plants, trees, shrubs, or other greenscape areas shall occur between the hours of twelve o'clock (12:00) midnight and eight o' clock (8:00) a.m., and between eight o'clock (8:00) p.m. and twelve o' clock midnight on designated days during both the summer and winter watering schedule. 2. Any outdoor watering of landscaped areas, including trees and shrubs located on residential and commercial properties, which are not irrigated by an automated landscape irrigation system shall be watered only by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation. No outdoor watering allowed within 48 hours after measurable rain event. Rain capture systems are encouraged and any associated building permits for such systems will be expedited and permit fees waived. An administrative processing fee will still be applicable.
5	Up to 50%	- During any time in which Level 5 restrictions are imposed the following mandatory conservation measures apply in addition to all non-conflicting Level 1, 2, 3 and 4 restrictions: 1. The filling or refilling of ornamental lakes or ponds shall be prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a drought response level under this section. 2. The washing of vehicles is prohibited, except at commercial car washes that recirculate water, or by high pressure/low volume wash systems. 3. All leaks detected in landscape irrigation systems or water systems shall be repaired within forty-eight (48) hours of notification by the city of Reedley unless other arrangements are made with the public works director. 4. No new potable water service, temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service shall be issued, except under the following circumstances: a. A valid, unexpired building permit has been issued for the project; or b. The project is necessary to protect the public's health, safety, and welfare; or

Table 8-1: Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** *(Narrative Description)*
		c. The applicant provides a substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new meter(s) to the satisfaction of the City.
6	>50%	- During any time in which Level 6 restrictions are imposed the following mandatory conservation measures apply in addition to all non-conflicting Level 1, 2, 3, 4, and 5 restrictions: 1. All landscape irrigation shall be prohibited, except crops and landscape products of commercial growers and nurseries. This restriction shall not apply to the following categories of use(s) unless the city of Reedley has determined that recycled water is available and may be lawfully applied to the use(s): d. Maintenance of trees and shrubs are to be watered using a bucket, handheld hose with a positive shutoff nozzle, or low volume non-spray irrigation; e. Maintenance of existing landscaping necessary for fire protection as specified by the fire marshal of the local fire protection agency having jurisdiction over the property to be irrigated; f. Maintenance of existing landscaping for erosion control; g. Maintenance of plant materials identified to be rare or essential to the well-being of rare animals; h. Maintenance of landscaping within active public parks and playing fields, daycare centers, school grounds, cemeteries, and golf course greens, provided that such irrigation does not exceed two (2) days per week. i. Watering of livestock; and j. Public works projects and activity irrigated environmental mitigation projects. All leaks detected in landscape irrigation systems or water systems shall be repaired within twenty-four (24) hours of notification by the City unless other arrangements are made with the Public Works Director.

Figure 8-1 provides a crosswalk that shows AMWC's water shortage levels to those mandated by statute.

Figure 8-1: Crosswalk for the City's 2015 Shortage Levels and the 2020 WSCP Mandated Shortage Levels

Stages from 2015 UWMP			Crosswalk	2020 WSCP Mandated Shortage Levels			
Shortage Level	**Percent Supply Reduction**	**Water Supply Condition**		**Shortage Level**	**Percent Supply Reduction**	**Water Supply Condition**	**Mandatory compliance with water savings measures**
1	10%	- Total production capacity loss of 0-10 percent	→	1	0% to 10%	Normal	Voluntary, always in place
2	20%	- Total production capacity loss of 10-20 percent	→	2	10% to 20%	Slightly Restricted	Mandatory compliance
3	30%	- Total production capacity loss of 20-30 percent	→	3	20% to 30%	Moderately Restricted	Mandatory compliance
4	50%	- Total production capacity greater than 30 percent	→	4	30% to 40%	Restricted	Mandatory compliance
			→	5	40% to 50%	Severely Restricted	Mandatory compliance
			→	6	50% and above	Extremely Restricted	Mandatory compliance

8.4 Shortage Response Actions

Law

CWC 10632
(a)(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

8.4.1 Demand Reduction

Table 8-2 summarizes the restrictions and prohibitions on end users during each stage of water shortage responses implemented by the City.

Table 8-2: Demand Reduction Actions

Shortage Level	Demand Reduction Actions	Estimated Extent of Reducing the Water Shortage Gap	Penalty, Charge, or Other Enforcement?
1	Other – Expand Public Information Campaign	Low	No
1	Landscape – Limit landscape irrigation to specific times.	Low	Yes
1	Landscape – Limit landscape irrigation to specific days.	Low	No
1	Other – Customer must repair leaks, breaks, and malfunctions in a timely manner	Medium	Yes
2	Other – Prohibit use of potable water for washing hard surfaces	High	Yes
2	Landscape – Limit landscape irrigation to specific times.	High	Yes
2	Landscape – Other landscape restriction or prohibition	High	Yes
3	Landscape – Other landscape restriction or prohibition	Medium	Yes
3	Landscape – Limit landscape irrigation to specific times.	Low	Yes
4	Other – Prohibit the filling or refilling of ornamental lakes or ponds shall be prohibited	Low	Yes
4	Other – Prohibit vehicle washing except at facilities using recycled or recirculating water	Medium	Yes
4	Other – Customer must repair leaks, breaks, and malfunctions in a timely manner	Medium	Yes
5	Other – Prohibit new potable water service	High	Yes
5	Other – Prohibit new temporary or permanent meters	Medium	Yes

Table 8-2: Demand Reduction Actions			
Shortage Level	**Demand Reduction Actions**	**Estimated Extent of Reducing the Water Shortage Gap**	**Penalty, Charge, or Other Enforcement?**
5	Other- Prohibit statements of immediate ability to serve or provide potable water service	High	Yes
6	Landscape – Prohibit all landscape irrigation	High	Yes
6	Other – Customers must repair leaks, breaks, and malfunctions in a timely manner	High	Yes

8.4.2 Supply Augmentation

Table 8-3 summarizes the restrictions and prohibitions on end uses during each stage of water shortage response implemented by the City.

Table 8-3: Demand Reduction Actions			
Shortage Level	**Supply Augmentation Methods and Other Actions by Water Supplier**	**Estimated Extent of Reducing the Water Shortage Gap**	**Penalty, Charge, or Other Enforcement?**
All Stages	Reduce Water System Loss	High	No

8.4.3 Operational Changes

In the event of an extreme water shortage, the City will implement some or all of the following operational changes in accordance with CWC §10632(a)(4)(C) and §10632.5(a):

- ❑ The City shall provide prompt notice to customer whenever the City obtains information that indicates a leak may exist within the end-user's exclusive control.
- ❑ Decrease line flushing
- ❑ Evaluate maintenance procedures and alter if needed to improve system efficiency.
- ❑ Evaluate infrastructure repairs, and complete if possible, to improve system efficiency.

8.4.4 Additional Mandatory Restrictions

The City's customers shall comply to the mandatory water shortage response actions listed in **Table 8-2** associated with a level 3 or higher water shortage event in accordance with §10632(a)(4)(D). In the event of a water shortage emergency or severe drought, the City may enact additional mandatory restrictions:

- ❑ Implement drought water rates

8.4.5 Emergency Response Plan

In the event of an emergency, the City will declare a water shortage and enact the appropriate water savings actions until service is restored to pre-emergency conditions. A more detailed description of the City's emergency response plan and water shortage actions can be found in the WSCP.

8.4.6 Seismic Risk Assessment and Mitigation Plan

Law

> ***CWC 10632.5. (a)***
> *In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.*
>
> *(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.*
>
> *(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 1*06-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

The City completed the America's Water Infrastructure Act (AWIA) Risk and Assessment (RRA) which assessed seismic risk. The City has an Emergency Operations Plan (EOP), which provides guidance for emergency planning, organization and response policies and measures for catastrophic event preparation through recovery. A summary of the seismic risk assessment can be found in the WSCP.

8.4.7 Shortage Response Action Effectiveness

The City will monitor and evaluate the effectiveness of the shortage response actions. In the event that the shortage response actions are not effective AMWC will have the power to amend the WSCP. A more detailed description of the City's plan to monitor effectiveness can be found in the WSCP.

8.5 Communication Protocols

Law

> ***CWC 10632 (a)(5)***
> *Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:*
>
> *(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.*
> *(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.*

The City will inform the public, and the necessary local, regional, and state government entities regarding any current or predicted water shortages based on the results of the Annual Water Supply and Demand Assessment in accordance with CWC §10632(a)(5). The City will also notify all necessary entities of any shortage response actions mandated in response to the Annual Assessment. A detailed communication plan can be found in the WSCP.

8.6 Compliance and Enforcement

Law

> ***CWC 10632 (a)(6)***
> *For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.*

The City's enforcement policies enforcement policies can be found in the WSCP.

8.7 Legal Authorities

Law

CWC 10632 (a)(7)

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1. [see below]

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC Division 1, Section 350

Declaration of water shortage emergency condition. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

The City has the power to declare a water shortage. See the WSCP for the City's declaration of a water shortage.

8.8 Financial Consequences of WSCP

Law

CWC 10632 (a)(8)

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

In the event of a water shortage, the City has established drought water rates, see the WSCP for drought rates.

8.9 Monitoring and Reporting

Law

CWC 10632 (a)(9)

For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

Monitoring and reporting procedures can be found in the WSCP.

8.10 WSCP Refinement Procedures

Law

CWC 10632 (a)(10)

Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

Refinement procedures can be found in the WSCP.

8.11 Special Water Feature Distinction

Law

> ***CWC 10632 (b)***
> *For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.*

A description of special water features can be found in the WSCP.

8.12 Plan Adoption, Submittal and Availability

Law

> ***CWC 10632 (a)(c)***
> *The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.*

The procedures that were used to adopt the WSCP are detailed in the WSCP.

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CHAPTER 9 DEMAND MANAGEMENT MEASURES

New Requirements for 2020 Update

There are no new plan preparation requirements for the 2020 UWMP guidance.

9.1 Demand Management Measures for Wholesale Suppliers

The City is not a wholesale agency and is not required by DWR to complete Section 9.1.

9.2 Existing Demand Management Measures for Retail Suppliers

Law

> ***CWC 10631***
> *(e)Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
>
> *(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.*
> *(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:*
>
> *(i) Water waste prevention ordinances.*
>
> *(ii) Metering.*
>
> *(iii) Conservation pricing.*
>
> *(iv) Public education and outreach.*
>
> *(v) Programs to assess and manage distribution system real loss.*
>
> *(vi) Water conservation program coordination and staffing support.*
>
> *(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented*

The UWMP Act requires a discussion of Demand Management Measures (DMMs), including a description of each of the DMMs currently being implemented/scheduled for implementation, the schedule of implementation for all DMMs, and the methods, if any, the City will use to evaluate the effectiveness of DMMs.

9.2.1 Water Waste Prevention Ordinances

This DMM consists of adopting and enforcing a water waste ordinance that explicitly states that the waste of water is to be prohibited. The ordinance must prohibit specific actions that waste water, such as excessive runoff from landscape irrigation, or use of a hose outdoors without a shut off nozzle.

The City adopted Ordinance 2015-002 on May 26th, 2015, which amends Title 8 of the City's Municipal by adding Section 8-1-12, Water Conservation Restrictions. Section 8-1-12 describes water conservation levels and enforcement penalties. During FY 16/17, the City enforced a Level 2 of Water Conservation. The City is currently in Level 1 of Water Conservation.

The City has recently been more pro-active in response to water wasting. As part of the water conservation efforts the City has expanded its public outreach and education on water conservation and has increased enforcement of water waste prohibitions.

9.2.2 Metering

Law

> ***CWC 526***
> *(a) Notwithstanding any other provisions of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract... shall do both of the following:*
>
> *(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings... located within its service area.*
>
> ***CWC 527***
> *(a) An urban water supplier that is not subject to Section 526 shall do both the following:*
>
> *(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.*

This DMM requires that water meters be installed for all new connections to allow billing by volume of use. This program also applies to retrofitting any existing unmetered connections. In 2007, the City implemented the use of water meters and requires the use of meters on all new developments. Currently, all of the City's service connections are metered. These water meters are manually read and monthly readings are collected by City staff. The City is currently in the middle of a long-term meter replacing program.

9.2.3 Conservation Pricing

As described above, the City meters all services and charges for use based on the quantity of water used. The tiered rate structure includes a monthly fixed service charge based on the size of the customer's meter in addition to a commodity charge based on the total volume water consumed by a customer during the billing period. For example, a single-family dwelling currently pays a fixed rate of $30.35 for ¾" to 1" meter and a commodity charge of $1.00/1,000 gallons. However, if a customer uses over 15,000 during a billing period the commodity charge increases to $1.05/1,000 gallons. Water usage above 25,000 gallons is billed at a rate of $1.10/1,000 gallons. The excess consumption amount is added to the monthly bill.

9.2.4 Public Education and Outreach

The City distributes public information regarding water issues in mass mailings to all water service customers through the City's Internet website, directly to walk-in customers at City Hall, and at the Public Works Department. Also, when warranted, time-critical public information is dispersed through the local print media, radio station announcements and public events.

Water use regulations and the annual Drinking Water Consumer Confidence Report (water quality report) are mailed each year to all customers. The City takes advantage of these mailings when necessary to provide its customers additional information on water conservation and other demand management measures.

Display cases and bulletin boards at City facilities augment the mailings by providing a permanent posting of the most current City mailings.

The City monthly water bill distributed to all water service customers is another vehicle used by the City for public education purposes. The bill mailing also contains public service announcements that are used to remind citizens of conservation and demand management measures.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

The City submits an AWWA Standard Water Audit and Water Balance worksheet every year to assess water losses. In the past, the City has enacted several measures that address water loss. These measures include implementing several thousands of dollars of leak detection equipment. This equipment is attached to the distribution systems valves and has been used to detect system losses. The City's leak detection program also includes notifying customers when a leak may be occurring on their property. Potential leaks are typically discovered by unusually high meter readings identified by the meters which have high water use warnings or by the City's customer service and billing staff when they prepare monthly bills. If a high meter read is identified, a City service representative flags the meter and alerts the customer.

In addition, water efficiency standards are set for landscaping in the aforementioned Conservation Ordinance. Landscape construction requirements, such as a requirement to install sprinkler heads greater than 12 inches from hard surfaces, has also minimized water loss.

9.2.6 Water Conservation Program Coordination and Staffing Support

The City's Water Systems Supervisor is the designated Water Conservation Coordinator. In addition, the public works department staff supports the coordinator and the water conservation activities of the City and its customers. The Water Conservation Coordinator's responsibilities include:

- ❑ Coordination with the City and public works departments to promote existing water conservation measures.
- ❑ Evaluating existing and planning future water conservation measures.
- ❑ Tracking, planning, and reporting on Best Management Practices (BMP) implementation.

The City and public works department personnel also contribute a significant amount of time to water conservation efforts. These efforts include an operations staff that actively monitors for water waste, a customer service staff that responds to conservation inquires, and a financial department that regularly monitors bills to detect for potential customer leaks.

9.2.7 Other Demand Management Measures

Law

CWC 10631
(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

Other demand management measures that the City has implemented include the following:

Residential Plumbing Retrofit

This program benefits existing customers by reducing their water consumption while minimizing the impact of their lifestyle. State legislation requires the installation of efficient plumbing in new construction, and effective 1994 requires that only Ultra Low Flush Toilets be sold in California. Several studies suggest that savings resulting from miscellaneous interior retrofit fixtures can range between 25 and 65 gallons per day per housing unit. The studies also suggest that installation of retrofit fixtures in older single-family homes tend to produce more savings, while newer multi-family homes tend to produce less savings per housing unit. As of January 1, 2015, Reedley residential customers in single and multi-family homes are eligible for the High-Efficiency Toilet (HET) Rebate Program. The program offers customers a $100 rebate for each new qualifying HET of 1.28 gallons per flush or less. The City also advertises the HET rebated offered by the DWR that may be used in addition to the Reedley rebate program.

High-Efficiency Washing Machine Rebate Program

This program generally provides a financial incentive (rebate offer) to qualifying customers who install high efficiency washing machines in their home. Other regional municipalities that performed an economic analysis on this program concluded that it would have a low benefit-to-cost ratio. This program is not currently implemented in the City. However, the City will seek grant funding when available to offer rebate programs to customers.

9.3 Implementation over the Past Five Years

Law

> ***CWC 10631***
> *I Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
>
> *(1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.*

9.3.1 Implementation Over the Past Five Years

Ordinance

In 2015 the City revised its Water Conservation Program to enhance it and the City moved from Level 1 to Level 2 in the Water Conservation Levels. The City is currently in a Level 1 water shortage level.

Metering

Since 2007, the City has installed meters on all accounts and replaced older meters on existing accounts. Since 2011, the City has added approximately 119 new residential meters and 3 industrial meters. The City also added new meters to 40 City locations and public facilities. The City is currently in the middle of a long-term meter replacing program.

Conservation Pricing

On April 13, 2021, the City adopted Resolution No. 2021-053 authorizing an annual increase in water service rates based on the 10-year rolling average of the Consumer Price Index (CPI). The current 10-year rolling average of the CPI is 2.5 percent. This 2.5 percent increase is used to cover inflationary increases in operation and maintenance cost. As of April 13, 2021, single family residence service meter increased to $34.28. The resolution also increased commodity charges.

Public Education and Outreach

The programs described in this chapter were either expanded or started in the last five years.

Water Distribution System Losses

In 2013, the City began to track water conservation complaints and make direct contact with customers. The City will continue auditing its water production and metered deliveries to ensure that leakage in the distribution system is maintained at low levels or further reduced.

Water Conservation Program Coordination and Staffing Support

The City has enlisted the assistance of all staff in any City department that is in the field and residents for purposes of reporting running water or potential waste. All residents and staff are encouraged to report such observations to water department staff.

Other

The City continues to promote its High Efficiency Residential Washer Rebate Program and High Efficiency Residential Toilet Rebate Program. Flyers for both programs are included in **Appendix H.**

9.3.2 Implementation to Achieve Water Use Targets

The City has implemented the required DMM per CWC 10631 to achieve its water use targets pursuant to Section 10608.20. Baseline and target 2020 GPCD are described in Chapter 5 of the UWMP. The City adopted its WSCP (**Appendix G**) at its March 8, 2022 Council meeting which outlines measures the City will take to achieve water use targets.

9.4 Water Use Objectives (Future Requirements)

The Water Code requires suppliers to develop new water use objectives that area based on specific standards for certain water use sectors. These water use objectives will not be developed until 2023, and the first report will require information on what DMMs Suppliers will implement to meet their objectives. As such, each Supplier is encouraged to consider aligning conservation management actions and the changing urban use patterns in order to consider these future obligations.

CHAPTER 10 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

New Requirements

- ❑ Since 2015, the public processes for completing the UWMP have not been revised. However, the Water Shortage Contingency Plan is a new component of the 2020 UWMP that can be amended separately from the UWMP (see Chapter 8)

10.1 Inclusion of all 2020 Data

This 2020 UWMP update includes water use and planning data for the entire 2020 calendar year.

10.2 Notice of Public Hearing

10.2.1 Notice to Cities and Counties

Law

(b) ***CWC 1062****b) Every urban water supplier required to prepare a plan shall… at least 60 days prior to the public hearing on the plan … notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.*

CWC 10642
…The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area…

10.2.1.1 60 Day Notification

The City notified the agencies listed in **Table 10-1** at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the Plan. A copy of the notification letters sent to these agencies is provided in **Appendix I**.

10.2.1.2 Notice of Public Hearing

The Notice of the public hearing, held at the March 8, 2022 Council meeting at City Hall, was sent to the Kings River Conservation District, Upper Kings Water Integrated Regional Management Authority, Alta Irrigation District, Consolidated Irrigation District, and County of Fresno on December 6, 2021. A copy of the letter from the City to the County and other agencies is included in **Appendix I** of this UWMP.

10.2.1.3 Submittal Tables

Table 10-1 summarizes the agencies which were provided notifications by the City.

Table 10-1 Retail: Notification to Cities and Counties

City Name	60 Day Notice	Notice of Public Hearing
County Name	60 Day Notice	Notice of Public Hearing
County of Fresno	☑	☑

10.2.2 Notice to the Public

Law

CWC 10642
…Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection…Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code…

Government Code 6066
Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

Copies of the City's draft UWMP were made available for public review at City Hall and the local public library in the City. The City noticed a public hearing to review and accept comments on the draft plan with more than two weeks in advance of the hearing. On March 8, 2022 ,the City will hold a noticed public hearing to review and accept comments on the draft plan. Notice of the public hearing was published in the local press and a copy of the Notice to the Public is included in **Appendix J**.

As required by the Act, the 2020 UWMP is being provided by the City to the California Department of Water Resources, the California State Library, and the public within 30 days of the City's adoption.

10.3 Public Hearing and Adoption

Law

CWC 10642
…Prior to adopting either, the [plan or water shortage contingency plan], the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon.

CWC 10608.26
(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20 for determining its urban water use target.

10.3.1 Public Hearing

Prior to adopting the 2020 UWMP and WSCP, the City held a public hearing at the March 8, 2022 Council meeting, which included input from the community regarding the City's draft 2020 UWMP and WSCP. As part of the public hearing, the City provided information on determination of its water use targets and action plan in case of severe water shortage conditions.

10.3.2 Adoption

Law

CWC 10642
…After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

The 2020 UWMP was adopted on March 8, 2022 during a regularly scheduled City Council meeting. A copy of resolution is included in **Appendix K** of this UWMP.

10.4 Plan Submittal

Law

CWC 10621
(e) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021…

CWC 10644
(a)(1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.

(a)(2) The plan, or amendments to the plan, submitted to the department… shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

CWC 10635
(c) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

10.4.1 Submitting a UWMP and Water Shortage Contingency Plan to DWR

Within 30 days of adoption of the 2020 UWMP by the City Council, the City will submit the adopted 2020 UWMP to DWR, as required by CWC 10621 and 10644. The 2020 UWMP will be submitted through DWR's "Water Use Efficiency (WUE) Data Online Submittal Tool" website.

DWR previously provided a checklist to make determine if an Urban Water Management Plan has addressed the requirements of the California Water Code. The City has completed the DWR checklist by indicating where the required CWC elements can be found within the City's 2020 UWMP (See **Appendix L**).

10.4.2 Electronic Data Submittal

Law

CWC 10644
(a)(2) The plan, or amendments to the plan, submitted to the department… shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

Within 30 days of adoption of the 2020 Plan, the City will also submit all data tables associated with the 2020 Plan through DWR's "Water Use Efficiency (WUE) Data Online Submittal Tool" website.

10.4.3 Submitting a UWMP, including WSCP, to the California State Library

Within 30 days of adoption of the 2020 UWMP by the City Council, a copy (CD or hardcopy) of the 2020 Plan will be submitted to the State of California Library. A copy of the letter to the State Library will be maintained in the City's file. The 2020 Plan will be mailed to the following address if sent by regular mail:

California State Library
Government Publications Section
P.O. Box 942837
Sacramento, CA 94237-0001
Attention: Coordinator, Urban Water Management Plans

The 2020 Plan will be delivered to the following address if sent by courier or overnight carrier:

California State Library
Government Publications Section
914 Capitol Mall
Sacramento, CA 95814

10.4.4 Submitting a UWMP to Cities and Counties

Within 30 days of adoption of the 2020 Plan by the City Council, a copy of the 2020 UWMP will be submitted to the County of Fresno / Recorders office and City Hall. A copy of the letter to the County of Fresno will be maintained in the City's file.

10.5 Public Availability

Law

CWC 10645
(a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.
(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Within 30 days of adoption, the plan will be available on the City's website at https://reedley.ca.gov/and at the administrative office between the hours of 8 AM and 5PM Monday through Friday.

10.6 Notification to Public Utilities Commission

Law

CWC 10621(c)
An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

This section does not apply to the City.

10.7 Amending an Adopted UWMP or Water Shortage Contingency Plan

Law

CWC 10621
(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(a)(1) Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

10.7.1 Amending a UWMP

If the City amends the adopted 2020 UWMP, the amended UWMP will undergo adoption by the City Council. Within 30 days of adoption, the amended UWMP will then be submitted to DWR, the State of California Library, and the County of Fresno / Recorders office.

10.7.2 Amending a Water Shortage Contingency Plan

If the City amends the adopted 2020 WSCP, the amended WSCP will undergo adoption by the City Council. Within 30 days of adoption, the amended WSCP will then be submitted to DWR, the State of California Library, and the County of Fresno / Recorders office.

APPENDIX C

TTM 6497 – WEST HAVEN II WSA – CONSISTENCY WITH DWR GUIDELINES

VTTM 6497 West Haven II Property WSA – Consistency with DWR Guidelines

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
Section 1 (page 2). Does SB 610 or SB221 apply to the proposed project?	Is the project subject to SB 610? Is the project subject to CEQA (Water Code §10910(a)? If yes, continue.	WSA Section 1.1. Yes, the project is subject to SB610 and CEQA.
	Is it a "Project" as defined by Water Code §10912(a) or (b)? If yes, to comply with SB 610 go to Section 2.0, page 4.	WSA Section 1.1. No, the Project is not considered to meet the definition of "project" per Water Code §10912(a) or (b).
	Is the project subject to SB 221? Does the tentative map include a "subdivision" as defined by Government Code §66473.7(a)(1)? If no, stop.	No
Section 2.0 (page 4). Who will prepare the SB 610 analysis?	Is there a public water system ("water supplier") for the project (Water Code §10910(b)? If no, go to Section 3.0, page 6.	WSA Section 2.1. Yes, the project site will connect to a public water system.
Section 3.0 (page 6). Has an assessment already been prepared that includes this project?	Has this project already been the subject of an assessment (Water Code §10910(h)? If no, go to Section 4.0, page 8.	No, the Project has not been the subject of an assessment.
Section 4.0 (page 8). Is there a current Urban Water Management Plan?	Is there an adopted urban water management Plan (Water Code §10910(c)? If yes, continue. If yes, the information from the UWMP related to the proposed water demand for the project may also be used for carrying out Section 5.0, Steps 1 and 2, Section 7; proceed to Section 5, page 10 of the Guidelines.	Yes, there is an Urban Water Management Plan (UWMP) for the proposed project location described in WSA Section 3.2.
	Is the project water demand for the project accounted for in the most recent UWMP (Water Code §10910(c)(2)? If no, go to Section 5.0, page 10.	Yes
Section 5.0 (page 10). What information should be included in an assessment?	Step One (page 13). Documenting wholesale water supplies.	The Project is not a retail water supplier and would not include the use of wholesale water supplies.
	Step Two (page 17). Documenting Supply if Groundwater is a Source.	The proposed water supply wells are located within the City of Reedley. WSA Sections 1.3, 2.3 and 3.2.

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	Specify if a groundwater management plan or any other specific authorization for groundwater management for the basin has been adopted and how it affects the water supplier's use of the basin.	WSA Section 3.2 The water supply wells are located within the Kings River East Groundwater Sustainability Agencies which includes the City of Reedley.
	Description and analysis of the amount and location of groundwater pumped by the water supplier for the past five years. Include information on proposed pumping locations and quantities. The description and analysis is to be based on information that is reasonably available, including, but not limited to, historic use records from DWR.	City of Reedley historic records are included in WSA Section 3.0. WSA Section 1.3 provides a description of the Project's water requirements.
	Analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the water supplier.	WSA Section 3.2. The quantity of water available in the City of Reedley is sufficient for the Project.
	Step 3 (page 21). Documenting project demand (Project Demand Analysis).	WSA Section 1.3. Addresses the Project water demands
	Step 4 (page 26). Documenting dry year(s) supply.	WSA Section 3.2. Addresses water supply availability including during dry years.
	Step 5 (page 31). Documenting dry year(s) demand.	WSA Section 3.2 addresses annual demands, including dry year scenarios.
Section 6.0 (page 33). Is the projected water supply sufficient or insufficient for the proposed project		WSA Section 4.0 summarizes how the identified water supply/supplies are considered sufficient for the Project.
Section 7.0 (page 35). If the projected supply is determined to be insufficient. Section 8.0 (page 38). Final SB 610 assessment actions by lead agencies.	Does the assessment conclude that supply is "sufficient"? If no, continue. The lead agency shall review the WSA and must decide whether additional water supply information is needed for its consideration of the proposed project. The lead agency "shall determine, based on the entire record, whether projected water supplies will be	WSA Section 4.0 concludes that sufficient water supplies are available for the Project. The WSA for the Project must be approved prior to or in concurrence with the EIR.

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	sufficient to satisfy the demands of the project, in addition to existing and planned future uses."	
	The description of the groundwater basin may be excerpted from the groundwater management plan, from DWR Bulleting 118, California's Ground Water, or from some other document that has been published and that discusses the basin boundaries, type of rock that constitutes the aquifer, variability of the aquifer material, and total groundwater in storage (average specific yield times the volume of the aquifer).	WSA Section 2.2 provides a description of the groundwater basin characteristics using all available resources, including DWR Bulletin 118.
	In an adjudicated basin the amount of water the urban supplier has the legal right to pump should be enumerated in the court decision.	Basin is not adjudicated.
	The Department of Water Resources has projected estimates of overdraft, or "water shortage", based on projected amounts of water supply and demand (basin management) are projected by the Watermaster agency (AVEK) in WSA Section 3.2, the hydrologic region level in	Basin groundwater resources are discussed in WSA Section 2.3.
	Bulletin 160, California Water Plan Update. Estimates at the basin or subbasin level will be projected for some basins in Bulletin 118. If the basin has not been evaluated by DWR, data that indicate groundwater level trends over a period of time should be collected and evaluated.	
	If the evaluation indicates an overdraft due to existing groundwater extraction, or	WSA Section 3.2. The referenced and Appendicized City of Reedley 2020 Urban

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	projected increases in groundwater extraction, describe actions and/or program designed to eliminate the long term overdraft condition.	Water Master Plan describes in detail the subject actions and programs.

APPENDIX D
ACOUSTICAL ANALYSIS

ACOUSTICAL ANALYSIS

WESTHAVEN II RESIDENTIAL
REEDLEY, CALIFORNIA

WJVA Project No. 24-66

PREPARED FOR

QK/QUAD KNOPF, INC.
5080 CALIFORNIA AVENUE, SUITE 220
BAKERSFIELD, CALIFORNIA 93309

PREPARED BY

WJV ACOUSTICS, INC.
VISALIA, CALIFORNIA

wjv acoustics

DECEMBER 17, 2024

INTRODUCTION

The proposed project would consist of 153 single-family residential lots, to be constructed on an approximately 34-acre site within the City of Reedley. The project site is located at the northeast corner of S. Buttonwillow Avenue and E. Springfield Avenue. The project site plan is provided as Figure 1.

The project developer has requested an acoustical analysis to assess project site noise exposure and determine if noise mitigation measures should be incorporated into the project design. This analysis, prepared by WJV Acoustics, Inc. (WJVA), is based upon a site visit and traffic noise measurements, traffic data provided by Fresno Council of Governments (Fresno COG), and a project site plan dated March 1, 2024.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides typical A-weighted sound levels for common noise sources.

CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

General Plan-

The City of Reedley Noise Element of the General Plan (adopted 2013) sets noise compatibility standards for both transportation and non-transportation (stationary) noise sources. The General Plan sets noise compatibility standards for transportation noise sources in terms of the Day-Night Average Level (L_{dn}). The L_{dn} represents the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The L_{dn} represents cumulative exposure to noise over an extended period of time and are therefore calculated based upon *annual average* conditions.

Table I provides the General Plan noise level standards for transportation noise sources. The Noise Element provides an exterior noise standard of 60 dB L_{dn} and an interior noise standard of 45 dB L_{dn}, for noise-sensitive land uses exposed to transportation noise sources.

TABLE I

TRANSPORTATION NOISE LEVEL STANDARDS, dBA, L_{dn}
CITY OF REEDLEY GENERAL PLAN NOISE ELEMENT

Noise Sensitive Land Uses		New Transportation Noise Sources	
Indoor	**Outdoor**	**Indoor**	**Outdoor**
45	60	45	60

1. This table is applicable to noise sources created by either new development and/or new transportation projects.
2. Based on an evaluation of the existing condition and proposed project, the Community Development Director may allow exterior exposure up to 65 dB DNL where practical application of construction practices has been used to mitigate exterior noise exposure.

Source: City of Reedley General Plan Noise Element

The standards for non-transportation (stationary) noise sources are provided in Table II. The standards are made more restrictive during the nighttime hours of 10:00 p.m. to 7:00 a.m. The standards are to be applied to the outdoor activity areas for residential land uses. Outdoor activity areas generally include backyards, decks and patios of single-family residences, individual patios or decks of multi-family developments and common outdoor recreation areas of multi-family developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

TABLE II

NON-TRANSPORTATION (STATIONARY) NOISE LEVEL STANDARDS, dBA
CITY OF REEDLEY GENERAL PLAN NOISE ELEMENT

Daytime (7 a.m.-10 p.m.)		Nighttime (10 p.m.-7 a.m.)	
L_{eq}	L_{max}	L_{eq}	L_{max}
55	70	50	65

1. As determined within outdoor activity areas of existing or planned noise-sensitive uses, if outdoor activity area locations are unknown, the allowable noise exposure shall be determined at the property line of the noise sensitive use.

2. Based on an evaluation of the existing condition and proposed project, the Community Development Director may allow exterior exposure up to 65 dB DNL where practical application of construction practices has been used to mitigate exterior noise exposure.

Source: City of Reedley General Plan Noise Element

Construction Noise and Vibration-

There are no City of Reedley construction noise standards or guidelines. However, it is common to limit hours of construction activities to daytime hours to avoid annoyances and sleep disturbances at nearby noise sensitive land uses. As a point of reference, Fresno County provides the following in regards to allowable hours of construction:

Section 8.40.060(c) of the Fresno County Ordinance Code (Noise Source Exemptions) states that noise associated with construction activities would be exempt from the noise standards provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day except Saturday or Sunday, or before 7:00 a.m. or after 5:00 p.m. on Saturday or Sunday.

The City of Reedley does not have any applicable vibration level standards. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table III and Table IV, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE III GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA		
Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4
Source: Caltrans		

TABLE IV GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA		
Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Caltrans		

PROJECT SITE NOISE EXPOSURE

The proposed project would consist of 153 single-family residential lots, to be constructed on a 34-acre site within the City of Reedley. The project is located at the northeast corner of S. Buttonwillow Avenue and E. Springfield Avenue. The project site currently consists of agricultural lands (tree crops). The project site is exposed to traffic noise associated with vehicles traveling on S. Buttonwillow Avenue. The distance from the center of the closest proposed residential backyards to the centerline of S. Buttonwillow Avenue is approximately 70 feet.

Traffic Noise Exposure

Noise exposure from traffic on S. Buttonwillow Avenue was calculated for existing and future (2046) conditions using the FHWA Traffic Noise Model and traffic data obtained from Fresno COG. A description of the noise model, applied data, methodology and findings is provided below.

WJVA utilized the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA Model is a standard analytical method used for roadway traffic noise calculations. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ±1.5 dB. To predict L_{dn} values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Noise level measurements and concurrent traffic counts were previously conducted by WJVA staff within the project site on November 27, 2024. The purpose of the measurement was to evaluate the accuracy of the FHWA Model in describing traffic noise exposure within the project site. The traffic noise measurement site was located at a distance of approximately 40 feet from the centerline of S. Buttonwillow Avenue. The speed limit was assumed to be 40 mph (miles per hour). The project vicinity and noise monitoring site location are provided as Figure 2. A photograph showing the S. Buttonwillow Avenue noise measurement site is provided as Figure 3.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2" microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphone was located on a tripod at 5 feet above the ground. The project site presently consists of undeveloped land and a portion is currently used for industrial purposes.

Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} values were compared to L_{eq} values calculated (predicted) by the FHWA Model using as inputs the traffic volumes, truck mix and vehicle speed observed during the noise measurements. The results of the comparison are shown in Table V.

From Table V it may be determined that the traffic noise levels predicted by the FHWA Model were 0.2 dB higher than those measured for the conditions observed at the time of the noise measurements for S. Buttonwillow Avenue. This is considered to be excellent agreement with the model and therefore no adjustments to the model are necessary.

TABLE V

COMPARISON OF MEASURED AND PREDICTED (FHWA MODEL) NOISE LEVELS WESTHAVEN II, REEDLEY

	S. Buttonwillow Ave.
Measurement Start Time	3:10 p.m.
Observed # Autos/Hr.	340
Observed # Medium Trucks/Hr.	8
Observed # Heavy Trucks/Hr.	4
Observed Speed (MPH)	40
Distance, ft. (from center of roadway)	40
L_{eq}, dBA (Measured)	63.0
L_{eq}, dBA (Predicted)	63.2
Difference between Predicted and Measured L_{eq}, dBA	**0.2**

Note: FHWA "soft" site assumed for calculations.
Source: WJV Acoustics, Inc.

Annual Average Daily Traffic (AADT) data for S. Buttonwillow Avenue in the project vicinity was obtained from Fresno COG. Truck percentages and the day/night distribution of traffic were estimated by WJVA, based upon previous studies conducted in the project vicinity since project-specific data were not available from government sources. A speed limit of 40 mph was assumed for S. Buttonwillow Avenue. Table VI summarizes annual average traffic data used to model noise exposure within the project site.

TABLE VI

TRAFFIC NOISE MODELING ASSUMPTIONS
WESTHAVEN II, REEDLEY

	S. Buttonwillow Ave	
	Existing	2046
Annual Avenue Daily Traffic (AADT)	4,469	4,855
Day/Night Split (%)	90/10	
Assumed Vehicle Speed (mph)	55	
% Medium Trucks (% AADT)	2	
% Heavy Trucks (% AADT)	2	

Sources: Fresno COG
WJV Acoustics, Inc.

Using data from Table VI, the FHWA Model, annual average traffic noise exposure was calculated for the closest proposed backyards from S. Buttonwillow Avenue. Table VII provides the noise exposure levels for S. Buttonwillow Avenue, at the closest proposed residential lots to each roadway for both existing and future (2046) traffic conditions.

TABLE VII

MODELED TRAFFIC NOISE LEVELS, S. BUTTONWILLOW AVENUE, dB, L_{dn}
WESTHAVEN II, REEDLEY

Roadway	Existing Conditions	2046 Conditions
S. Buttonwillow Avenue	59	60

Source: WJV Acoustics
Fresno COG

Reference to Table VII indicates that the traffic noise exposure at the closest lots to S. Buttonwillow Avenue would be approximately 59 dB L_{dn} for existing conditions and approximately 60 dB L_{dn} for future (2046) traffic conditions on S. Buttonwillow Avenue. Such noise exposure levels (2046 traffic conditions) meet the City's 60 dB L_{dn} exterior noise level standard and mitigation measures are required for compliance with the City's exterior noise level standard along S. Buttonwillow Avenue.

Exterior Noise Mitigation

The City of Reedley Noise Element of the General Plan establishes a 60 dB L_{dn} criterion within outdoor activity areas (backyards) of single-family homes. The project site traffic noise exposure for future (2046) traffic conditions was calculated to be approximately 60 dB L_{dn} within the closest lots along S. Buttonwillow Avenue. Such noise exposure levels meet the City of Reedley exterior noise level standard and mitigation must be incorporated into project design.

To mitigate exterior traffic noise exposure along S. Buttonwillow Avenue, it will be necessary to construct a sound wall along the project roadway frontage. The sound wall would provide acoustical shielding of the outdoor activity areas located closest to the roadway.

A sound wall insertion loss program based on the FHWA Model was used to calculate the insertion loss (noise reduction) provided by the proposed sound walls. The model calculates the insertion loss of a wall of given height based on the effective height of the noise source, height of the receiver, distance from the receiver to the wall, and distance from the noise source to the wall. The standard assumptions used in the sound wall calculations are effective source heights of 8, 2 and 0 feet above the roadway for heavy trucks, medium trucks, and automobiles, respectively. The standard height of a residential receiver is five (5) feet above the ground elevation.

Based upon the above-described assumptions and method of analysis, the noise level insertion loss values for sound walls of various heights were calculated. The calculations indicated that a sound wall along S. Buttonwillow Avenue, constructed to a minimum height of six (6) feet relative to the closest building pad elevations to the roadway would reduce traffic noise exposure within individual backyards by approximately 6 dB, resulting in a projected future noise exposure of approximately 54 dB L_{dn} at the closest residential lots along S. Buttonwillow Avenue.

The sound wall should be constructed along the entire project site frontage adjacent to S. Buttonwillow Avenue. The sound wall should be constructed to a minimum height of 6 feet above each lot's pad elevation along S. Buttonwillow Avenue, as indicated on Figure 1.

It should be noted, the above-described sound wall would be effective at first-floor receiver locations only, and would not provide acoustical shielding to any proposed second-floor receivers. Therefore, if two-story construction is proposed, noise levels within any proposed individual second-floor balconies adjacent to and facing S. Buttonwillow Avenue would be approximately 60 dB L_{dn}.

Interior Noise Exposure:

The City of Reedley interior noise level standard is 45 dB L_{dn}. The worst-case noise exposure within the proposed residential development would be approximately 60 dB L_{dn} (2046 conditions). This means that the proposed residential construction must be capable of providing a minimum outdoor-to-indoor noise level reduction (NLR) of approximately 15 dB (60-45=15).

A specific analysis of interior noise levels was not performed. However, it may be assumed that residential construction methods complying with current building code requirements will reduce exterior noise levels by approximately 25 dB if windows and doors are closed. This will be sufficient for compliance with the City's 45 dB L_{dn} interior standard at all proposed lots. Requiring that it be possible for windows and doors to remain closed for sound insulation means that air conditioning or mechanical ventilation will be required.

Construction Noise and Vibration

Construction noise would occur at various locations within the project site through the build-out period. The distance from the closest residences to the project site is approximately 150 feet (residential land uses west of the project site) and approximately 200 feet (school land use east of the project site). Table VIII provides typical construction-related noise levels at distances of 100 feet, 200 feet, and 300 feet.

Construction noise is typically not considered to be a significant impact if construction is limited to the daytime hours and construction equipment is adequately maintained and muffled. The City of Reedley does not provide any specific guidelines regarding allowable hours of construction. For the purpose of this analysis, Fresno County guidelines can be considered, which limits all construction activities to between the hours of 6:00 a.m. to 9:00 p.m. Monday through Friday and between the hours 7:00 a.m. to 5:00 p.m. on Saturday or Sunday. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.

TABLE VIII

TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA

Type of Equipment	100 Ft.	200 Ft.	300 Ft.
Concrete Saw	84	78	74
Crane	75	69	65
Excavator	75	69	65
Front End Loader	73	67	63
Jackhammer	83	77	73
Paver	71	65	61
Pneumatic Tools	79	73	69
Dozer	76	70	66
Rollers	74	68	64
Trucks	80	72	70
Pumps	74	68	64
Scrapers	81	75	71
Portable Generators	74	68	64
Backhoe	80	74	70
Grader	80	74	70

Source: FHWA
Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

Potential Impact:
A noise impact could occur if construction activities do not incorporate appropriate best management practices.

Recommended Best Management Practices for Construction Noise:
Noise levels associated with construction activities may be effectively mitigated by incorporating noise mitigation measures and appropriate best management practices. The following best management practices should be applied during periods of project construction.

- Per the Fresno County Code, construction activities should not occur outside the hours of 6:00 a.m. to 9:00 p.m. Monday through Saturday and between 7:00 a.m. to 5:00 p.m. on Saturday and Sunday.

- All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.

- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.

- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur with construction or operation of the proposed project. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities. Typical vibration levels at distances of 25, 100 feet and 300 feet are summarized by Table IX. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above in Table III and Table IV.

TABLE IX

TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

	PPV (in/sec)		
Equipment	**@ 25´**	**@ 100´**	**@ 300´**
Bulldozer (Large)	0.089	0.019	0.006
Bulldozer (Small)	0.003	0.0006	0.0002
Loaded Truck	0.076	0.017	0.005
Jackhammer	0.035	0.008	0.002
Vibratory Roller	0.210	0.046	0.013
Caisson Drilling	0.089	0.019	0.006

Source: *Caltrans*

CONCLUSIONS AND RECOMMENDATIONS

The proposed 153-lot single-family residential development will comply with all City of Fresno exterior and interior noise level standards, provided the following mitigation measures are incorporated into final project design.

- A sound wall is constructed to a minimum height of six (6) feet relative to the closest building pad elevations along the project site frontage with S. Buttonwillow Avenue. The sound wall should be constructed along the entire project site frontage adjacent to W. Buttonwillow Avenue, as indicated on Figure 1. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall.

- If two-story construction is proposed at the first row of lots adjacent to S. Buttonwillow Avenue, noise levels within individual second-floor balconies facing the roadway would be expected to be approximately 60 dB L_{dn}, approximately equaling the exterior noise standard.

- Mechanical ventilation or air conditioning must be provided for all homes so that windows and doors can remain closed for sound insulation purposes.

The conclusions and recommendations of this acoustical analysis are based upon the best information known to WJV Acoustics Inc. (WJVA) at the time the analysis was prepared concerning the proposed lot layout plan, project site elevation, traffic volumes and roadway configurations. Any significant changes in these factors will require a reevaluation of the findings of this report. Additionally, any significant future changes in motor vehicle technology, noise regulations or other factors beyond WJVA's control may result in long-term noise results different from those described by this analysis.

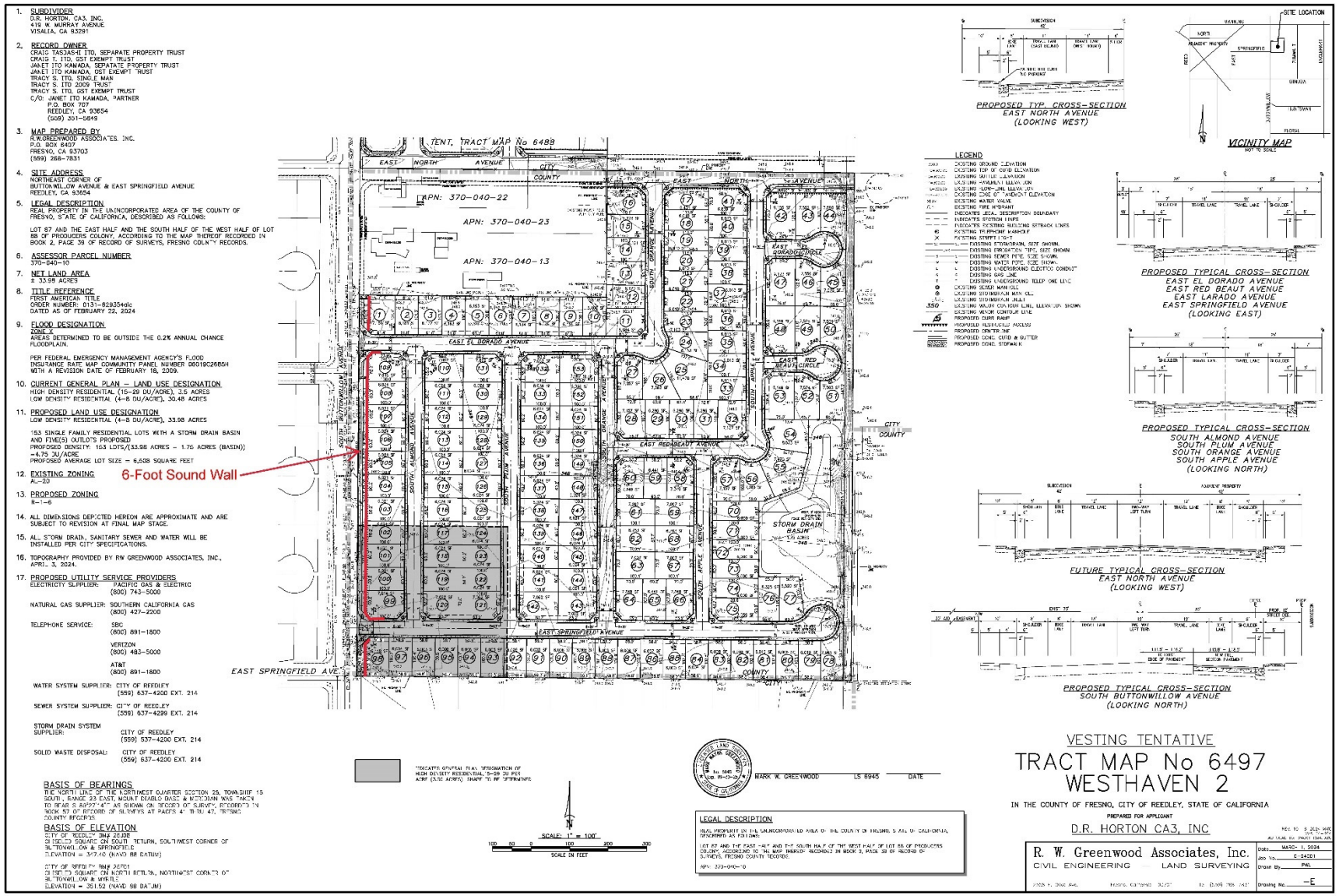
Respectfully submitted,



Walter J. Van Groningen
President

WJV:wjv

FIGURE 1: PROJECT SITE PLAN



1. SUBDIVIDER
D.R. HORTON, CA3, INC.
418 W. MURRAY AVENUE
VISALIA, CA 93291

2. RECORD OWNER
CRAIG TASSASHI ITO, SEPARATE PROPERTY TRUST
CRAIG T. ITO, GST EXEMPT TRUST
JANET ITO KAMADA, SEPATATE PROPERTY TRUST
JANET ITO KAMADA, GST EXEMPT TRUST
TRACY S. ITO, SINGLE MAN
TRACY S. ITO 2009 TRUST
TRACY S. ITO, GST EXEMPT TRUST
C/O: JANET ITO KAMADA, PARTNER
P.O. BOX 707
REEDLEY, CA 93654
(559) 351-5849

3. MAP PREPARED BY
R.W.GREENWOOD ASSOCIATES, INC.
P.O. BOX 6407
FRESNO, CA 93703
(559) 268-7831

4. SITE ADDRESS
NORTHEAST CORNER OF
BUTTONWILLOW AVENUE & EAST SPRINGFIELD AVENUE
REEDLEY, CA 93654

5. LEGAL DESCRIPTION
REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF FRESNO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

LOT 87 AND THE EAST HALF AND THE SOUTH HALF OF THE WEST HALF OF LOT 88 OF PRODUCERS COLONY, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 2, PAGE 39 OF RECORD OF SURVEYS, FRESNO COUNTY RECORDS.

6. ASSESSOR PARCEL NUMBER
370-040-10

7. NET LAND AREA
± 33.98 ACRES

8. TITLE REFERENCE
FIRST AMERICAN TITLE
ORDER NUMBER: 0131-8293546dc
DATED AS OF FEBRUARY 22, 2024

9. FLOOD DESIGNATION
ZONE X
AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

PER FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 06019C2685H WITH A REVISION DATE OF FEBRUARY 18, 2009.

10. CURRENT GENERAL PLAN – LAND USE DESIGNATION
HIGH DENSITY RESIDENTIAL (15-29 DU/ACRE), 3.5 ACRES
LOW DENSITY RESIDENTIAL (4-8 DU/ACRE), 30.48 ACRES

11. PROPOSED LAND USE DESIGNATION
LOW DENSITY RESIDENTIAL (4-8 DU/ACRE), 33.98 ACRES

163 SINGLE FAMILY RESIDENTIAL LOTS WITH A STORM DRAIN BASIN AND FIVE(5) OUTLOTS PROPOSED
PROPOSED DENSITY: 163 LOTS/(33.98 ACRES – 1.75 ACRES (BASIN))
=4.75 DU/ACRE
PROPOSED AVERAGE LOT SIZE = 6,508 SQUARE FEET

12. EXISTING ZONING
AL-20

13. PROPOSED ZONING
R-1-6

14. ALL DIMENSIONS DEPICTED HEREON ARE APPROXIMATE AND ARE SUBJECT TO REVISION AT FINAL MAP STAGE.

15. AL. STORM DRAIN, SANITARY SEWER AND WATER WILL BE INSTALLED PER CITY SPECIFICATIONS.

16. TOPOGRAPHY PROVIDED BY RW GREENWOOD ASSOCIATES, INC., APRIL 3, 2024.

17. PROPOSED UTILITY SERVICE PROVIDERS
ELECTRICITY SUPPLIER: PACIFIC GAS & ELECTRIC (800) 743-5000
NATURAL GAS SUPPLIER: SOUTHERN CALIFORNIA GAS (800) 427-2200
TELEPHONE SERVICE: SBC (800) 891-1800
VERIZON (800) 483-5000
AT&T (800) 891-1800
WATER SYSTEM SUPPLIER: CITY OF REEDLEY (559) 637-4200 EXT. 214
SEWER SYSTEM SUPPLIER: CITY OF REEDLEY (559) 637-4200 EXT. 214
STORM DRAIN SYSTEM SUPPLIER: CITY OF REEDLEY (559) 637-4200 EXT. 214
SOLID WASTE DISPOSAL: CITY OF REEDLEY (559) 637-4200 EXT. 214

BASIS OF BEARINGS
THE NORTH LINE OF THE NORTHWEST QUARTER SECTION 25, TOWNSHIP 15 SOUTH, RANGE 23 EAST, MOUNT DIABLO BASE & MERIDIAN WAS TAKEN TO BEAR S 89°22'14" W AS SHOWN ON RECORD OF SURVEY, RECORDED IN BOOK 57 OF RECORD OF SURVEYS AT PAGES 41 TO 51, 47, FRESNO COUNTY RECORDS.

BASIS OF ELEVATION
CITY OF REEDLEY BM# 22-08
DISC SET IN SQUARE ON SOUTH RETURN, SOUTHWEST CORNER OF BUTTONWILLOW & SPRINGFIELD
ELEVATION = 367.40 (NAVD 88 DATUM)

CITY OF REEDLEY BM# 20-01
DISC SET IN SQUARE ON NORTH RETURN, NORTHWEST CORNER OF BUTTONWILLOW & MYRTLE
ELEVATION = 361.52 (NAVD 88 DATUM)

INDICATES GENERAL PLAN DESIGNATION OF HIGH DENSITY RESIDENTIAL 15-29 DU PER ACRE (3.5± ACRES), SHAPE TO BE APPROXIMATE

R. W. Greenwood Associates, Inc.	Date: MARCH 1, 2024
CIVIL ENGINEERING LAND SURVEYING	Job No. E-24201
	Drawn By: PAL
	Drawing No. —E

FIGURE 2: PROJECT SITE VICINITY AND TRAFFIC NOISE MEASUREMENT SITE LOCATION

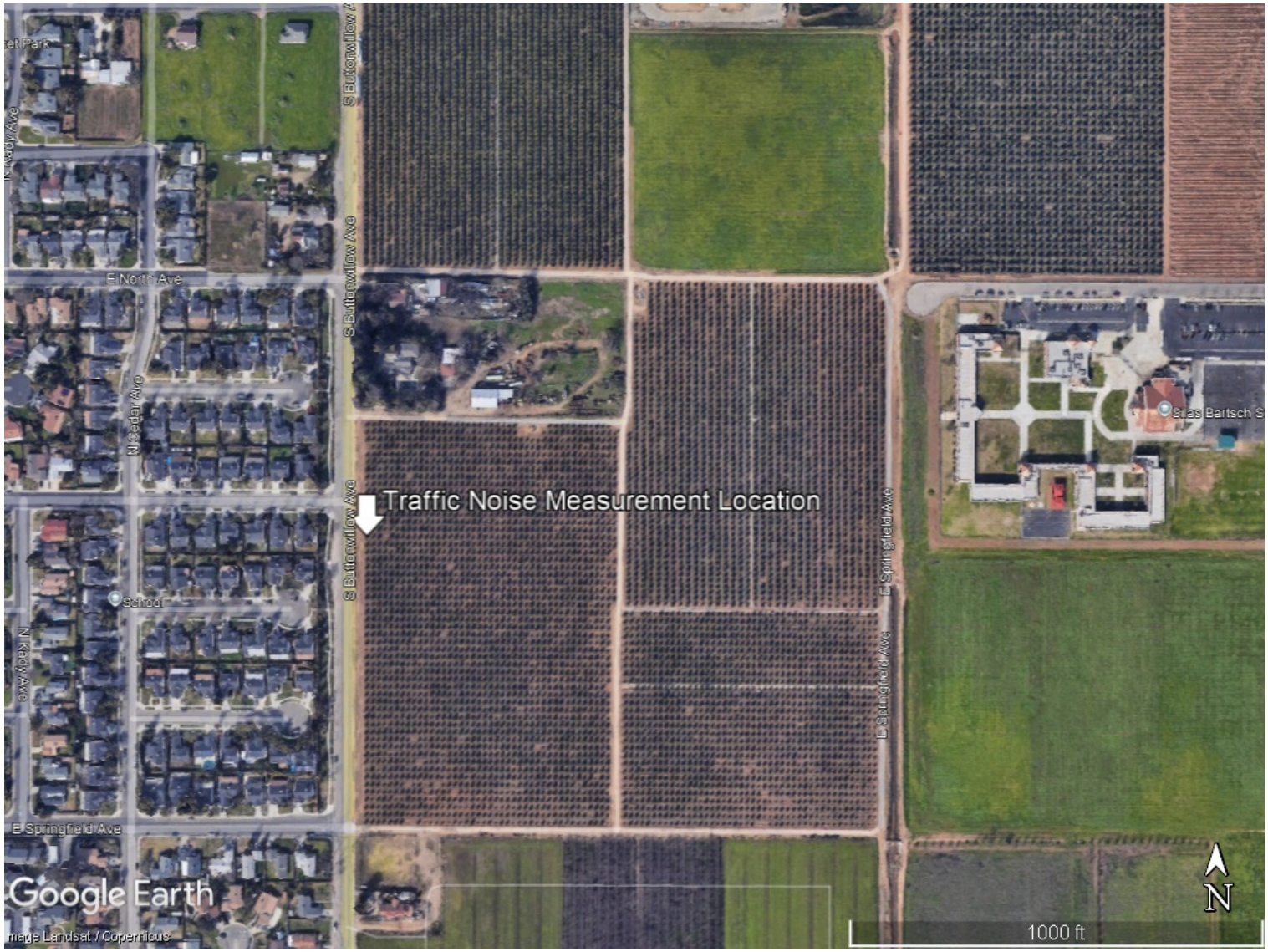


FIGURE 3: S. BUTTONWILLOW AVENUE TRAFFIC NOISE MEASUREMENT SITE



APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

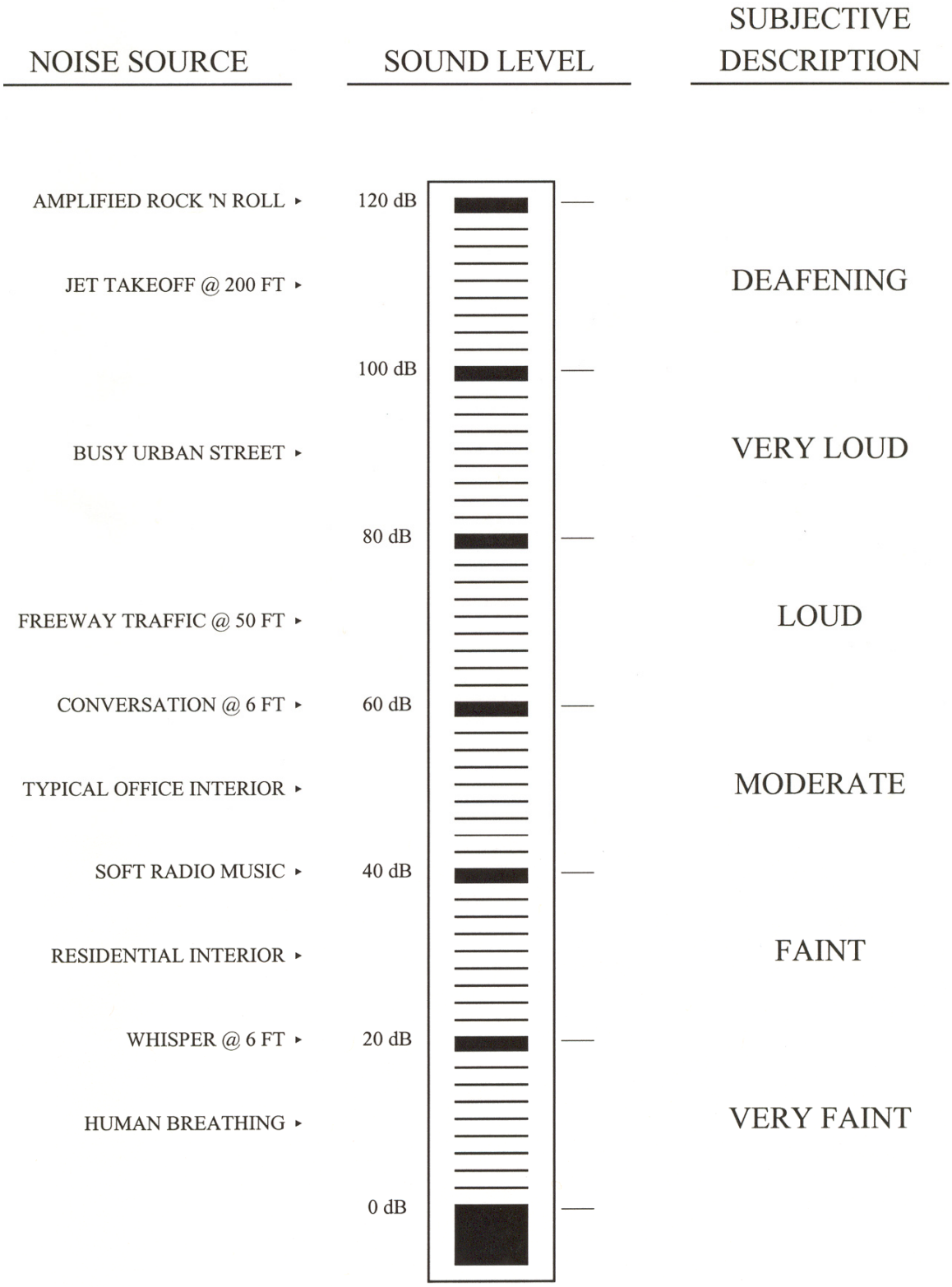
NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of Anoise level reduction@ combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC): The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B
EXAMPLES OF SOUND LEVELS



APPENDIX E
TRAFFIC STUDY

Project No: 01665-24-006

TRAFFIC STUDY

TTM 6497 - WESTHAVEN 2
NORTHEAST CORNER
SPRINGFIELD AVENUE & S BUTTONWILLOW AVENUE
REEDLEY, CA

Prepared for:

QK, Inc.

August 2025

Prepared by:

RUETTGERS & SCHULER CIVIL ENGINEERS | PROVOST & PRITCHARD

1518 MILL ROCK WAY, SUITE 100
BAKERSFIELD, CA 93311

Ian J. Parks, RCE 58155

REGISTERED PROFESSIONAL ENGINEER
IAN JEFFREY PARKS
No. C58155
Exp. 6-30-26
CIVIL
STATE OF CALIFORNIA

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INTRODUCTION

The purpose of this study is to evaluate the potential traffic impact of a proposed residential development located on the east side of S Buttonwillow Avenue, north of E Springfield Avenue in Reedley, CA. The project land use includes 166 single-family dwelling units.

A vicinity map is presented in Figure 1 and a location map is presented in Figure 2. The site plan is shown in Figure 3.

A. Study Area

The study area is generally bounded by S Buttonwillow Avenue to the west, Tobu Avenue to the east, North Avenue to the north, and E Springfield Avenue to the south.

A total of nine intersections (one future intersection and one project intersection) are included in the study; two signalized, six unsignalized, and one roundabout. The scope of the study was developed in association with the City of Reedley.

B. Existing Site Uses and Site Access

The site is currently vacant land. The project will construct frontage improvements, including sidewalks. The construction of the sidewalk and bike lanes will close gaps in pedestrian and bicycle access and will allow access to the site for all users.

C. Existing Uses in Vicinity of the Site

Existing land uses in the vicinity of the proposed development are generally existing educational and residential land uses and vacant land.

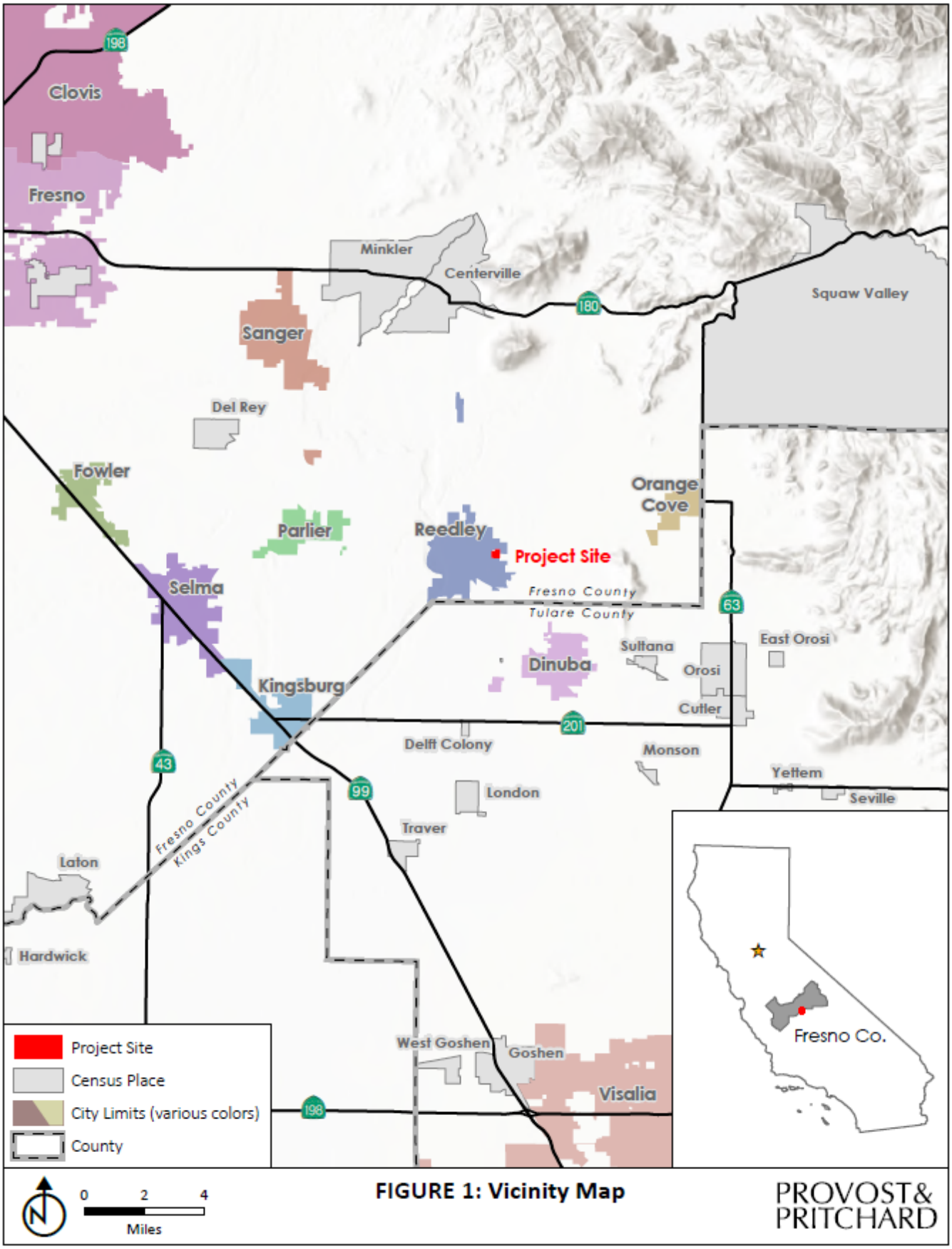


FIGURE 1: Vicinity Map

PROVOST& PRITCHARD


MANNING AVE
KADY AVE
MYRTLE AVE
SUNRISE AVE
KADY AVE
ELM AVE
NORTH AVE
SANTA ROSA CIR
EL DORADO AVE
BUTTONWILLOW AVE
KADY AVE
CEDAR AVE
SPRINGFIELD AVE
ZUMWALT AVE
Buttonwillow Ditch
EVENING GLOW AVE
EARLY AVE
KADY AVE
DUFF AVE
JEFFERSON AVE
ALMOND AVE
ORANGE AVE
DUFF AVE
TOBU AVE
EVENING GLOW AVE
EARLY AVE
Esri, Maxar, Earthstar Geographics, and the GIS User Community
Project Site
0 250 500
Feet
FIGURE 2: Location Map
PROVOST& PRITCHARD

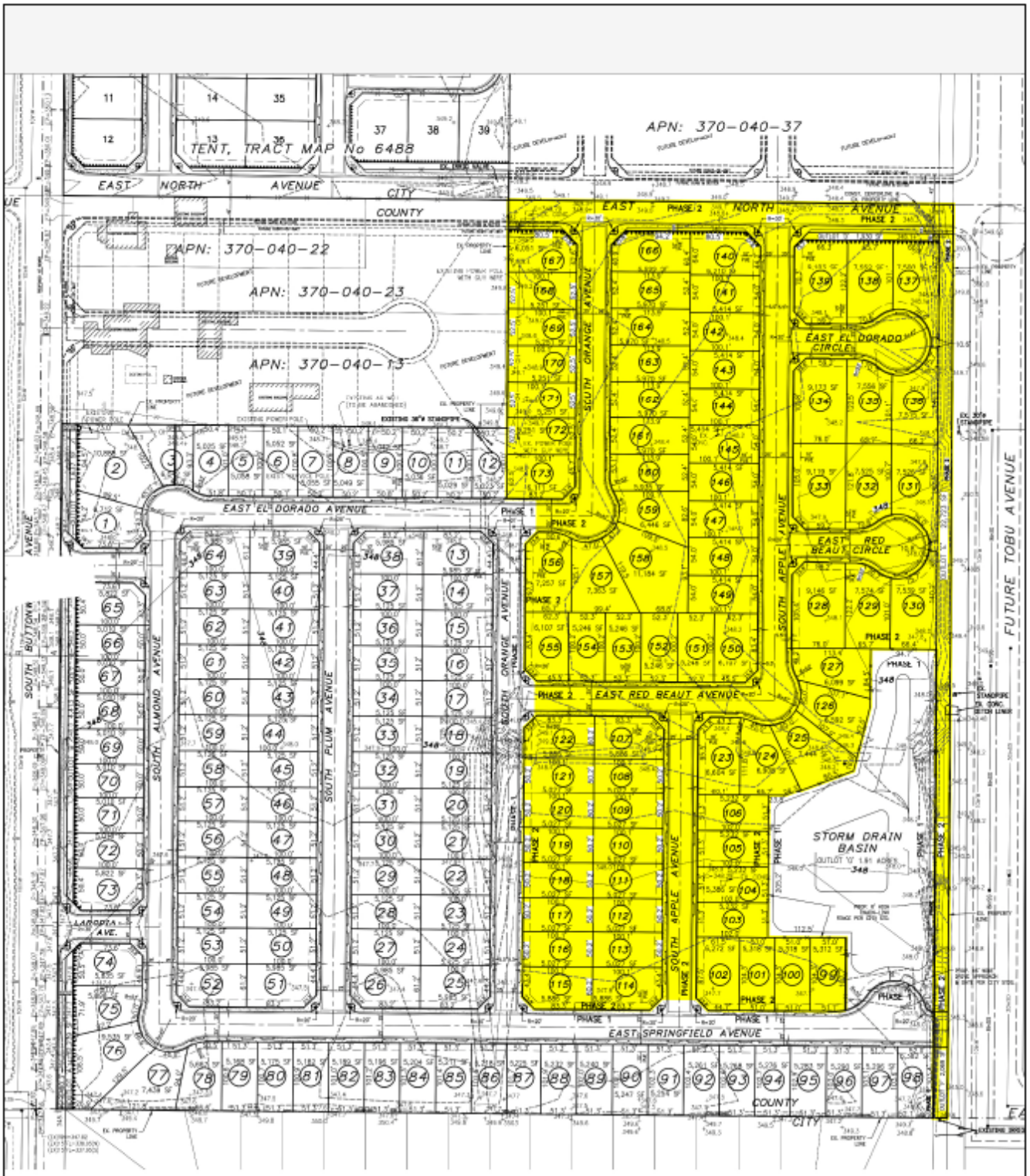


FIGURE 3: Site Map

PROVOST& PRITCHARD

D. Existing Street Descriptions

Buttonwillow Avenue is a north-south major arterial that extends throughout the western portion of the City of Reedley. In the vicinity of the project, it exists as a two-lane roadway that provides access to agricultural and residential land uses.

Columbia Avenue is a primarily north-south arterial that extends south from Manning Avenue in the City of Reedley. In the vicinity of the project, it exists as four-lane roadway and provides access to commercial and residential land uses.

Dinuba Avenue is an east-west arterial that extends through the southern portion of the City of Reedley. In the vicinity of the project, it exists as two-lane roadway and provides access to industrial and residential land uses.

East Avenue is a north-south collector that extends from Manning Avenue to Dinuba Avenue in the City of Reedley. In the vicinity of the project, it exists as a two-lane roadway and provides access to residential land uses.

Manning Avenue is an east-west major arterial that extends throughout the City of Reedley. In the vicinity of the project, it exists as a two-lane roadway and provides access to agricultural, commercial, and residential land uses.

North Avenue is an east-west collector that extends from east from Reed Avenue in the City of Reedley. In the vicinity of the project, it exists as a two-lane roadway and provides access to agricultural, commercial, educational, and residential land uses.

Springfield Avenue is an east-west collector that extends from East Avenue to Buttonwillow Avenue in the City of Reedley. In the vicinity of the project, it exists as a two-lane roadway and provides access to residential land uses.

Tobu Avenue is a future north-south collector that extends through the eastern portion of the City of Reedley. It is proposed to provide access to residential land uses.

Zumwalt Avenue is a north-south arterial that extends throughout the eastern portion of the City of Reedley. In the vicinity of the project, it exists as a two-lane roadway and provides access to agricultural and residential land uses.

PROJECT TRIP GENERATION VOLUMES

The project trip generation volumes shown in Table 1 were estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Trip rates, equations and directional splits for ITE Land Use Code 210 (Single-Family Detached Housing) were used to estimate project trips for weekday peak hour of adjacent street traffic based on information provided by the project applicant.

Table 1
Trip Generation

General Information			Daily Trips		AM Peak Hour Trips			PM Peak Hour Trips		
ITE Code	Development Type	Variable	ADT RATE	ADT	Rate	In % Split/ Trips	Out % Split/ Trips	Rate	In % Split/ Trips	Out % Split/ Trips
210	Single-Family detached Housing	166 Dwelling Units	eq	1608	eq	25% 30	75% 88	eq	63% 101	37% 59

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of project peak hour trips is shown in Table 2 represents the movement of traffic accessing the project site by direction. The project trip distribution was developed based on site location and travel patterns anticipated for the proposed land uses.

Table 2
Project Trip Distribution

Direction	Percent
North	20%
East	5%
South	20%
West	55%

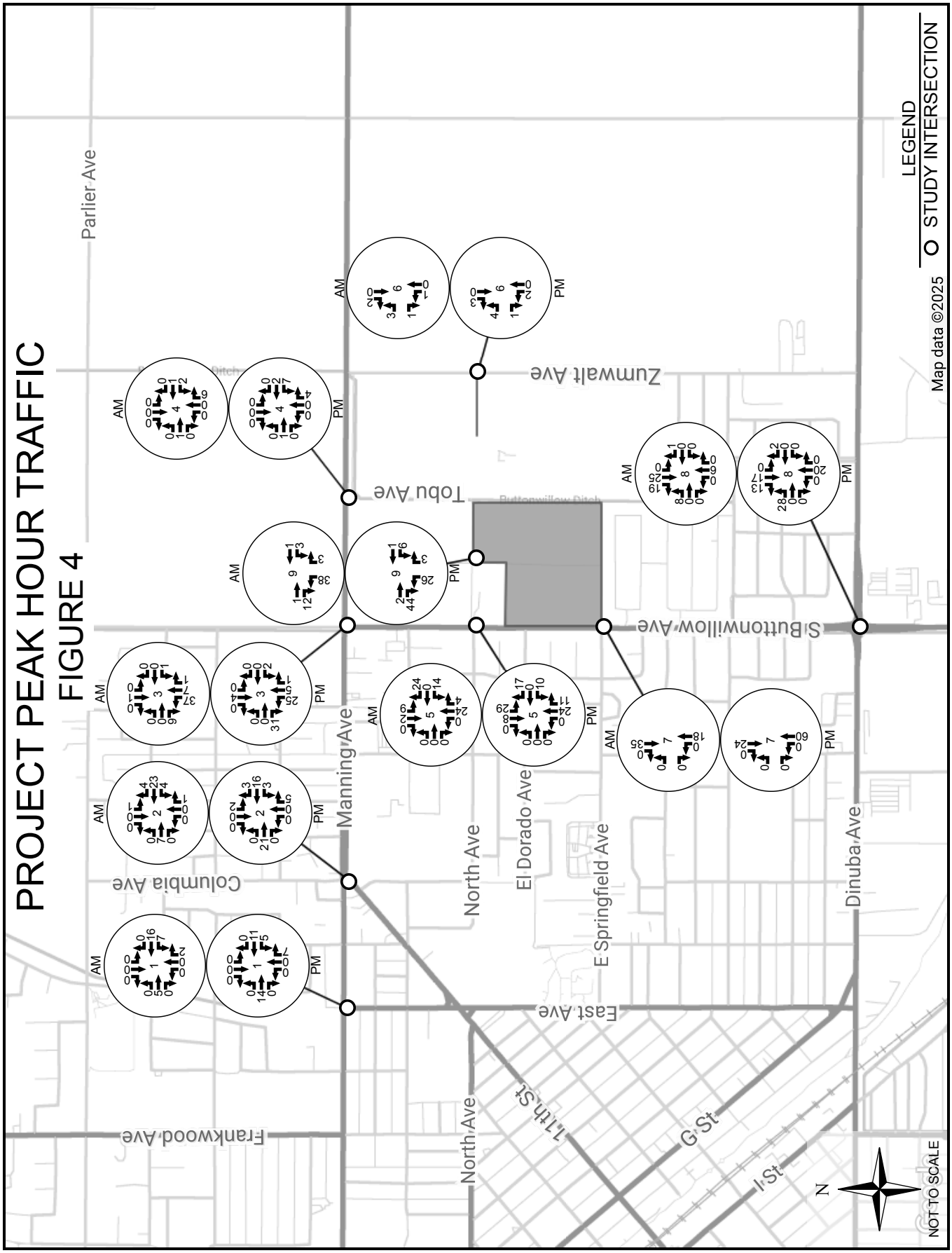
Project peak hour trips were assigned to the study intersections as shown in Figure 4. Project trip assignment was developed based on trip generation, trip distribution and likely travel routes for traffic accessing the project site.

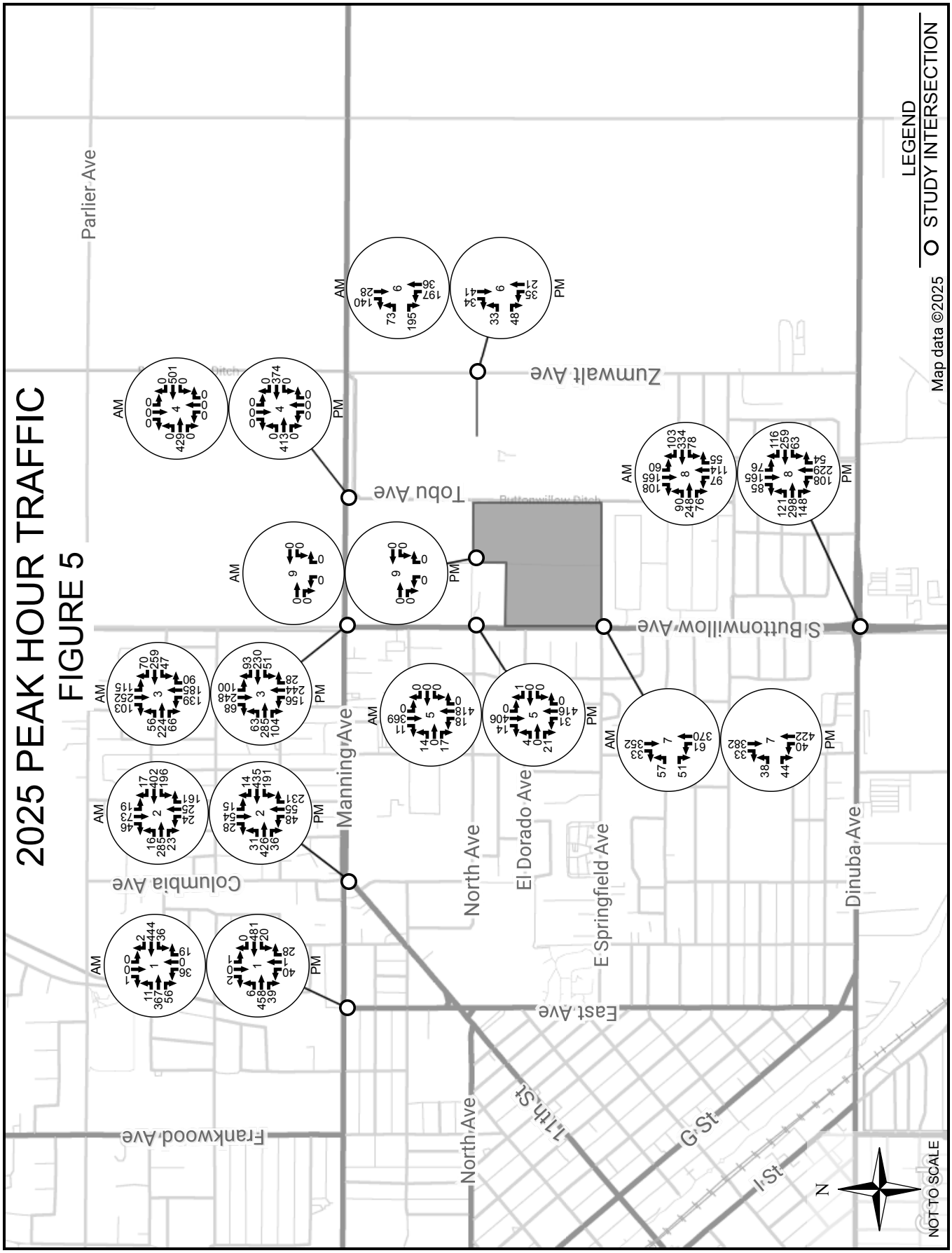
EXISTING AND FUTURE TRAFFIC

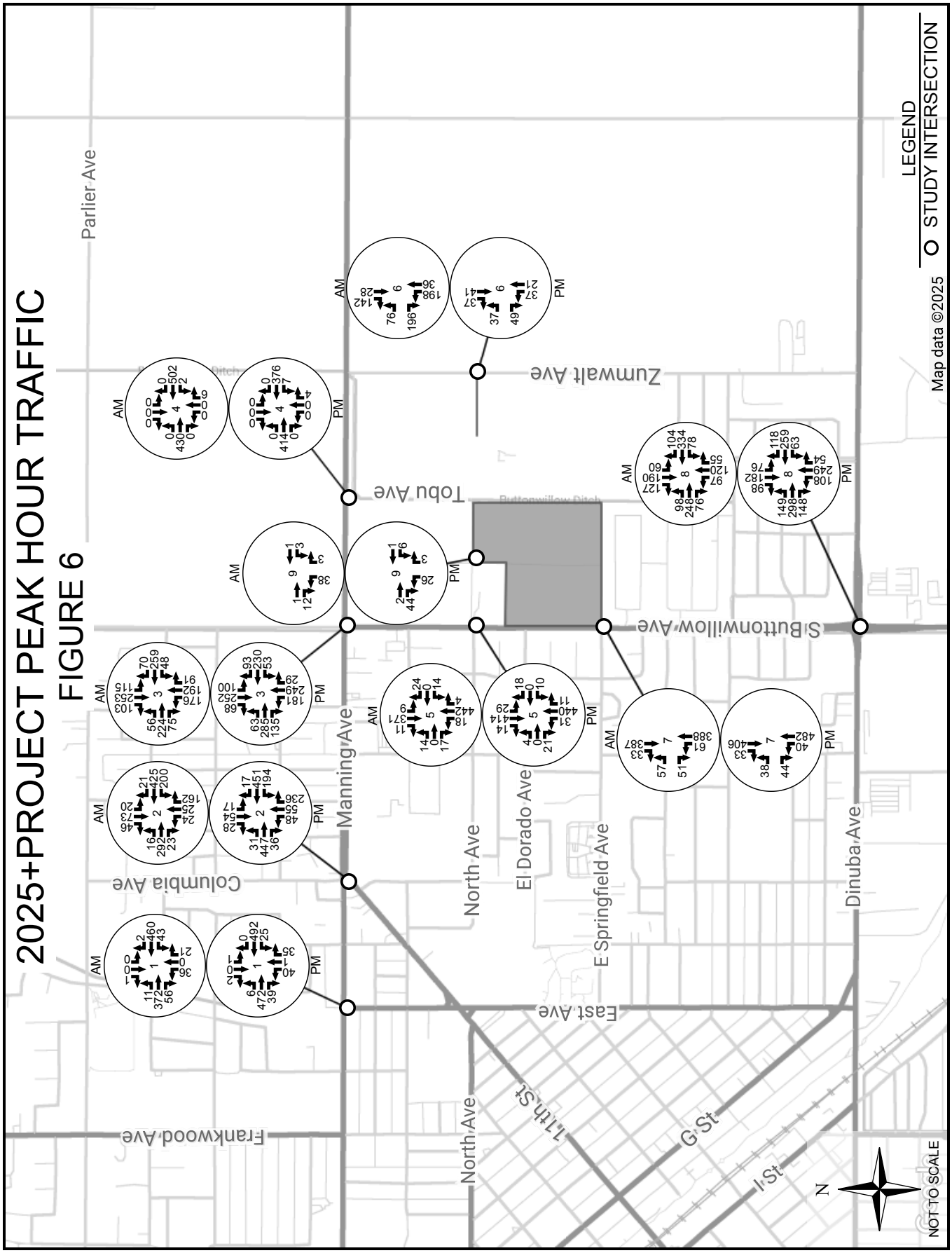
Weekday peak hour turning movements were counted at the study intersections in June 2025. Traffic counts were obtained between the hours of 7:00 and 9:00am, and 4:00 and 6:00pm. The peak hour for each intersection was used. Count data is included in the Appendix.

Annual growth rates ranging between 0.13 and 6.78 percent were applied to existing peak hour volumes to estimate future peak hour volumes for the years 2030 and 2045. These growth rates were estimated based on a comparison of regional travel demand model volumes from the Fresno Council of Governments (FCOG) between the years 2018 and 2035.

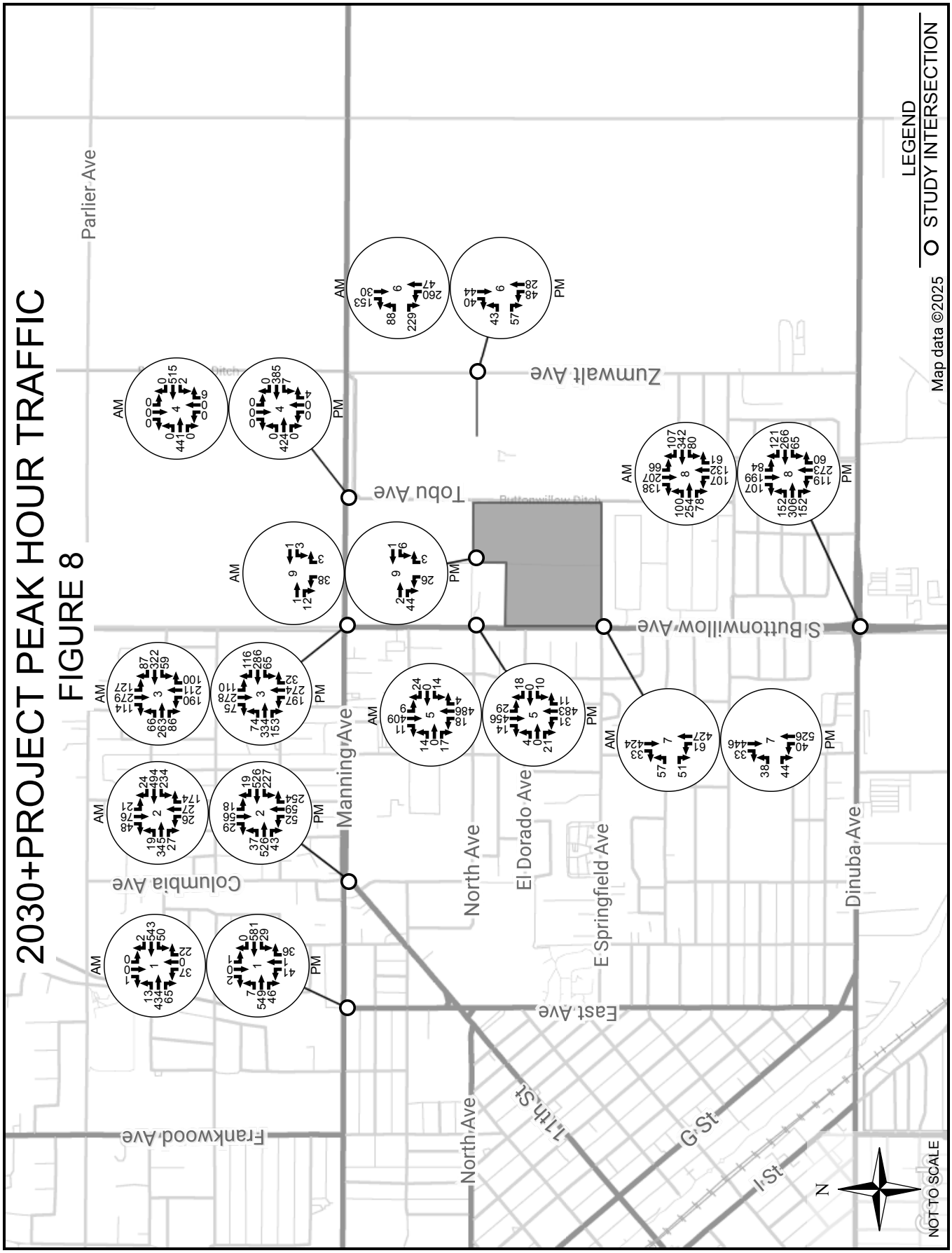
Existing peak hour volumes are shown in Figure 5. Existing plus project peak hour volumes are shown in Figure 6. Future peak hour volumes for the years 2030 and 2045, both without and with project traffic, are shown in Figures 7-10, respectively.

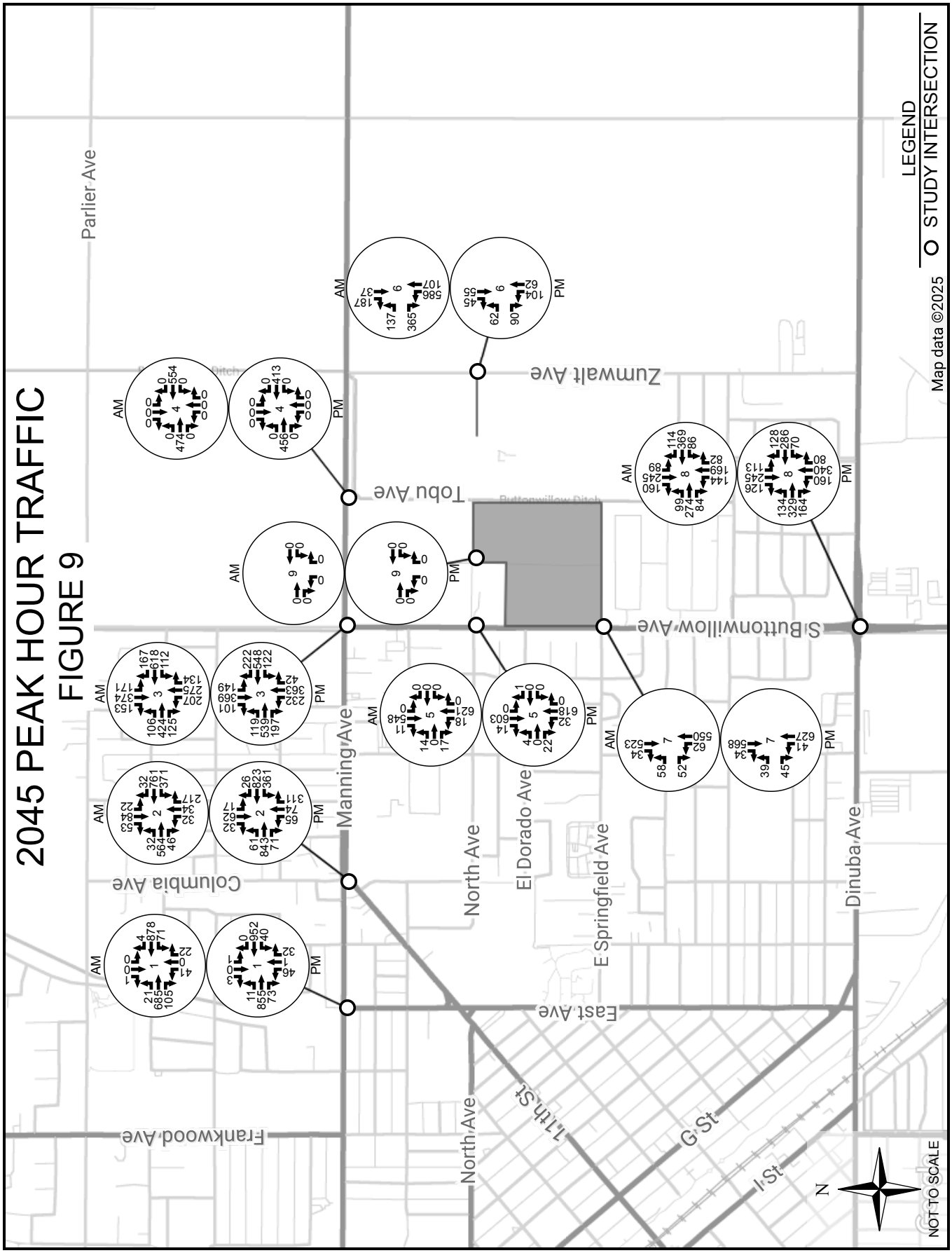

PROJECT PEAK HOUR TRAFFIC
FIGURE 4
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
East Ave
Columbia Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM

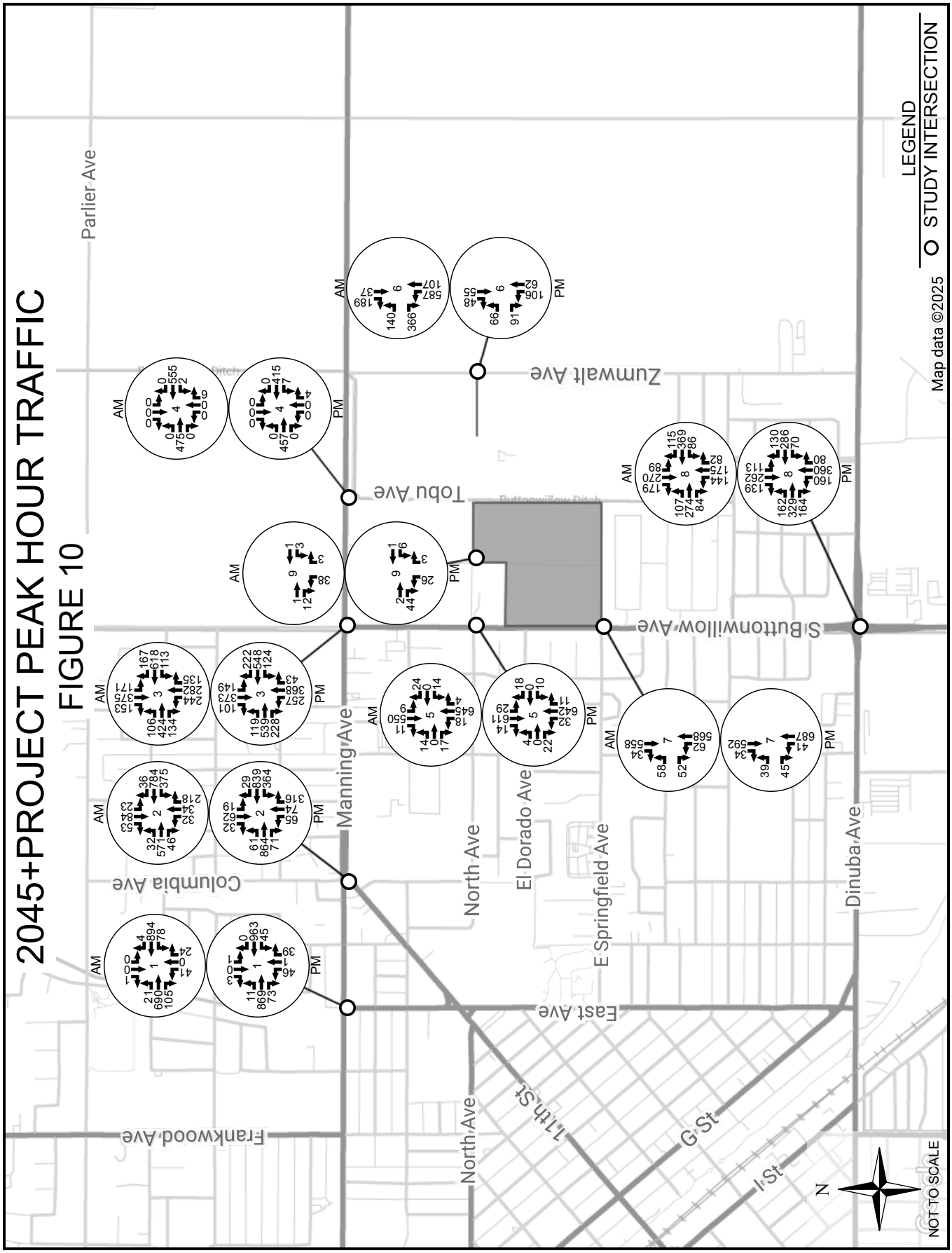

2025 PEAK HOUR TRAFFIC
FIGURE 5
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
Columbia Ave
East Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM


2025+PROJECT PEAK HOUR TRAFFIC
FIGURE 6
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
Columbia Ave
East Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM

2030 PEAK HOUR TRAFFIC
FIGURE 7
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
Columbia Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
East Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM


2030+PROJECT PEAK HOUR TRAFFIC
FIGURE 8
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
Columbia Ave
East Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM


2045 PEAK HOUR TRAFFIC
FIGURE 9
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
Columbia Ave
East Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM


2045+PROJECT PEAK HOUR TRAFFIC
FIGURE 10
LEGEND
STUDY INTERSECTION
Map data ©2025
NOT TO SCALE
N
Parlier Ave
Zumwalt Ave
Toby Ave
S Buttonwillow Ave
Manning Ave
Columbia Ave
North Ave
El Dorado Ave
E Springfield Ave
Dinuba Ave
East Ave
Frankwood Ave
North Ave
11th St
G St
I St
AM
PM

INTERSECTION ANALYSIS

A capacity analysis of the study intersections was conducted using Synchro 12 software from Trafficware. This software utilizes the capacity analysis methodology in the Transportation Research Board's Highway Capacity Manual. The analysis was performed for the following AM and PM Peak Hour traffic scenarios:

- Existing (2025)
- Existing (2025) + Project
- Opening Year (2030)
- Opening Year (2030) + Project
- Future (2045)
- Future (2045) + Project

Criteria for intersection level of service (LOS) are shown in the tables below.

LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTION

Level of Service	Average Control Delay (sec/veh)	Expected Delay to Minor Street Traffic
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short delays
C	> 15 and ≤ 25	Average delays
D	> 25 and ≤ 35	Long delays
E	> 35 and ≤ 50	Very long delays
F	> 50	Extreme delays

LEVEL OF SERVICE CRITERIA
SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (sec/veh)	Volume-to-Capacity Ratio
A	≤ 10	< 0.60
B	> 10 and ≤ 20	0.61 - 0.70
C	> 20 and ≤ 35	0.71 - 0.80
D	> 35 and ≤ 55	0.81 - 0.90
E	> 55 and ≤ 80	0.91 - 1.00
F	> 80	> 1.00

The City of Reedley level of service threshold for requiring mitigation is if the facility operates below LOS of "C". Level of service for the study intersections is presented in Tables 3a and 3b.

Table 3a
Intersection Level of Service
AM Peak Hour

#	Intersection	Control Type	2025	2025+ Project	2030	2030+ Project	2045	2045+ Project	2045+ Project w/ Improvements[1]
1	N East Ave & Manning Ave	NB	C	C	C	C	F (108.0)	F (121.2)	-[2]
2	N Columbia Ave & Manning Ave	Signal	B	B	B	B	B	B	-
3	S Buttonwillow Ave & Manning Ave	Signal	C	C	C	C	C	C	-
4	Tobu Ave & Manning Ave	NB	-	B	-	B	-	B	-
5	S Buttonwillow Ave & North Ave	EB WB	B -	C C	C -	C C	C -	D (27.4) D (25.7)	-
		Signal	-	-	-	-	-	-	A
6	Zumwalt Ave & North Ave	EB	B	B	C	C	F (73.9)	F (>300)	-[2]
7	S Buttonwillow Ave & E Springfield Ave	EB	C	C	C	C	E (36.1)	E (41.3)	-[2]
8	S Buttonwillow Ave & Dinuba Ave	Roundabout	B	B	B	B	C	C	-
9	Project Entrance & N Ave	NB	-	A	-	A	-	A	-

[1]Improvements shown in Table 7.
[2]Improvements not necessary as intersection degrades prior to project traffic.

Table 3b
Intersection Level of Service
PM Peak Hour

#	Intersection	Control Type	2025	2025+ Project	2030	2030+ Project	2045	2045+ Project	2045+ Project w/ Improvements[1]
1	N East Ave & Manning Ave	NB	C	C	D (26.5)	D (27.6)	F (201.3)	F (229.6)	-[2]
2	N Columbia Ave & Manning Ave	Signal	B	B	B	B	C	C	-
3	S Buttonwillow Ave & Manning Ave	Signal	C	C	C	C	D (36.5)	D (46.9)	-[2]
4	Tobu Ave & Manning Ave	NB	-	B	-	B	-	B	-
5	S Buttonwillow Ave & North Ave	EB WB	B -	B C	B -	B C	C -	C D (29.9)	-
		Signal	-	-	-	-	-	-	B
6	Zumwalt Ave & North Ave	EB	A	A	A	A	B	B	-
7	S Buttonwillow Ave & E Springfield Ave	EB	C	C	C	C	D (31.1)	D (32.7)	-[2]
8	S Buttonwillow Ave & Dinuba Ave	Roundabout	B	B	B	C	D (27.1)	D (33.7)	-[2]
9	Project Entrance & N Ave	NB	-	A	-	A	-	A	-

[1]Improvements shown in Table 7.
[2]Improvements not necessary as intersection degrades prior to project traffic.

TRAFFIC SIGNAL WARRANT ANALYSIS

Peak hour signal warrants were also analyzed for the unsignalized study intersection is shown in Tables 4a and 4b.

It is important to note that a signal warrant defines the minimum condition under which signalization of an intersection might be warranted. Meeting this threshold does not suggest traffic signals are required, but rather, other traffic factors and conditions be considered in order to determine whether signals are truly justified.

It is also noted that signal warrants do not necessarily correlate with level of service. An intersection may satisfy a signal warrant condition and operate at or above an acceptable level of service or operate below an acceptable level of service and not meet signal warrant criteria.

Table 4a
AM Peak Hour Signal Warrant Analysis

		2025			2030			2045		
#	Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	N. East Ave at Manning Ave	916	55	NO	1079	57	NO	1764	63	NO
4	Tobu Ave at Manning Ave	930	0	NO	954	0	NO	1028	0	NO
5	S Buttonwillow Ave at North Ave	816	31	NO	898	31	NO	1198	31	NO
6	Zumwalt Ave at North Ave	404	268	YES	490	313	YES	923	502	YES
7	S Buttonwillow Ave at E Springfield Ave	816	108	NO	892	108	YES	1169	110	YES
9	S Orange Ave at North Ave	-	-	-	-	-	-	-	-	-

		2025+Project			2030+Project			2045+Project		
#	Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	N. East Ave at Manning Ave	942	56	NO	1107	59	NO	1792	65	NO
4	Tobu Ave at Manning Ave	932	6	NO	958	6	NO	1032	6	NO
5	S Buttonwillow Ave at North Ave	854	43	NO	937	38	NO	1237	38	NO
6	Zumwalt Ave at North Ave	405	269	YES	493	317	YES	926	506	YES
7	S Buttonwillow Ave at E Springfield Ave	872	108	YES	945	108	YES	1222	110	YES
9	S Orange Ave at North Ave	43	16	NO	41	13	NO	41	13	NO

Table 4b
PM Peak Hour Signal Warrant Analysis

		2025			2030			2045		
#	Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	N. East Ave at Manning Ave	1004	69	NO	1182	71	NO	1931	79	YES
4	Tobu Ave at Manning Ave	787	0	NO	806	0	NO	869	0	NO
5	S Buttonwillow Ave at North Ave	867	25	NO	952	25	NO	1267	26	NO
6	Zumwalt Ave at North Ave	131	81	NO	155	95	NO	266	152	NO
7	S Buttonwillow Ave at E Springfield Ave	877	82	NO	961	82	NO	1270	84	YES
9	S Orange Ave at North Ave	-	-	-	-	-	-	-	-	-

		2025+Project			2030+Project			2045+Project		
#	Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	N. East Ave at Manning Ave	1033	74	NO	1212	78	YES	1961	86	YES
4	Tobu Ave at Manning Ave	790	4	NO	816	4	NO	879	4	NO
5	S Buttonwillow Ave at North Ave	933	35	NO	1024	28	NO	1339	28	NO
6	Zumwalt Ave at North Ave	132	83	NO	160	100	NO	271	157	NO
7	S Buttonwillow Ave at E Springfield Ave	963	82	NO	1045	82	YES	1354	84	YES
9	S Orange Ave at North Ave	53	29	NO	53	29	NO	53	29	NO

QUEUE LENGTH ANALYSIS

A queue length analysis was conducted dedicated turn movements within the study area to evaluate the adequacy of the existing storage lengths. Tables 5a and 5b below show the existing storage lengths, as well as the 95th percentile queue length determined for each traffic scenario analyzed.

Table 5a
AM Queue Analysis

Intersection	N East Ave & Manning Ave	N Columbia Ave & Manning Ave			S Buttonwillow Ave & Manning Ave						
Movement	WBL	EBL	WBL	NBR	EBL	WBL	WBR	NBL	NBR	SBL	SBR
Storage Capacity	215	100	180	115	250	200	110	150	200	80	90
2025	26	37	96	51	82	43	38	137	51	**120**	**98**
2025+Project	25	66	92	80	69	83	47	149	36	**100**	81
2030	31	42	86	53	103	86	37	**157**	62	**124**	**155**
2030+Project	41	35	95	77	81	66	28	**165**	77	**129**	**132**
2045	51	61	92	84	141	**312**	**170**	**155**	**234**	**124**	**146**
2045+Project	81	88	93	78	177	**300**	**192**	**155**	**227**	**130**	**139**

Table 5b
PM Queue Analysis

Intersection	N East Ave & Manning Ave	N Columbia Ave & Manning Ave			S Buttonwillow Ave & Manning Ave						
Movement	WBL	EBL	WBL	NBR	EBL	WBL	WBR	NBL	NBR	SBL	SBR
Storage Capacity	215	100	180	115	250	200	110	150	200	80	90
2025	26	50	96	72	85	73	41	145	43	**101**	51
2025+Project	22	86	87	99	118	104	57	**163**	52	**115**	87
2030	22	59	84	111	104	91	45	**168**	48	**122**	**143**
2030+Project	33	**108**	102	94	106	197	68	**159**	46	**129**	**146**
2045	35	98	86	**143**	139	**296**	**161**	**155**	**238**	**132**	**137**
2045+Project	29	**116**	91	**135**	198	**294**	**177**	**155**	**214**	**133**	**123**

As shown in the tables, the storage lengths are adequate for existing queue lengths both prior to, and with the addition of project traffic with the exception of the southbound left and southbound right storage lengths at the intersection of S Buttonwillow Avenue & Manning Avenue. With the addition of project traffic in 2025, the northbound left storage length for the intersection of S Buttonwillow Avenue & Manning Avenue is exceeded, but only by 13 feet which is less than the average car length.

In 2030, with the addition of project traffic, the eastbound left storage length for the intersection of N Columbia Avenue & Manning Avenue is exceeded, but only by eight feet which is less than the average car length.

In 2045, prior to the addition of project traffic, the northbound right storage length for the intersection of N Columbia Avenue & Manning Avenue and the westbound left, westbound right, and northbound right storage lengths for the intersection of S Buttonwillow Avenue & Manning Avenue are exceeded. With the addition of project traffic, the eastbound left storage length for the intersection of N Columbia Avenue & Manning Avenue is exceeded, but only by 16 feet which is less than the average car length.

ACCIDENT INVESTIGATION

Accident data was requested from SWITRS for the years 2020 through 2024 and are shown below in Table 6. Upon review of the data provided, it was determined that there were nine accidents spanning between January 1, 2020 and December 31, 2024.

Table 6
Accident Investigation Data

Year	Intersection	Primary Crash Factor	Crash Type	Injuries	Weather
2020	N East Ave & Manning Ave	Sideswipe	Ped ROW	1	Clear
2020	N Columbia Ave & Manning Ave	Rear End	Improper Drive	1	Clear
2024	N Columbia Ave & Manning Ave	Vehicle/Pedestrian	Ped ROW	1	Clear
2021	S Buttonwillow Ave & Manning Ave	Rear End	Unsafe Speed	1	Clear
2023	S Buttonwillow Ave & Manning Ave	Broadside	Signals/Signs	1	Clear
2023	S Buttonwillow Ave & Manning Ave	Rear End	Unsafe Speed	1	Clear
2022	S Buttonwillow Ave & North Ave	Head On	Improper Turn	2	Clear
2024	S Buttonwillow Ave & Dinuba Ave	Rear End	Unsafe Speed	1	Clear
2023	S Buttonwillow Ave & Springfield Ave	Sideswipe	Auto ROW	2	Clear

MITIGATION & RECOMMENDATIONS

Upon review of the intersection level of service, it was determined that two intersections required improvements to operate within an acceptable level of service.

Intersection improvements needed by the years 2030 and 2045 to maintain or improve the operational level of service of the street system in the vicinity of the project are presented in Table 7.

Table 7
Future Intersection Mitigation

#	Intersection	Total Improvements Required by 2045	Project Percent Share
5	S Buttonwillow Ave & North Ave	Signal	20.51%

VEHICLE MILES TRAVELED ANALYSIS

In 2013, the state of California enacted legislation (SB 743) which required the Governor's Office of Planning and Research (OPR) to identify new metrics for measuring and mitigating transportation impacts within the California Environmental Quality Act (CEQA). For land development projects, OPR recommended replacing the metric of vehicle delay, as defined by level of service (LOS) and other similar measures, with VMT metrics based on project land use. Regulatory changes to CEQA Guidelines incorporating SB 743 were approved on December 28, 2018. Statewide implementation began on July 1, 2020.

Under CEQA, lead agencies have the authority to establish their own VMT significance thresholds and analysis methodologies. The VMT analysis for this project was conducted in accordance with *Fresno County SB 743 Implementation Regional Guidelines* dated January 2021 (VMT Guidelines).

The VMT analysis involved comparing an estimate of VMT attributable to the project to the City VMT threshold and assessing whether project VMT would result in a significant transportation impact under CEQA. The analysis was performed using the Fresno COG VMT Calculation Tool for residential projects since the project has less than 500 dwelling units. The output from the tool is included in the Appendix. Analysis results are summarized in Table 8 below.

Table 8
VMT Analysis Results

Land Use	VMT per Capita			Significant Impact	Reduction Needed
	Regional[1]	Threshold[2]	Project[3]		
Residential	17.4	16.1	14.0	NO	-15.0%

[1] Source: Figure 7, "VMT per Capita Screening Map for Fresno County," *Fresno County SB 743 Implementation Regional Guidelines*, Fresno Council of Governments, January 2021
[2] City significance threshold for residential projects is equivalent to 87 percent of "existing regional average"
[3] Source: Fresno COG ABM

As shown above, the project's VMT per capita (14.0) is less than the City's significance threshold (16.1). Therefore, the project would be expected to result in a less than significant transportation impact under CEQA.

REFERENCES

1. California Manual on Uniform Traffic Control Devices for Streets and Highways, 2014 Edition, Federal Highway Administration (FHA)
2. CEQA Guidelines for Vehicle Miles Traveled Thresholds for the City of Fresno, June 25, 2020.
3. City of Reedley California General Plan 2030, City of Reedley, Adopted February 18, 2014
4. Highway Capacity Manual 7th Edition, Transportation Research Board
5. Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE)

APPENDIX



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	367	56	36	444	36	19
Future Volume (vph)	367	56	36	444	36	19
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.953	
Flt Protected			0.950		0.969	
Satd. Flow (prot)	1829	0	1630	1863	1584	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	1829	0	1630	1863	1584	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	399	61	39	483	39	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	460	0	39	483	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.5%		ICU Level of Service A	
Analysis Period (min) 15			

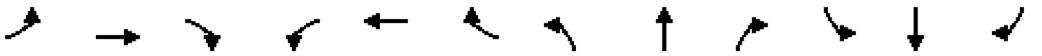
Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	367	56	36	444	36	19
Future Vol, veh/h	367	56	36	444	36	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	399	61	39	483	39	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	460	0	990	429
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	561	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1101	-	273	626
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	571	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1101	-	263	626
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	551	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.63	18.34
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	329	-	-	1101	-
HCM Lane V/C Ratio	0.182	-	-	0.036	-
HCM Control Delay (s/veh)	18.3	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

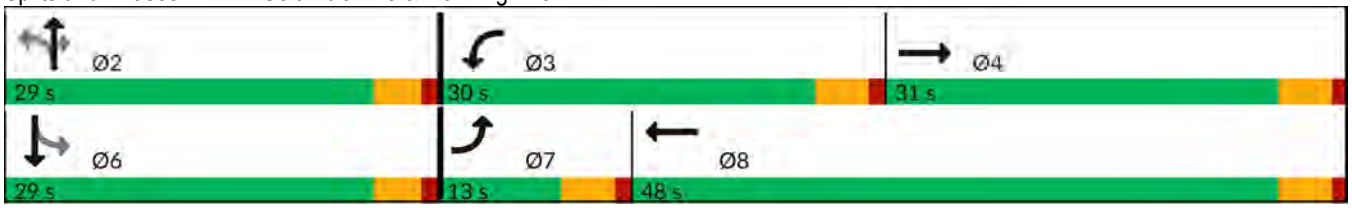


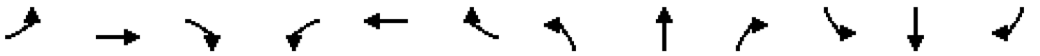
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	285	23	196	402	17	24	25	161	19	73	46
Future Volume (vph)	16	285	23	196	402	17	24	25	161	19	73	46
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.994				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.993	
Satd. Flow (prot)	1630	3491	0	1630	1849	0	0	1818	1458	0	1755	0
Flt Permitted	0.950			0.950				0.858			0.956	
Satd. Flow (perm)	1630	3491	0	1630	1849	0	0	1598	1458	0	1689	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3				175		28	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	310	25	213	437	18	26	27	175	21	79	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	335	0	213	455	0	0	53	175	0	150	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	31.0		30.0	48.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	14.4%	34.4%		33.3%	53.3%		32.2%	32.2%	32.2%	32.2%	32.2%	
Maximum Green (s)	8.4	26.4		25.4	43.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.1	11.4		12.6	26.6			10.4	10.4		10.4	
Actuated g/C Ratio	0.15	0.24		0.27	0.56			0.22	0.22		0.22	
v/c Ratio	0.07	0.40		0.49	0.44			0.15	0.38		0.38	
Control Delay (s/veh)	23.5	17.5		20.6	9.8			17.5	6.4		17.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	23.5	17.5		20.6	9.8			17.5	6.4		17.4	
LOS	C	B		C	A			B	A		B	
Approach Delay (s/veh)		17.8			13.2			9.0			17.4	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay (s/veh): 14.1		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

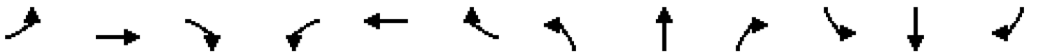




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	285	23	196	402	17	24	25	161	19	73	46
Future Volume (veh/h)	16	285	23	196	402	17	24	25	161	19	73	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	0.99		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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	17	310	25	213	437	18	26	27	175	21	79	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	718	57	316	662	27	283	224	298	160	201	114
Arrive On Green	0.04	0.22	0.20	0.19	0.37	0.35	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1641	3322	266	1641	1781	73	537	1099	1460	135	982	559
Grp Volume(v), veh/h	17	165	170	213	0	455	53	0	175	150	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1811	1641	0	1855	1637	0	1460	1676	0	0
Q Serve(g_s), s	0.3	2.5	2.5	3.7	0.0	6.3	0.0	0.0	3.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	2.5	2.5	3.7	0.0	6.3	0.7	0.0	3.4	2.3	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.04	0.49		1.00	0.14		0.33
Lane Grp Cap(c), veh/h	61	384	391	316	0	689	507	0	298	475	0	0
V/C Ratio(X)	0.28	0.43	0.44	0.67	0.00	0.66	0.10	0.00	0.59	0.32	0.00	0.00
Avail Cap(c_a), veh/h	476	1548	1578	1376	0	2633	1416	0	1178	1454	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.5	10.5	10.6	11.6	0.0	8.1	10.1	0.0	11.1	10.8	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.8	0.8	2.5	0.0	1.1	0.1	0.0	1.8	0.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.6	0.6	0.9	0.0	1.1	0.2	0.0	0.7	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.0	11.3	11.3	14.1	0.0	9.2	10.2	0.0	13.0	11.1	0.0	0.0
LnGrp LOS	B	B	B	B		A	B		B	B		
Approach Vol, veh/h		352			668			228			150	
Approach Delay, s/veh		11.6			10.8			12.3			11.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	10.3	10.0	10.7	10.3	5.1	15.5
Change Period (Y+Rc), s	4.2	4.6	4.6	4.2	4.6	4.6
Max Green Setting (Gmax), s	24.8	25.4	26.4	24.8	8.4	43.4
Max Q Clear Time (g_c+I1), s	5.4	5.7	4.5	4.3	2.3	8.3
Green Ext Time (p_c), s	0.8	0.7	1.1	0.5	0.0	1.7

Intersection Summary	
HCM 7th Control Delay, s/veh	11.3
HCM 7th LOS	B

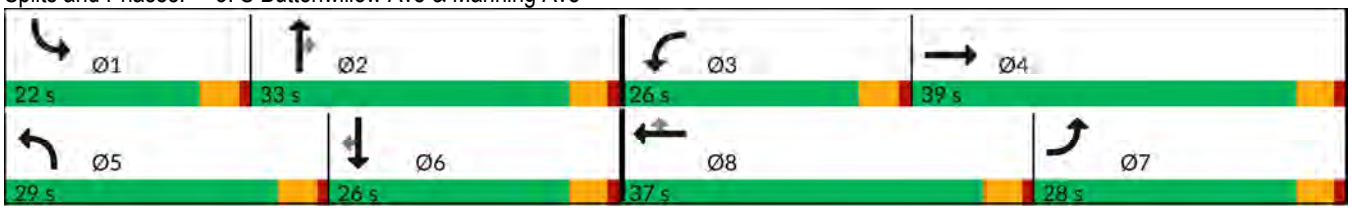


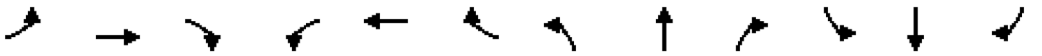
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	224	66	47	259	70	139	185	90	115	252	103
Future Volume (vph)	56	224	66	47	259	70	139	185	90	115	252	103
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.98			0.98			0.96
Frt		0.966				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3394	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3394	0	1630	3539	1430	1630	3539	1429	1630	1863	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				136			136			177
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			661			1321			4072	
Travel Time (s)		32.8			8.2			16.4			50.5	
Confl. Peds. (#/hr)			5			5			5			5
Confl. Bikes (#/hr)			2			2			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	243	72	51	282	76	151	201	98	125	274	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	315	0	51	282	76	151	201	98	125	274	112
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	28.0	39.0		26.0	37.0	37.0	29.0	33.0	33.0	22.0	26.0	26.0
Total Split (%)	23.3%	32.5%		21.7%	30.8%	30.8%	24.2%	27.5%	27.5%	18.3%	21.7%	21.7%
Maximum Green (s)	23.5	34.5		21.5	32.5	32.5	24.5	28.5	28.5	17.5	21.5	21.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	8.7	17.0		8.2	14.1	14.1	13.0	33.1	33.1	11.6	28.4	28.4
Actuated g/C Ratio	0.11	0.21		0.10	0.18	0.18	0.16	0.41	0.41	0.14	0.35	0.35
v/c Ratio	0.34	0.42		0.31	0.45	0.21	0.57	0.14	0.15	0.53	0.42	0.18
Control Delay (s/veh)	43.3	27.4		43.2	32.8	1.6	42.8	21.1	2.7	44.1	27.0	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.3	27.4		43.2	32.8	1.6	42.8	21.1	2.7	44.1	27.0	1.4
LOS	D	C		D	C	A	D	C	A	D	C	A
Approach Delay (s/veh)		30.0			28.3			24.4			25.6	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 80.2			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay (s/veh): 26.9		Intersection LOS: C	
Intersection Capacity Utilization 60.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





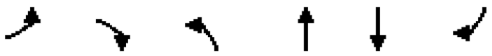
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	224	66	47	259	70	139	185	90	115	252	103
Future Volume (veh/h)	56	224	66	47	259	70	139	185	90	115	252	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.97
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	61	243	72	51	282	76	151	201	98	125	274	112
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	440	127	62	551	221	193	1527	617	160	766	581
Arrive On Green	0.05	0.16	0.16	0.04	0.16	0.16	0.12	0.43	0.43	0.10	0.41	0.41
Sat Flow, veh/h	1641	2694	776	1641	3554	1424	1641	3554	1436	1641	1870	1419
Grp Volume(v), veh/h	61	158	157	51	282	76	151	201	98	125	274	112
Grp Sat Flow(s),veh/h/ln	1641	1777	1693	1641	1777	1424	1641	1777	1436	1641	1870	1419
Q Serve(g_s), s	2.4	5.4	5.7	2.0	4.8	2.3	5.9	2.3	2.8	4.9	6.7	2.3
Cycle Q Clear(g_c), s	2.4	5.4	5.7	2.0	4.8	2.3	5.9	2.3	2.8	4.9	6.7	2.3
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	290	277	62	551	221	193	1527	617	160	766	581
V/C Ratio(X)	0.80	0.54	0.57	0.82	0.51	0.34	0.78	0.13	0.16	0.78	0.36	0.19
Avail Cap(c_a), veh/h	581	924	881	532	1741	698	606	1527	617	433	766	581
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	31.3	25.5	25.6	31.7	25.7	13.1	28.4	11.4	11.6	29.2	13.6	6.0
Incr Delay (d2), s/veh	17.1	1.6	1.8	22.0	0.7	0.9	6.7	0.2	0.5	8.1	1.3	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.1	2.1	1.1	1.8	1.0	2.4	0.7	0.8	2.1	2.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.4	27.0	27.4	53.7	26.5	14.0	35.2	11.6	12.1	37.3	14.9	6.7
LnGrp LOS	D	C	C	D	C	B	D	B	B	D	B	A
Approach Vol, veh/h		376			409			450			511	
Approach Delay, s/veh		30.7			27.5			19.6			18.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	33.0	7.0	15.3	12.3	31.6	7.6	14.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	28.5	21.5	34.5	24.5	21.5	23.5	32.5
Max Q Clear Time (g_c+I1), s	6.9	4.8	4.0	7.7	7.9	8.7	4.4	6.8
Green Ext Time (p_c), s	0.2	1.1	0.1	1.1	0.4	1.1	0.1	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	23.6
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	17	18	418	369	11
Future Volume (vph)	14	17	18	418	369	11
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.926				0.996	
Flt Protected	0.978			0.998		
Satd. Flow (prot)	1554	0	0	1859	1855	0
Flt Permitted	0.978			0.998		
Satd. Flow (perm)	1554	0	0	1859	1855	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			1310	1321	
Travel Time (s)	19.7			16.2	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	18	20	454	401	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	474	413	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.6%		ICU Level of Service A	
Analysis Period (min) 15			

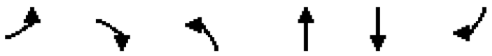
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	17	18	418	369	11
Future Vol, veh/h	14	17	18	418	369	11
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	18	20	454	401	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	901	407	413	0	-	0
Stage 1	407	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	309	644	1146	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	302	644	1146	-	-	-
Mov Cap-2 Maneuver	302	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	614	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.18	0.34	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	74	-	426	-	-
HCM Lane V/C Ratio	0.017	-	0.079	-	-
HCM Control Delay (s/veh)	8.2	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	195	197	36	28	140
Future Volume (vph)	73	195	197	36	28	140
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.887	
Flt Protected	0.987			0.959		
Satd. Flow (prot)	1527	0	0	1786	1652	0
Flt Permitted	0.987			0.959		
Satd. Flow (perm)	1527	0	0	1786	1652	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1009			1972	678	
Travel Time (s)	12.5			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	212	214	39	30	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	291	0	0	253	182	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			

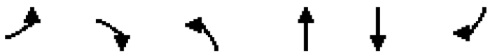
Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	73	195	197	36	28	140
Future Vol, veh/h	73	195	197	36	28	140
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	79	212	214	39	30	152

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	574	107	183	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	480	948	1392	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	405	948	1392	-	-	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.88	6.81	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1362	-	694	-	-
HCM Lane V/C Ratio	0.154	-	0.42	-	-
HCM Control Delay (s/veh)	8.1	0	13.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	2.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	51	61	370	352	33
Future Volume (vph)	57	51	61	370	352	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.937				0.988	
Flt Protected	0.974			0.993		
Satd. Flow (prot)	1566	0	0	1850	1840	0
Flt Permitted	0.974			0.993		
Satd. Flow (perm)	1566	0	0	1850	1840	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	55	66	402	383	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	468	419	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	51	61	370	352	33
Future Vol, veh/h	57	51	61	370	352	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	55	66	402	383	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	935	401	418	0	-	0
Stage 1	401	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	294	649	1141	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	272	649	1141	-	-	-
Mov Cap-2 Maneuver	272	-	-	-	-	-
Stage 1	626	-	-	-	-	-
Stage 2	587	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.9	1.18	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	255	-	375	-	-
HCM Lane V/C Ratio	0.058	-	0.313	-	-
HCM Control Delay (s/veh)	8.4	0	18.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	248	76	78	334	103	97	114	55	60	165	108
Future Volume (vph)	90	248	76	78	334	103	97	114	55	60	165	108
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.973			0.972			0.956	
Flt Protected		0.989			0.992			0.982			0.991	
Satd. Flow (prot)	0	1796	0	0	1798	0	0	1778	0	0	1765	0
Flt Permitted		0.989			0.992			0.982			0.991	
Satd. Flow (perm)	0	1796	0	0	1798	0	0	1778	0	0	1765	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	270	83	85	363	112	105	124	60	65	179	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	560	0	0	289	0	0	361	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	451	560	289	361
Demand Flow Rate, veh/h	460	571	294	368
Vehicles Circulating, veh/h	336	333	441	564
Vehicles Exiting, veh/h	596	402	355	340
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.4	11.7	7.9	11.3
Approach LOS	A	B	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	460	571	294	368
Cap Entry Lane, veh/h	980	983	880	776
Entry HV Adj Factor	0.980	0.980	0.981	0.982
Flow Entry, veh/h	451	560	289	361
Cap Entry, veh/h	960	963	864	762
V/C Ratio	0.470	0.581	0.334	0.474
Control Delay, s/veh	9.4	11.7	7.9	11.3
LOS	A	B	A	B
95th %tile Queue, veh	3	4	1	3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	372	56	43	460	36	21
Future Volume (vph)	372	56	43	460	36	21
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.950	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	1829	0	1630	1863	1581	0
Flt Permitted			0.950		0.970	
Satd. Flow (perm)	1829	0	1630	1863	1581	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	61	47	500	39	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	465	0	47	500	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			

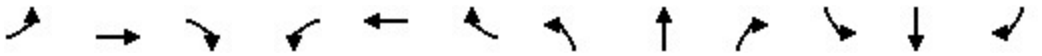
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	372	56	43	460	36	21
Future Vol, veh/h	372	56	43	460	36	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	404	61	47	500	39	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	465	0	1028	435
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	593	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1096	-	259	621
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	552	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1096	-	248	621
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	528	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.72	19
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	1096	-
HCM Lane V/C Ratio	0.194	-	-	0.043	-
HCM Control Delay (s/veh)	19	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

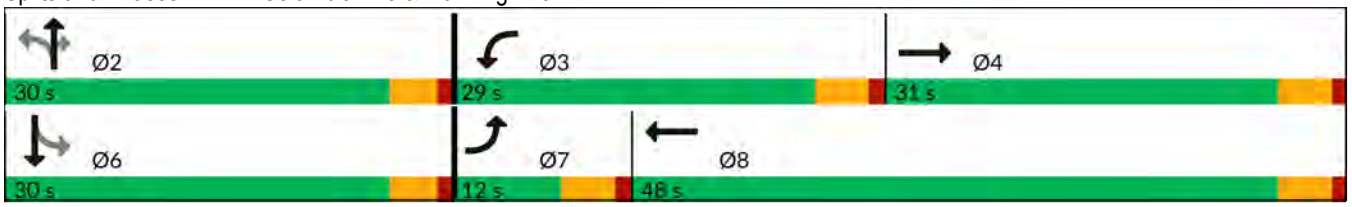


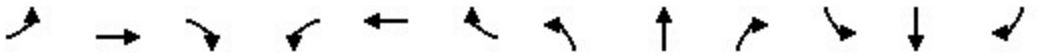
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	292	23	200	425	21	24	25	162	20	73	46
Future Volume (vph)	16	292	23	200	425	21	24	25	162	20	73	46
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.993				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.993	
Satd. Flow (prot)	1630	3491	0	1630	1847	0	0	1818	1458	0	1755	0
Flt Permitted	0.950			0.950				0.860			0.954	
Satd. Flow (perm)	1630	3491	0	1630	1847	0	0	1602	1458	0	1686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			4				176		28	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	317	25	217	462	23	26	27	176	22	79	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	342	0	217	485	0	0	53	176	0	151	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	12.0	31.0		29.0	48.0		30.0	30.0	30.0	30.0	30.0	
Total Split (%)	13.3%	34.4%		32.2%	53.3%		33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	7.4	26.4		24.4	43.4		25.8	25.8	25.8	25.8	25.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.0	11.5		12.8	27.0			10.4	10.4		10.4	
Actuated g/C Ratio	0.15	0.24		0.27	0.57			0.22	0.22		0.22	
v/c Ratio	0.07	0.40		0.49	0.46			0.15	0.39		0.39	
Control Delay (s/veh)	24.0	17.7		20.8	10.0			17.8	6.4		17.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	24.0	17.7		20.8	10.0			17.8	6.4		17.6	
LOS	C	B		C	A			B	A		B	
Approach Delay (s/veh)		18.0			13.3			9.1			17.6	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay (s/veh): 14.3		Intersection LOS: B	
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

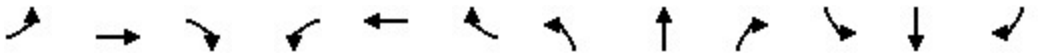




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	292	23	200	425	21	24	25	162	20	73	46
Future Volume (veh/h)	16	292	23	200	425	21	24	25	162	20	73	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	0.99		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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	17	317	25	217	462	23	26	27	176	22	79	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	723	57	320	663	33	282	224	298	161	200	113
Arrive On Green	0.04	0.22	0.20	0.20	0.38	0.36	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1641	3328	261	1641	1764	88	540	1097	1460	141	978	554
Grp Volume(v), veh/h	17	168	174	217	0	485	53	0	176	151	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1812	1641	0	1851	1637	0	1460	1673	0	0
Q Serve(g_s), s	0.3	2.6	2.6	3.8	0.0	6.9	0.0	0.0	3.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	2.6	2.6	3.8	0.0	6.9	0.7	0.0	3.4	2.4	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.05	0.49		1.00	0.15		0.33
Lane Grp Cap(c), veh/h	60	386	394	320	0	696	506	0	298	474	0	0
V/C Ratio(X)	0.28	0.44	0.44	0.68	0.00	0.70	0.10	0.00	0.59	0.32	0.00	0.00
Avail Cap(c_a), veh/h	419	1532	1562	1310	0	2601	1450	0	1212	1488	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.7	10.6	10.7	11.7	0.0	8.3	10.2	0.0	11.3	10.9	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.8	0.8	2.5	0.0	1.3	0.1	0.0	1.9	0.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.6	0.6	1.0	0.0	1.2	0.2	0.0	0.7	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.2	11.4	11.4	14.2	0.0	9.6	10.3	0.0	13.1	11.3	0.0	0.0
LnGrp LOS	B	B	B	B		A	B		B	B		
Approach Vol, veh/h		359			702			229			151	
Approach Delay, s/veh		11.7			11.0			12.5			11.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.4	10.1	10.8		10.4	5.1	15.8				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		25.8	24.4	26.4		25.8	7.4	43.4				
Max Q Clear Time (g_c+I1), s		5.4	5.8	4.6		4.4	2.3	8.9				
Green Ext Time (p_c), s		0.8	0.7	1.1		0.5	0.0	1.8				

Intersection Summary	
HCM 7th Control Delay, s/veh	11.4
HCM 7th LOS	B

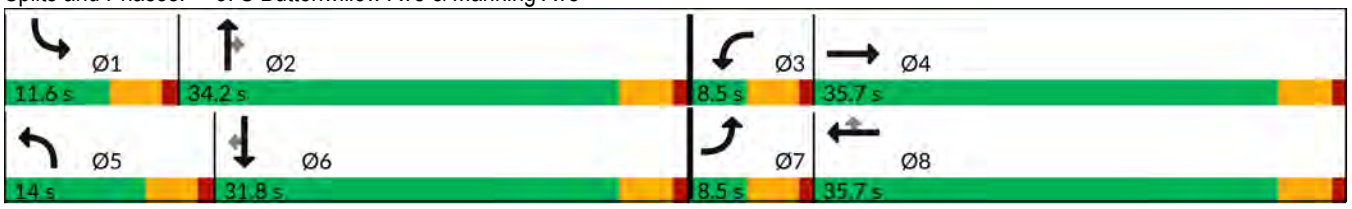


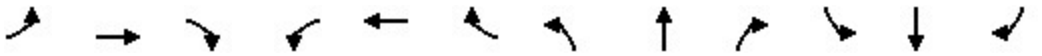
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	224	75	48	259	70	176	192	91	115	253	103
Future Volume (vph)	56	224	75	48	259	70	176	192	91	115	253	103
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.962				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3405	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3405	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56				127			127			127
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			1322			1321			4072	
Travel Time (s)		32.8			16.4			16.4			50.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	243	82	52	282	76	191	209	99	125	275	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	325	0	52	282	76	191	209	99	125	275	112
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	8.5	35.7		8.5	35.7	35.7	14.0	34.2	34.2	11.6	31.8	31.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	9.4%	39.7%		9.4%	39.7%	39.7%	15.6%	38.0%	38.0%	12.9%	35.3%	35.3%
Maximum Green (s)	4.0	31.2		4.0	31.2	31.2	9.5	29.7	29.7	7.1	27.3	27.3
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	4.0	15.5		4.0	13.7	13.7	9.6	30.1	30.1	7.2	27.6	27.6
Actuated g/C Ratio	0.05	0.21		0.05	0.19	0.19	0.13	0.41	0.41	0.10	0.38	0.38
v/c Ratio	0.68	0.42		0.58	0.43	0.20	0.89	0.14	0.15	0.78	0.39	0.18
Control Delay (s/veh)	74.2	22.2		63.8	27.4	2.3	75.2	15.5	3.0	68.2	20.5	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.2	22.2		63.8	27.4	2.3	75.2	15.5	3.0	68.2	20.5	4.2
LOS	E	C		E	C	A	E	B	A	E	C	A
Approach Delay (s/veh)		30.4			27.3			35.9			28.6	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.2			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay (s/veh): 30.7		Intersection LOS: C	
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	224	75	48	259	70	176	192	91	115	253	103
Future Volume (veh/h)	56	224	75	48	259	70	176	192	91	115	253	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	61	243	82	52	282	76	191	209	99	125	275	112
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	360	118	62	461	189	229	1628	669	155	773	603
Arrive On Green	0.05	0.14	0.14	0.04	0.13	0.13	0.14	0.46	0.46	0.09	0.41	0.41
Sat Flow, veh/h	1641	2627	864	1641	3554	1460	1641	3554	1460	1641	1870	1460
Grp Volume(v), veh/h	61	162	163	52	282	76	191	209	99	125	275	112
Grp Sat Flow(s),veh/h/ln	1641	1777	1715	1641	1777	1460	1641	1777	1460	1641	1870	1460
Q Serve(g_s), s	2.4	5.7	6.0	2.1	5.0	3.2	7.5	2.2	2.6	4.9	6.7	3.2
Cycle Q Clear(g_c), s	2.4	5.7	6.0	2.1	5.0	3.2	7.5	2.2	2.6	4.9	6.7	3.2
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	74	243	235	62	461	189	229	1628	669	155	773	603
V/C Ratio(X)	0.82	0.67	0.69	0.83	0.61	0.40	0.84	0.13	0.15	0.81	0.36	0.19
Avail Cap(c_a), veh/h	99	839	810	99	1678	689	236	1628	669	176	773	603
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	31.3	27.1	27.2	31.6	27.2	26.4	27.7	10.3	10.4	29.3	13.3	12.3
Incr Delay (d2), s/veh	31.7	3.1	3.6	27.0	1.3	1.4	21.7	0.2	0.5	21.2	1.3	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.3	2.4	1.2	1.9	1.0	3.9	0.7	0.7	2.6	2.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.0	30.2	30.8	58.6	28.5	27.8	49.4	10.5	10.9	50.5	14.6	13.0
LnGrp LOS	E	C	C	E	C	C	D	B	B	D	B	B
Approach Vol, veh/h		386			410			499			512	
Approach Delay, s/veh		35.6			32.2			25.4			23.0	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	34.8	7.0	13.6	13.7	31.8	7.5	13.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	29.7	4.0	31.2	9.5	27.3	4.0	31.2
Max Q Clear Time (g_c+I1), s	6.9	4.6	4.1	8.0	9.5	8.7	4.4	7.0
Green Ext Time (p_c), s	0.0	1.2	0.0	1.1	0.0	1.3	0.0	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	28.5
HCM 7th LOS	C



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	430	0	2	502	0	6
Future Volume (vph)	430	0	2	502	0	6
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1484	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1484	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1322			1305	869	
Travel Time (s)	16.4			16.2	10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	467	0	2	546	0	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	467	0	0	548	7	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.0%		ICU Level of Service A	
Analysis Period (min) 15			

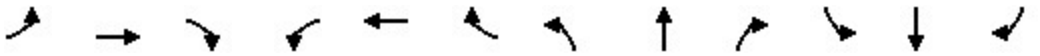
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	430	0	2	502	0	6
Future Vol, veh/h	430	0	2	502	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	467	0	2	546	0	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	467	0	1017	467
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	550	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1094	-	263	596
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1094	-	262	596
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	576	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.03	11.11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	596	-	-	7	-
HCM Lane V/C Ratio	0.011	-	-	0.002	-
HCM Control Delay (s/veh)	11.1	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	17	14	0	24	18	442	4	9	371	11
Future Volume (vph)	14	0	17	14	0	24	18	442	4	9	371	11
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.926			0.914			0.999			0.996	
Flt Protected		0.978			0.982			0.998			0.999	
Satd. Flow (prot)	0	1687	0	0	1672	0	0	1857	0	0	1853	0
Flt Permitted		0.978			0.982			0.998			0.999	
Satd. Flow (perm)	0	1687	0	0	1672	0	0	1857	0	0	1853	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	18	15	0	26	20	480	4	10	403	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	41	0	0	504	0	0	425	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	17	14	0	24	18	442	4	9	371	11
Future Vol, veh/h	14	0	17	14	0	24	18	442	4	9	371	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	18	15	0	26	20	480	4	10	403	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	948	953	409	945	957	483	415	0	0	485	0	0
Stage 1	429	429	-	522	522	-	-	-	-	-	-	-
Stage 2	520	524	-	423	435	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	241	259	642	242	258	584	1144	-	-	1078	-	-
Stage 1	604	584	-	538	531	-	-	-	-	-	-	-
Stage 2	540	530	-	609	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	222	250	642	227	249	584	1144	-	-	1078	-	-
Mov Cap-2 Maneuver	222	250	-	227	249	-	-	-	-	-	-	-
Stage 1	597	577	-	525	519	-	-	-	-	-	-	-
Stage 2	503	518	-	584	574	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.52	15.96	0.32	0.19
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	70	-	-	346	370	41	-	-
HCM Lane V/C Ratio	0.017	-	-	0.097	0.112	0.009	-	-
HCM Control Delay (s/veh)	8.2	0	-	16.5	16	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.4	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	76	196	198	36	28	142
Future Volume (vph)	76	196	198	36	28	142
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.903				0.887	
Flt Protected	0.986			0.959		
Satd. Flow (prot)	1528	0	0	1786	1652	0
Flt Permitted	0.986			0.959		
Satd. Flow (perm)	1528	0	0	1786	1652	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1920			1972	678	
Travel Time (s)	23.8			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	213	215	39	30	154
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	0	0	254	184	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	76	196	198	36	28	142
Future Vol, veh/h	76	196	198	36	28	142
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	213	215	39	30	154

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	577	108	185	0	-	0
Stage 1	108	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	478	946	1390	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	946	1390	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.14	6.82	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1360	-	687	-	-
HCM Lane V/C Ratio	0.155	-	0.43	-	-
HCM Control Delay (s/veh)	8.1	0	14.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	2.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	51	61	388	387	33
Future Volume (vph)	57	51	61	388	387	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.937				0.989	
Flt Protected	0.974			0.993		
Satd. Flow (prot)	1566	0	0	1850	1842	0
Flt Permitted	0.974			0.993		
Satd. Flow (perm)	1566	0	0	1850	1842	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	55	66	422	421	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	488	457	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.0%		ICU Level of Service B	
Analysis Period (min) 15			

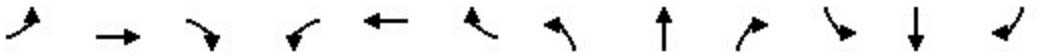
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	51	61	388	387	33
Future Vol, veh/h	57	51	61	388	387	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	55	66	422	421	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	993	439	457	0	-	0
Stage 1	439	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	272	618	1104	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	251	618	1104	-	-	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	20.48	1.15	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	245	-	349	-	-
HCM Lane V/C Ratio	0.06	-	0.337	-	-
HCM Control Delay (s/veh)	8.5	0	20.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.5	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	248	76	78	334	104	97	120	55	60	190	127
Future Volume (vph)	98	248	76	78	334	104	97	120	55	60	190	127
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.973			0.973			0.955	
Flt Protected		0.989			0.992			0.983			0.992	
Satd. Flow (prot)	0	1798	0	0	1798	0	0	1782	0	0	1765	0
Flt Permitted		0.989			0.992			0.983			0.992	
Satd. Flow (perm)	0	1798	0	0	1798	0	0	1782	0	0	1765	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	270	83	85	363	113	105	130	60	65	207	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	460	0	0	561	0	0	295	0	0	410	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	11.0
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	460	561	295	410
Demand Flow Rate, veh/h	469	572	301	418
Vehicles Circulating, veh/h	364	349	450	564
Vehicles Exiting, veh/h	618	402	383	357
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.0	12.1	8.1	12.8
Approach LOS	B	B	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	469	572	301	418
Cap Entry Lane, veh/h	952	967	872	776
Entry HV Adj Factor	0.980	0.980	0.981	0.981
Flow Entry, veh/h	460	561	295	410
Cap Entry, veh/h	933	948	856	761
V/C Ratio	0.493	0.592	0.345	0.538
Control Delay, s/veh	10.0	12.1	8.1	12.8
LOS	B	B	A	B
95th %tile Queue, veh	3	4	2	3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	12	3	1	38	3
Future Volume (vph)	1	12	3	1	38	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.875				0.991	
Flt Protected				0.964	0.955	
Satd. Flow (prot)	1630	0	0	1796	1763	0
Flt Permitted				0.964	0.955	
Satd. Flow (perm)	1630	0	0	1796	1763	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	698			1920	515	
Travel Time (s)	8.7			23.8	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	13	3	1	41	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	4	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	12	3	1	38	3
Future Vol, veh/h	1	12	3	1	38	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	13	3	1	41	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	14	0	15	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1604	-	1003	1075
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1604	-	1001	1075
Mov Cap-2 Maneuver	-	-	-	-	1001	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1013	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.44	8.74
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1006	-	-	1350	-
HCM Lane V/C Ratio	0.044	-	-	0.002	-
HCM Control Delay (s/veh)	8.7	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	429	65	43	527	37	20
Future Volume (vph)	429	65	43	527	37	20
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.952	
Flt Protected			0.950		0.969	
Satd. Flow (prot)	1829	0	1630	1863	1583	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	1829	0	1630	1863	1583	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	71	47	573	40	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	537	0	47	573	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.4%		ICU Level of Service A	
Analysis Period (min) 15			

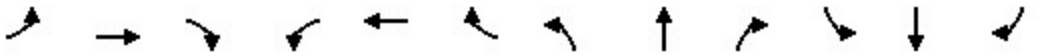
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	429	65	43	527	37	20
Future Vol, veh/h	429	65	43	527	37	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	466	71	47	573	40	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	537	0	1168	502
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	666	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1031	-	214	570
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	511	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1031	-	204	570
Mov Cap-2 Maneuver	-	-	-	-	204	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	487	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.65	22.82
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	263	-	-	1031	-
HCM Lane V/C Ratio	0.235	-	-	0.045	-
HCM Control Delay (s/veh)	22.8	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

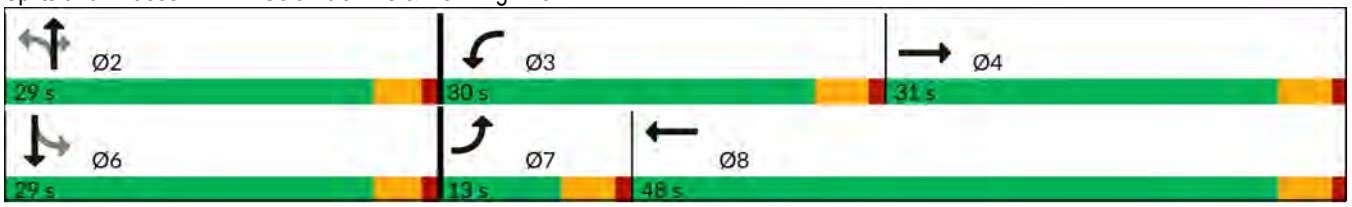


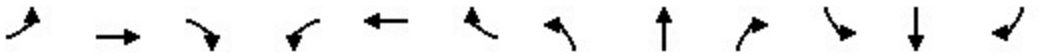
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	338	27	230	471	20	26	27	173	20	76	48
Future Volume (vph)	19	338	27	230	471	20	26	27	173	20	76	48
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.994				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.993	
Satd. Flow (prot)	1630	3491	0	1630	1849	0	0	1818	1458	0	1755	0
Flt Permitted	0.950			0.950				0.869			0.956	
Satd. Flow (perm)	1630	3491	0	1630	1849	0	0	1619	1458	0	1689	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3				188		27	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	367	29	250	512	22	28	29	188	22	83	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	396	0	250	534	0	0	57	188	0	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	31.0		30.0	48.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	14.4%	34.4%		33.3%	53.3%		32.2%	32.2%	32.2%	32.2%	32.2%	
Maximum Green (s)	8.4	26.4		25.4	43.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.3	12.7		14.3	29.7			10.8	10.8		10.8	
Actuated g/C Ratio	0.14	0.25		0.28	0.59			0.21	0.21		0.21	
v/c Ratio	0.09	0.45		0.54	0.49			0.17	0.41		0.41	
Control Delay (s/veh)	26.0	18.9		22.1	10.1			19.8	6.9		19.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	26.0	18.9		22.1	10.1			19.8	6.9		19.9	
LOS	C	B		C	B			B	A		B	
Approach Delay (s/veh)		19.2			13.9			9.9			19.9	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay (s/veh): 15.3		Intersection LOS: B	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

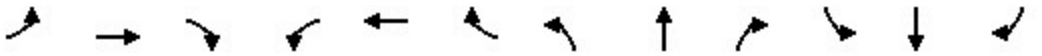




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	338	27	230	471	20	26	27	173	20	76	48
Future Volume (veh/h)	19	338	27	230	471	20	26	27	173	20	76	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	21	367	29	250	512	22	28	29	188	22	83	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	749	59	359	720	31	272	222	301	147	204	114
Arrive On Green	0.04	0.23	0.21	0.22	0.41	0.39	0.21	0.21	0.21	0.21	0.21	0.20
Sat Flow, veh/h	1641	3327	261	1641	1778	76	559	1078	1460	132	989	555
Grp Volume(v), veh/h	21	195	201	250	0	534	57	0	188	157	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1812	1641	0	1854	1637	0	1460	1676	0	0
Q Serve(g_s), s	0.4	3.3	3.3	4.8	0.0	8.2	0.0	0.0	4.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	3.3	3.3	4.8	0.0	8.2	0.9	0.0	4.0	2.7	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.04	0.49		1.00	0.14		0.33
Lane Grp Cap(c), veh/h	63	400	408	359	0	751	494	0	301	465	0	0
V/C Ratio(X)	0.33	0.49	0.49	0.70	0.00	0.71	0.12	0.00	0.63	0.34	0.00	0.00
Avail Cap(c_a), veh/h	431	1401	1429	1246	0	2382	1281	0	1066	1315	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.0	11.5	11.6	12.3	0.0	8.5	11.1	0.0	12.4	11.9	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.9	0.9	2.4	0.0	1.3	0.1	0.0	2.1	0.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.9	1.3	0.0	1.5	0.2	0.0	0.9	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.0	12.5	12.5	14.8	0.0	9.8	11.2	0.0	14.5	12.3	0.0	0.0
LnGrp LOS	B	B	B	B		A	B		B	B		
Approach Vol, veh/h		417			784			245			157	
Approach Delay, s/veh		12.8			11.4			13.8			12.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.0	11.5	11.7		11.0	5.3	17.9				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		24.8	25.4	26.4		24.8	8.4	43.4				
Max Q Clear Time (g_c+I1), s		6.0	6.8	5.3		4.7	2.4	10.2				
Green Ext Time (p_c), s		0.8	0.8	1.3		0.5	0.0	2.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	12.2
HCM 7th LOS	B

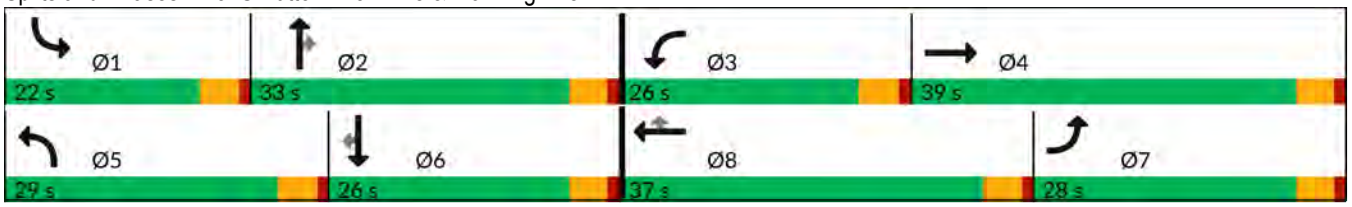


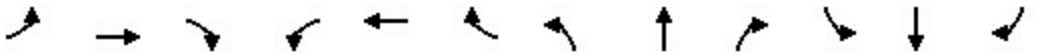
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	263	77	58	322	87	153	204	99	127	278	114
Future Volume (vph)	66	263	77	58	322	87	153	204	99	127	278	114
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.98			0.97			0.96
Frt		0.966				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3394	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3394	0	1630	3539	1430	1630	3539	1409	1630	1863	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				136			136			177
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			965			1321			4072	
Travel Time (s)		32.8			12.0			16.4			50.5	
Confl. Peds. (#/hr)			5			5			5			5
Confl. Bikes (#/hr)			2			2			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	286	84	63	350	95	166	222	108	138	302	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	370	0	63	350	95	166	222	108	138	302	124
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	28.0	39.0		26.0	37.0	37.0	29.0	33.0	33.0	22.0	26.0	26.0
Total Split (%)	23.3%	32.5%		21.7%	30.8%	30.8%	24.2%	27.5%	27.5%	18.3%	21.7%	21.7%
Maximum Green (s)	23.5	34.5		21.5	32.5	32.5	24.5	28.5	28.5	17.5	21.5	21.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	9.4	15.9		8.9	15.5	15.5	14.1	30.3	30.3	12.2	28.5	28.5
Actuated g/C Ratio	0.11	0.19		0.11	0.19	0.19	0.17	0.36	0.36	0.15	0.34	0.34
v/c Ratio	0.39	0.55		0.36	0.53	0.25	0.60	0.17	0.18	0.58	0.47	0.21
Control Delay (s/veh)	45.3	31.7		45.2	34.6	3.6	44.5	22.6	3.7	46.9	29.7	2.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.3	31.7		45.2	34.6	3.6	44.5	22.6	3.7	46.9	29.7	2.4
LOS	D	C		D	C	A	D	C	A	D	C	A
Approach Delay (s/veh)		33.9			30.1			25.8			27.9	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 83.3			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay (s/veh): 29.3		Intersection LOS: C	
Intersection Capacity Utilization 62.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	263	77	58	322	87	153	204	99	127	278	114
Future Volume (veh/h)	66	263	77	58	322	87	153	204	99	127	278	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97	1.00		0.97
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	72	286	84	63	350	95	166	222	108	138	302	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	486	139	79	613	246	210	1449	579	175	723	548
Arrive On Green	0.06	0.18	0.18	0.05	0.17	0.17	0.13	0.41	0.41	0.11	0.39	0.39
Sat Flow, veh/h	1641	2698	774	1641	3554	1426	1641	3554	1419	1641	1870	1419
Grp Volume(v), veh/h	72	186	184	63	350	95	166	222	108	138	302	124
Grp Sat Flow(s),veh/h/ln	1641	1777	1695	1641	1777	1426	1641	1777	1419	1641	1870	1419
Q Serve(g_s), s	3.0	6.7	7.0	2.7	6.3	3.0	6.9	2.8	3.4	5.7	8.3	2.9
Cycle Q Clear(g_c), s	3.0	6.7	7.0	2.7	6.3	3.0	6.9	2.8	3.4	5.7	8.3	2.9
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	320	305	79	613	246	210	1449	579	175	723	548
V/C Ratio(X)	0.79	0.58	0.60	0.80	0.57	0.39	0.79	0.15	0.19	0.79	0.42	0.23
Avail Cap(c_a), veh/h	551	877	837	505	1652	663	575	1449	579	411	723	548
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	32.6	26.2	26.4	32.9	26.6	13.1	29.6	13.1	13.3	30.5	15.7	7.1
Incr Delay (d2), s/veh	13.6	1.7	1.9	16.3	0.8	1.0	6.6	0.2	0.7	7.7	1.8	1.0
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	1.4	2.6	2.6	1.3	2.4	1.3	2.8	0.9	1.0	2.4	3.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.2	27.9	28.3	49.2	27.4	14.1	36.2	13.3	14.0	38.2	17.5	8.0
LnGrp LOS	D	C	C	D	C	B	D	B	B	D	B	A
Approach Vol, veh/h		442			508			496			564	
Approach Delay, s/veh		31.0			27.6			21.1			20.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	33.0	7.9	17.1	13.4	31.5	8.4	16.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	28.5	21.5	34.5	24.5	21.5	23.5	32.5
Max Q Clear Time (g_c+I1), s	7.7	5.4	4.7	9.0	8.9	10.3	5.0	8.3
Green Ext Time (p_c), s	0.3	1.2	0.1	1.3	0.4	1.2	0.2	1.7

Intersection Summary	
HCM 7th Control Delay, s/veh	24.8
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	440	0	0	514	0	0
Future Volume (vph)	440	0	0	514	0	0
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1716	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1716	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	965			771	1109	
Travel Time (s)	12.0			9.6	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	478	0	0	559	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	478	0	0	559	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	440	0	0	514	0	0
Future Vol, veh/h	440	0	0	514	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	478	0	0	559	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	478	0	1037	478
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	559	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1084	-	256	587
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	573	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1084	-	256	587
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	573	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1084	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	17	18	462	407	11
Future Volume (vph)	14	17	18	462	407	11
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.926				0.996	
Flt Protected	0.978			0.998		
Satd. Flow (prot)	1554	0	0	1859	1855	0
Flt Permitted	0.978			0.998		
Satd. Flow (perm)	1554	0	0	1859	1855	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			1310	1321	
Travel Time (s)	19.7			16.2	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	18	20	502	442	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	522	454	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	17	18	462	407	11
Future Vol, veh/h	14	17	18	462	407	11
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	18	20	502	442	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	990	448	454	0	-	0
Stage 1	448	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	273	610	1106	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	267	610	1106	-	-	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	583	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	15.22	0.31	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	68	-	386	-	-
HCM Lane V/C Ratio	0.018	-	0.087	-	-
HCM Control Delay (s/veh)	8.3	0	15.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	85	228	259	47	30	151
Future Volume (vph)	85	228	259	47	30	151
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.888	
Flt Protected	0.987			0.959		
Satd. Flow (prot)	1527	0	0	1786	1654	0
Flt Permitted	0.987			0.959		
Satd. Flow (perm)	1527	0	0	1786	1654	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1009			1972	678	
Travel Time (s)	12.5			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	248	282	51	33	164
Shared Lane Traffic (%)						
Lane Group Flow (vph)	340	0	0	333	197	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	228	259	47	30	151
Future Vol, veh/h	85	228	259	47	30	151
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	248	282	51	33	164

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	729	115	197	0	-	0
Stage 1	115	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	390	938	1376	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	938	1376	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.42	7.02	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1337	-	603	-	-
HCM Lane V/C Ratio	0.205	-	0.564	-	-
HCM Control Delay (s/veh)	8.3	0	18.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.8	-	3.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	51	61	409	389	33
Future Volume (vph)	57	51	61	409	389	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.937				0.989	
Flt Protected	0.974			0.994		
Satd. Flow (prot)	1566	0	0	1852	1842	0
Flt Permitted	0.974			0.994		
Satd. Flow (perm)	1566	0	0	1852	1842	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	55	66	445	423	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	511	459	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

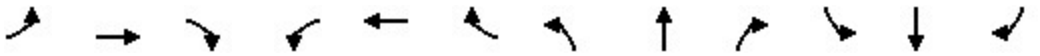
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	51	61	409	389	33
Future Vol, veh/h	57	51	61	409	389	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	55	66	445	423	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1018	441	459	0	-	0
Stage 1	441	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	263	616	1102	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	242	616	1102	-	-	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	21.12	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	234	-	339	-	-
HCM Lane V/C Ratio	0.06	-	0.346	-	-
HCM Control Delay (s/veh)	8.5	0	21.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.5	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	254	78	80	342	106	107	126	61	66	182	119
Future Volume (vph)	92	254	78	80	342	106	107	126	61	66	182	119
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.973			0.972			0.956	
Flt Protected		0.989			0.992			0.982			0.991	
Satd. Flow (prot)	0	1796	0	0	1798	0	0	1778	0	0	1765	0
Flt Permitted		0.989			0.992			0.982			0.991	
Satd. Flow (perm)	0	1796	0	0	1798	0	0	1778	0	0	1765	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	276	85	87	372	115	116	137	66	72	198	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	461	0	0	574	0	0	319	0	0	399	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	461	574	319	399
Demand Flow Rate, veh/h	471	585	325	407
Vehicles Circulating, veh/h	364	360	457	586
Vehicles Exiting, veh/h	629	422	378	359
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.1	12.8	8.6	13.0
Approach LOS	B	B	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	471	585	325	407
Cap Entry Lane, veh/h	952	956	866	759
Entry HV Adj Factor	0.980	0.980	0.982	0.980
Flow Entry, veh/h	461	574	319	399
Cap Entry, veh/h	933	937	850	744
V/C Ratio	0.495	0.612	0.375	0.536
Control Delay, s/veh	10.1	12.8	8.6	13.0
LOS	B	B	A	B
95th %tile Queue, veh	3	4	2	3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	434	65	50	543	37	22
Future Volume (vph)	434	65	50	543	37	22
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.949	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	1829	0	1630	1863	1579	0
Flt Permitted			0.950		0.970	
Satd. Flow (perm)	1829	0	1630	1863	1579	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	472	71	54	590	40	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	543	0	54	590	64	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

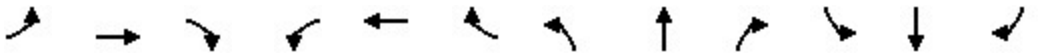
Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	434	65	50	543	37	22
Future Vol, veh/h	434	65	50	543	37	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	472	71	54	590	40	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	542	0	1206	507
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	699	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1026	-	203	566
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	493	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1026	-	192	566
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.73	23.82
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	255	-	-	1026	-
HCM Lane V/C Ratio	0.252	-	-	0.053	-
HCM Control Delay (s/veh)	23.8	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.2	-

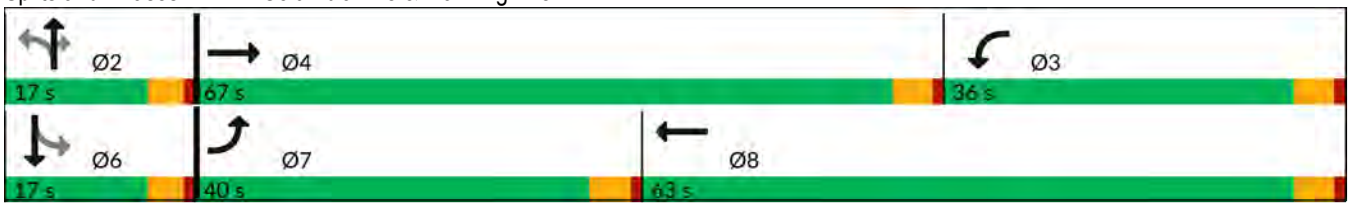


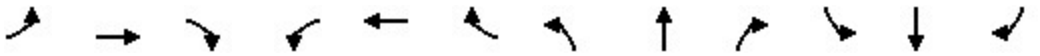
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	345	27	234	494	26	26	27	174	21	76	48
Future Volume (vph)	19	345	27	234	494	26	26	27	174	21	76	48
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.993				0.850		0.956	
Flt Protected	0.950			0.950				0.976			0.993	
Satd. Flow (prot)	1630	3491	0	1630	1846	0	0	1818	1458	0	1754	0
Flt Permitted	0.950			0.950				0.853			0.956	
Satd. Flow (perm)	1630	3491	0	1630	1846	0	0	1589	1458	0	1689	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			3				189		17	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	375	29	254	537	28	28	29	189	23	83	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	404	0	254	565	0	0	57	189	0	158	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	40.0	67.0		36.0	63.0		17.0	17.0	17.0	17.0	17.0	
Total Split (%)	33.3%	55.8%		30.0%	52.5%		14.2%	14.2%	14.2%	14.2%	14.2%	
Maximum Green (s)	35.4	62.4		31.4	58.4		12.8	12.8	12.8	12.8	12.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.3	13.5		14.9	30.8			12.4	12.4		12.4	
Actuated g/C Ratio	0.14	0.25		0.28	0.58			0.23	0.23		0.23	
v/c Ratio	0.09	0.46		0.56	0.53			0.15	0.39		0.39	
Control Delay (s/veh)	26.9	19.8		23.1	11.1			19.8	6.6		20.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	26.9	19.8		23.1	11.1			19.8	6.6		20.7	
LOS	C	B		C	B			B	A		C	
Approach Delay (s/veh)		20.1			14.8			9.7			20.7	
Approach LOS		C			B			A			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 53.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay (s/veh): 16.0		Intersection LOS: B	
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	345	27	234	494	26	26	27	174	21	76	48
Future Volume (veh/h)	19	345	27	234	494	26	26	27	174	21	76	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	21	375	29	254	537	28	28	29	189	23	83	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	766	59	366	729	38	266	215	288	148	194	109
Arrive On Green	0.04	0.23	0.21	0.22	0.41	0.40	0.20	0.20	0.20	0.20	0.20	0.19
Sat Flow, veh/h	1641	3334	256	1641	1759	92	556	1089	1460	141	980	550
Grp Volume(v), veh/h	21	199	205	254	0	565	57	0	189	158	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1813	1641	0	1851	1645	0	1460	1671	0	0
Q Serve(g_s), s	0.4	3.3	3.4	4.9	0.0	8.8	0.0	0.0	4.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	3.3	3.4	4.9	0.0	8.8	0.9	0.0	4.1	2.7	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.05	0.49		1.00	0.15		0.33
Lane Grp Cap(c), veh/h	63	408	417	366	0	767	481	0	288	450	0	0
V/C Ratio(X)	0.33	0.49	0.49	0.69	0.00	0.74	0.12	0.00	0.66	0.35	0.00	0.00
Avail Cap(c_a), veh/h	1721	3262	3329	1530	0	3182	754	0	553	743	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.1	11.5	11.5	12.3	0.0	8.5	11.4	0.0	12.7	12.2	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.9	0.9	2.4	0.0	1.4	0.1	0.0	2.5	0.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.9	1.3	0.0	1.6	0.2	0.0	1.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.1	12.4	12.4	14.6	0.0	9.9	11.5	0.0	15.2	12.6	0.0	0.0
LnGrp LOS	B	B	B	B		A	B		B	B		
Approach Vol, veh/h		425			819			246			158	
Approach Delay, s/veh		12.7			11.4			14.4			12.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.8	11.7	11.9		10.8	5.3	18.2				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		12.8	31.4	62.4		12.8	35.4	58.4				
Max Q Clear Time (g_c+I1), s		6.1	6.9	5.4		4.7	2.4	10.8				
Green Ext Time (p_c), s		0.5	0.9	1.4		0.3	0.0	2.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Notes

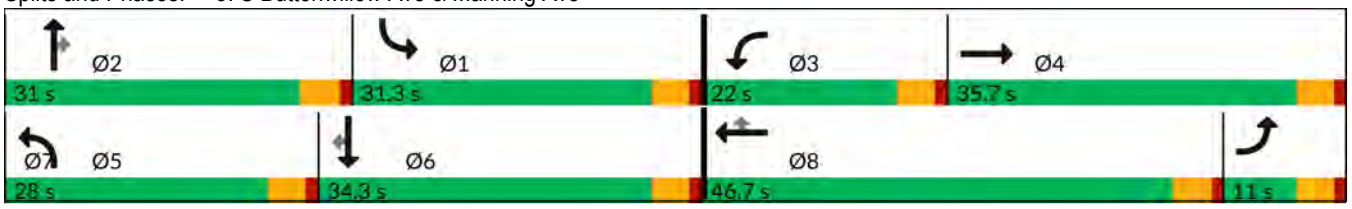
User approved pedestrian interval to be less than phase max green.

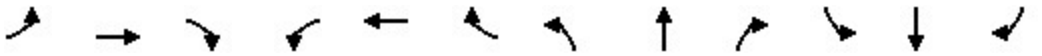
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	263	87	59	322	87	191	211	100	127	279	114
Future Volume (vph)	66	263	87	59	322	87	191	211	100	127	279	114
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.963				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3408	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3408	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36				95			136			136
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			1322			1321			4072	
Travel Time (s)		32.8			16.4			16.4			50.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	286	95	64	350	95	208	229	109	138	303	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	381	0	64	350	95	208	229	109	138	303	124
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	11.0	35.7		22.0	46.7	46.7	28.0	31.0	31.0	31.3	34.3	34.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	9.2%	29.8%		18.3%	38.9%	38.9%	23.3%	25.8%	25.8%	26.1%	28.6%	28.6%
Maximum Green (s)	6.5	31.2		17.5	42.2	42.2	23.5	26.5	26.5	26.8	29.8	29.8
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	9.4	19.1		9.2	16.3	16.3	16.5	27.4	27.4	19.5	30.5	30.5
Actuated g/C Ratio	0.10	0.21		0.10	0.18	0.18	0.18	0.30	0.30	0.21	0.33	0.33
v/c Ratio	0.43	0.51		0.39	0.55	0.28	0.71	0.22	0.20	0.40	0.49	0.21
Control Delay (s/veh)	49.9	32.8		49.0	37.8	9.4	50.3	27.7	4.4	36.1	30.7	5.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	49.9	32.8		49.0	37.8	9.4	50.3	27.7	4.4	36.1	30.7	5.6
LOS	D	C		D	D	A	D	C	A	D	C	A
Approach Delay (s/veh)		35.5			33.9			31.6			26.5	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 91.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 31.7		Intersection LOS: C	
Intersection Capacity Utilization 54.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	263	87	59	322	87	191	211	100	127	279	114
Future Volume (veh/h)	66	263	87	59	322	87	191	211	100	127	279	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	72	286	95	64	350	95	208	229	109	138	303	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	396	129	80	515	211	254	1273	523	327	753	588
Arrive On Green	0.05	0.15	0.15	0.05	0.14	0.14	0.15	0.36	0.36	0.20	0.40	0.40
Sat Flow, veh/h	1641	2635	857	1641	3554	1460	1641	3554	1460	1641	1870	1460
Grp Volume(v), veh/h	72	191	190	64	350	95	208	229	109	138	303	124
Grp Sat Flow(s),veh/h/ln	1641	1777	1716	1641	1777	1460	1641	1777	1460	1641	1870	1460
Q Serve(g_s), s	3.2	7.6	7.8	2.9	6.9	4.4	9.1	3.3	2.8	5.4	8.5	2.9
Cycle Q Clear(g_c), s	3.2	7.6	7.8	2.9	6.9	4.4	9.1	3.3	2.8	5.4	8.5	2.9
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	267	258	80	515	211	254	1273	523	327	753	588
V/C Ratio(X)	0.80	0.71	0.74	0.80	0.68	0.45	0.82	0.18	0.21	0.42	0.40	0.21
Avail Cap(c_a), veh/h	144	749	724	388	2027	833	521	1273	523	594	753	588
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	34.6	29.9	30.0	34.8	30.0	28.9	30.3	16.3	8.9	25.9	15.8	7.2
Incr Delay (d2), s/veh	15.2	3.5	4.1	16.0	1.6	1.5	6.5	0.3	0.9	0.9	1.6	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.1	3.2	1.4	2.7	1.5	3.6	1.2	1.2	2.0	3.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.8	33.5	34.1	50.8	31.6	30.4	36.7	16.6	9.8	26.8	17.4	8.0
LnGrp LOS	D	C	C	D	C	C	D	B	A	C	B	A
Approach Vol, veh/h		453			509			546			565	
Approach Delay, s/veh		36.3			33.8			22.9			17.6	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	31.0	8.1	15.6	15.9	34.3	8.5	15.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.8	26.5	17.5	31.2	23.5	29.8	6.5	42.2
Max Q Clear Time (g_c+I1), s	7.4	5.3	4.9	9.8	11.1	10.5	5.2	8.9
Green Ext Time (p_c), s	0.4	1.2	0.1	1.3	0.5	1.4	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	27.1
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	441	0	2	515	0	6
Future Volume (vph)	441	0	2	515	0	6
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1484	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1484	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1322			1305	869	
Travel Time (s)	16.4			16.2	10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	479	0	2	560	0	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	479	0	0	562	7	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.7%		ICU Level of Service A	
Analysis Period (min) 15			

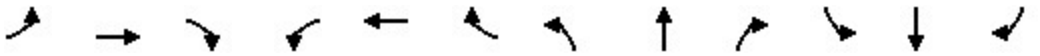
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	441	0	2	515	0	6
Future Vol, veh/h	441	0	2	515	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	479	0	2	560	0	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	1043	479
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	564	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1083	-	254	586
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	569	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1083	-	253	586
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	568	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.03	11.21
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	586	-	-	7	-
HCM Lane V/C Ratio	0.011	-	-	0.002	-
HCM Control Delay (s/veh)	11.2	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	17	17	0	26	18	486	4	10	409	11
Future Volume (vph)	14	0	17	17	0	26	18	486	4	10	409	11
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.926			0.918			0.999			0.997	
Flt Protected		0.978			0.981			0.998			0.999	
Satd. Flow (prot)	0	1687	0	0	1678	0	0	1857	0	0	1855	0
Flt Permitted		0.978			0.981			0.998			0.999	
Satd. Flow (perm)	0	1687	0	0	1678	0	0	1857	0	0	1855	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	18	18	0	28	20	528	4	11	445	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	46	0	0	552	0	0	468	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	17	17	0	26	18	486	4	10	409	11
Future Vol, veh/h	14	0	17	17	0	26	18	486	4	10	409	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	18	18	0	28	20	528	4	11	445	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1040	1044	451	1036	1048	530	457	0	0	533	0	0
Stage 1	472	472	-	570	570	-	-	-	-	-	-	-
Stage 2	567	572	-	466	478	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	208	229	609	210	228	549	1104	-	-	1035	-	-
Stage 1	572	559	-	507	506	-	-	-	-	-	-	-
Stage 2	508	504	-	577	555	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	190	220	609	195	219	549	1104	-	-	1035	-	-
Mov Cap-2 Maneuver	190	220	-	195	219	-	-	-	-	-	-	-
Stage 1	564	551	-	494	493	-	-	-	-	-	-	-
Stage 2	470	492	-	551	548	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	18.26	18.16	0.29	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	64	-	-	305	320	42	-	-
HCM Lane V/C Ratio	0.018	-	-	0.11	0.146	0.011	-	-
HCM Control Delay (s/veh)	8.3	0	-	18.3	18.2	8.5	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.5	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	228	259	47	30	152
Future Volume (vph)	86	228	259	47	30	152
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.887	
Flt Protected	0.987			0.959		
Satd. Flow (prot)	1527	0	0	1786	1652	0
Flt Permitted	0.987			0.959		
Satd. Flow (perm)	1527	0	0	1786	1652	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1920			1972	678	
Travel Time (s)	23.8			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	248	282	51	33	165
Shared Lane Traffic (%)						
Lane Group Flow (vph)	341	0	0	333	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	228	259	47	30	152
Future Vol, veh/h	86	228	259	47	30	152
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	248	282	51	33	165

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	729	115	198	0	-	0
Stage 1	115	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	390	937	1375	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	937	1375	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.59	7.02	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1336	-	601	-	-
HCM Lane V/C Ratio	0.205	-	0.568	-	-
HCM Control Delay (s/veh)	8.3	0	18.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.8	-	3.6	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	51	61	427	427	33
Future Volume (vph)	57	51	61	427	427	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.937				0.990	
Flt Protected	0.974			0.994		
Satd. Flow (prot)	1566	0	0	1852	1844	0
Flt Permitted	0.974			0.994		
Satd. Flow (perm)	1566	0	0	1852	1844	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	55	66	464	464	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	530	500	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

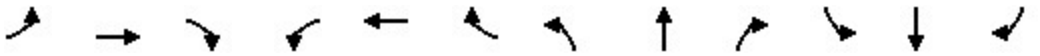
Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	51	61	427	427	33
Future Vol, veh/h	57	51	61	427	427	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	55	66	464	464	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1079	482	500	0	-	0
Stage 1	482	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	242	584	1064	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	222	584	1064	-	-	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	550	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	23.21	1.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	225	-	313	-	-
HCM Lane V/C Ratio	0.062	-	0.375	-	-
HCM Control Delay (s/veh)	8.6	0	23.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.7	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	254	78	80	342	107	107	132	61	67	209	138
Future Volume (vph)	100	254	78	80	342	107	107	132	61	67	209	138
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.973			0.973			0.955	
Flt Protected		0.989			0.992			0.982			0.992	
Satd. Flow (prot)	0	1798	0	0	1798	0	0	1780	0	0	1765	0
Flt Permitted		0.989			0.992			0.982			0.992	
Satd. Flow (perm)	0	1798	0	0	1798	0	0	1780	0	0	1765	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	276	85	87	372	116	116	143	66	73	227	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	470	0	0	575	0	0	325	0	0	450	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	470	575	325	450
Demand Flow Rate, veh/h	480	586	331	459
Vehicles Circulating, veh/h	395	375	467	586
Vehicles Exiting, veh/h	650	423	408	375
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.8	13.2	8.9	15.0
Approach LOS	B	B	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	480	586	331	459
Cap Entry Lane, veh/h	922	941	857	759
Entry HV Adj Factor	0.980	0.980	0.982	0.981
Flow Entry, veh/h	470	575	325	450
Cap Entry, veh/h	904	923	842	745
V/C Ratio	0.520	0.623	0.386	0.605
Control Delay, s/veh	10.8	13.2	8.9	15.0
LOS	B	B	A	B
95th %tile Queue, veh	3	4	2	4



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	15	0	1	43	0
Future Volume (vph)	1	15	0	1	43	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873					
Flt Protected					0.950	
Satd. Flow (prot)	1626	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1626	0	0	1863	1770	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	698			1920	515	
Travel Time (s)	8.7			23.8	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	16	0	1	47	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	1	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	15	0	1	43	0
Future Vol, veh/h	1	15	0	1	43	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	16	0	1	47	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	17	0	10	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1600	-	1010	1072
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	1022	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1600	-	1010	1072
Mov Cap-2 Maneuver	-	-	-	-	1010	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	1022	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	8.74
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1010	-	-	1600	-
HCM Lane V/C Ratio	0.046	-	-	-	-
HCM Control Delay (s/veh)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	685	105	71	878	41	22
Future Volume (vph)	685	105	71	878	41	22
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.953	
Flt Protected			0.950		0.968	
Satd. Flow (prot)	1829	0	1630	1863	1583	0
Flt Permitted			0.950		0.968	
Satd. Flow (perm)	1829	0	1630	1863	1583	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	745	114	77	954	45	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	859	0	77	954	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.6%		ICU Level of Service B	
Analysis Period (min) 15			

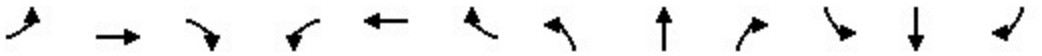
Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	685	105	71	878	41	22
Future Vol, veh/h	685	105	71	878	41	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	745	114	77	954	45	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	859	0	1910	802
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	1109	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	782	-	75	384
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	316	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	782	-	68	384
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	285	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.76	107.95
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	95	-	-	782	-
HCM Lane V/C Ratio	0.722	-	-	0.099	-
HCM Control Delay (s/veh)	108	-	-	10.1	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.7	-	-	0.3	-

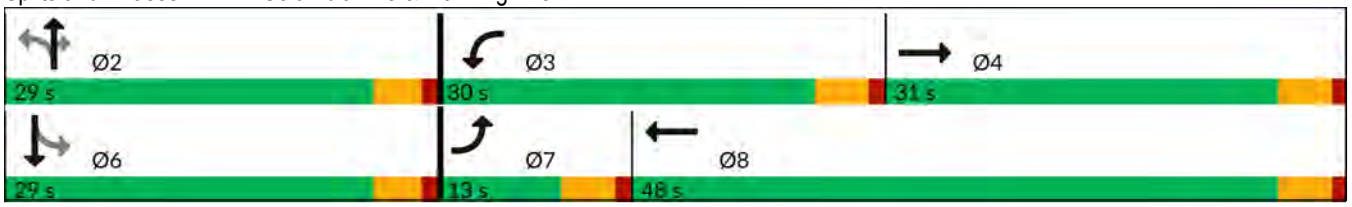


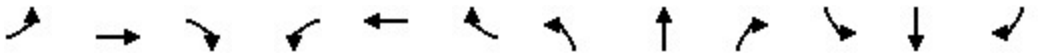
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	564	46	371	761	32	32	34	217	22	84	53
Future Volume (vph)	32	564	46	371	761	32	32	34	217	22	84	53
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.994				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.993	
Satd. Flow (prot)	1630	3491	0	1630	1849	0	0	1818	1458	0	1755	0
Flt Permitted	0.950			0.950				0.783			0.953	
Satd. Flow (perm)	1630	3491	0	1630	1849	0	0	1459	1458	0	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			3				236		28	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	613	50	403	827	35	35	37	236	24	91	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	663	0	403	862	0	0	72	236	0	173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	31.0		30.0	48.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	14.4%	34.4%		33.3%	53.3%		32.2%	32.2%	32.2%	32.2%	32.2%	
Maximum Green (s)	8.4	26.4		25.4	43.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.7	19.7		22.5	42.3			12.2	12.2		12.2	
Actuated g/C Ratio	0.11	0.29		0.34	0.63			0.18	0.18		0.18	
v/c Ratio	0.19	0.64		0.74	0.74			0.27	0.52		0.52	
Control Delay (s/veh)	34.8	24.4		31.8	17.1			28.8	8.6		28.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	34.8	24.4		31.8	17.1			28.8	8.6		28.8	
LOS	C	C		C	B			C	A		C	
Approach Delay (s/veh)		24.9			21.8			13.3			28.8	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 67.1			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 22.1		Intersection LOS: C	
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

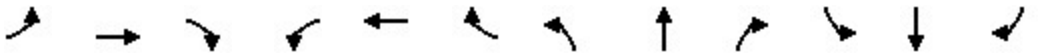




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	564	46	371	761	32	32	34	217	22	84	53
Future Volume (veh/h)	32	564	46	371	761	32	32	34	217	22	84	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	35	613	50	403	827	35	35	37	236	24	91	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	901	73	487	939	40	232	212	308	101	208	118
Arrive On Green	0.04	0.27	0.26	0.30	0.53	0.52	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1641	3318	270	1641	1779	75	632	1005	1460	123	988	560
Grp Volume(v), veh/h	35	328	335	403	0	862	72	0	236	173	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1811	1641	0	1854	1638	0	1460	1671	0	0
Q Serve(g_s), s	1.1	9.0	9.0	12.5	0.0	22.3	0.0	0.0	8.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	9.0	9.0	12.5	0.0	22.3	1.7	0.0	8.3	4.7	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.04	0.49		1.00	0.14		0.34
Lane Grp Cap(c), veh/h	68	483	492	487	0	978	444	0	308	428	0	0
V/C Ratio(X)	0.52	0.68	0.68	0.83	0.00	0.88	0.16	0.00	0.77	0.40	0.00	0.00
Avail Cap(c_a), veh/h	271	881	898	784	0	1499	815	0	670	826	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.6	17.7	17.8	17.8	0.0	11.4	17.6	0.0	20.2	18.8	0.0	0.0
Incr Delay (d2), s/veh	6.0	1.7	1.7	4.0	0.0	4.2	0.2	0.0	4.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.0	3.1	4.1	0.0	6.2	0.6	0.0	2.6	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.6	19.4	19.4	21.8	0.0	15.6	17.8	0.0	24.2	19.5	0.0	0.0
LnGrp LOS	C	B	B	C		B	B		C	B		
Approach Vol, veh/h		698			1265			308			173	
Approach Delay, s/veh		20.0			17.6			22.7			19.5	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	15.5	20.2	18.8	15.5	6.2	32.7
Change Period (Y+Rc), s	4.2	4.6	4.6	4.2	4.6	4.6
Max Green Setting (Gmax), s	24.8	25.4	26.4	24.8	8.4	43.4
Max Q Clear Time (g_c+I1), s	10.3	14.5	11.0	6.7	3.1	24.3
Green Ext Time (p_c), s	1.0	1.1	2.2	0.5	0.0	3.8

Intersection Summary	
HCM 7th Control Delay, s/veh	19.1
HCM 7th LOS	B

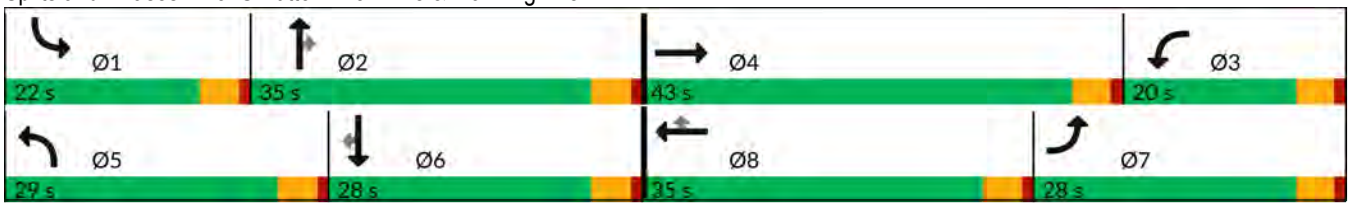


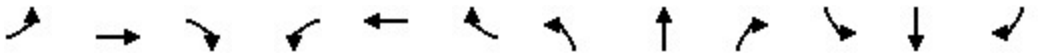
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	424	125	112	618	167	207	275	134	171	374	153
Future Volume (vph)	106	424	125	112	618	167	207	275	134	171	374	153
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.98			0.97			0.97
Frt		0.966				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3394	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3394	0	1630	3539	1430	1630	3539	1409	1630	1863	1408
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				177			146			177
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			965			1321			4072	
Travel Time (s)		32.8			12.0			16.4			50.5	
Confl. Peds. (#/hr)			5			5			5			5
Confl. Bikes (#/hr)			2			2			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	461	136	122	672	182	225	299	146	186	407	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	597	0	122	672	182	225	299	146	186	407	166
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	28.0	43.0		20.0	35.0	35.0	29.0	35.0	35.0	22.0	28.0	28.0
Total Split (%)	23.3%	35.8%		16.7%	29.2%	29.2%	24.2%	29.2%	29.2%	18.3%	23.3%	23.3%
Maximum Green (s)	23.5	38.5		15.5	30.5	30.5	24.5	30.5	30.5	17.5	23.5	23.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	12.8	23.0		14.8	25.0	25.0	18.8	32.0	32.0	15.6	28.8	28.8
Actuated g/C Ratio	0.12	0.22		0.14	0.24	0.24	0.18	0.31	0.31	0.15	0.28	0.28
v/c Ratio	0.57	0.77		0.53	0.79	0.38	0.76	0.27	0.27	0.76	0.79	0.32
Control Delay (s/veh)	56.4	43.2		51.8	44.8	8.1	58.7	30.0	6.7	64.7	50.0	6.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.4	43.2		51.8	44.8	8.1	58.7	30.0	6.7	64.7	50.0	6.6
LOS	E	D		D	D	A	E	C	A	E	D	A
Approach Delay (s/veh)		45.4			38.8			34.6			44.1	
Approach LOS		D			D			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 103.7			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 40.7		Intersection LOS: D	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	424	125	112	618	167	207	275	134	171	374	153
Future Volume (veh/h)	106	424	125	112	618	167	207	275	134	171	374	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	115	461	136	122	672	182	225	299	146	186	407	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	603	176	178	867	349	264	1191	475	220	578	437
Arrive On Green	0.09	0.22	0.22	0.11	0.24	0.24	0.16	0.34	0.34	0.13	0.31	0.31
Sat Flow, veh/h	1641	2687	786	1641	3554	1431	1641	3554	1417	1641	1870	1416
Grp Volume(v), veh/h	115	303	294	122	672	182	225	299	146	186	407	166
Grp Sat Flow(s),veh/h/ln	1641	1777	1696	1641	1777	1431	1641	1777	1417	1641	1870	1416
Q Serve(g_s), s	6.3	14.5	14.8	6.5	16.0	6.9	12.1	5.6	4.8	10.1	17.5	6.1
Cycle Q Clear(g_c), s	6.3	14.5	14.8	6.5	16.0	6.9	12.1	5.6	4.8	10.1	17.5	6.1
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	398	380	178	867	349	264	1191	475	220	578	437
V/C Ratio(X)	0.79	0.76	0.77	0.69	0.77	0.52	0.85	0.25	0.31	0.84	0.70	0.38
Avail Cap(c_a), veh/h	424	752	718	280	1191	480	442	1191	475	316	578	437
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	40.6	33.0	33.1	39.1	32.1	14.2	37.1	21.9	10.6	38.4	27.8	13.1
Incr Delay (d2), s/veh	9.3	3.0	3.4	4.6	2.2	1.2	8.2	0.5	1.7	13.2	7.0	2.5
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	2.7	6.0	5.9	2.7	6.5	3.1	5.1	2.2	2.2	4.6	8.1	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.9	36.0	36.5	43.7	34.3	15.4	45.3	22.4	12.3	51.7	34.8	15.6
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	C	B
Approach Vol, veh/h		712			976			670			759	
Approach Delay, s/veh		38.5			31.9			27.9			34.7	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	35.0	14.4	24.9	19.1	32.6	12.6	26.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	30.5	15.5	38.5	24.5	23.5	23.5	30.5
Max Q Clear Time (g_c+I1), s	12.1	7.6	8.5	16.8	14.1	19.5	8.3	18.0
Green Ext Time (p_c), s	0.3	1.7	0.2	2.1	0.5	0.9	0.3	3.0

Intersection Summary	
HCM 7th Control Delay, s/veh	33.2
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	474	0	0	554	0	0
Future Volume (vph)	474	0	0	554	0	0
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1716	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1716	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	965			771	1109	
Travel Time (s)	12.0			9.6	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	515	0	0	602	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	515	0	0	602	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	474	0	0	554	0	0
Future Vol, veh/h	474	0	0	554	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	515	0	0	602	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	515	0	1117	515
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	602	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1050	-	229	560
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	547	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1050	-	229	560
Mov Cap-2 Maneuver	-	-	-	-	229	-
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	547	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1050	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	17	18	621	548	11
Future Volume (vph)	14	17	18	621	548	11
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.926				0.997	
Flt Protected	0.978			0.999		
Satd. Flow (prot)	1554	0	0	1861	1857	0
Flt Permitted	0.978			0.999		
Satd. Flow (perm)	1554	0	0	1861	1857	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			1310	1321	
Travel Time (s)	19.7			16.2	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	18	20	675	596	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	695	608	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	17	18	621	548	11
Future Vol, veh/h	14	17	18	621	548	11
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	18	20	675	596	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1316	602	608	0	-	0
Stage 1	602	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	174	500	971	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	500	971	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	20.58	0.25	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	51	-	265	-	-
HCM Lane V/C Ratio	0.02	-	0.127	-	-
HCM Control Delay (s/veh)	8.8	0	20.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	137	365	586	107	37	187
Future Volume (vph)	137	365	586	107	37	187
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.887	
Flt Protected	0.987			0.959		
Satd. Flow (prot)	1527	0	0	1786	1652	0
Flt Permitted	0.987			0.959		
Satd. Flow (perm)	1527	0	0	1786	1652	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1009			1972	678	
Travel Time (s)	12.5			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	397	637	116	40	203
Shared Lane Traffic (%)						
Lane Group Flow (vph)	546	0	0	753	243	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 94.2%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	313.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	137	365	586	107	37	187
Future Vol, veh/h	137	365	586	107	37	187
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	149	397	637	116	40	203

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1532	142	243	0	-	0
Stage 1	142	-	-	-	-	-
Stage 2	1390	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 128	906	1323	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 62	906	1323	-	-	-
Mov Cap-2 Maneuver	~ 62	-	-	-	-	-
Stage 1	429	-	-	-	-	-
Stage 2	231	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	$873.88	8.64	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1237	-	193	-	-
HCM Lane V/C Ratio	0.482	-	2.827	-	-
HCM Control Delay (s/veh)	10.2	0	$ 873.9	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	2.7	-	48.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	52	62	550	523	34
Future Volume (vph)	58	52	62	550	523	34
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.936				0.992	
Flt Protected	0.974			0.995		
Satd. Flow (prot)	1564	0	0	1853	1848	0
Flt Permitted	0.974			0.995		
Satd. Flow (perm)	1564	0	0	1853	1848	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	57	67	598	568	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	0	0	665	605	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

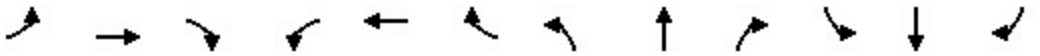
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	52	62	550	523	34
Future Vol, veh/h	58	52	62	550	523	34
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	57	67	598	568	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1320	587	605	0	-	0
Stage 1	587	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	510	973	-	-	-
Stage 1	556	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	510	973	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	36.14	0.91	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	182	-	231	-	-
HCM Lane V/C Ratio	0.069	-	0.517	-	-
HCM Control Delay (s/veh)	9	0	36.1	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.2	-	2.7	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	274	84	86	369	114	144	169	82	89	245	160
Future Volume (vph)	99	274	84	86	369	114	144	169	82	89	245	160
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.973			0.972			0.956	
Flt Protected		0.989			0.993			0.982			0.991	
Satd. Flow (prot)	0	1796	0	0	1800	0	0	1778	0	0	1765	0
Flt Permitted		0.989			0.993			0.982			0.991	
Satd. Flow (perm)	0	1796	0	0	1800	0	0	1778	0	0	1765	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	298	91	93	401	124	157	184	89	97	266	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	497	0	0	618	0	0	430	0	0	537	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 85.3%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	497	618	430	537
Demand Flow Rate, veh/h	507	630	439	547
Vehicles Circulating, veh/h	465	458	513	664
Vehicles Exiting, veh/h	746	494	459	424
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.2	18.4	12.3	25.1
Approach LOS	B	C	B	D

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	507	630	439	547
Cap Entry Lane, veh/h	859	865	818	701
Entry HV Adj Factor	0.980	0.981	0.980	0.981
Flow Entry, veh/h	497	618	430	537
Cap Entry, veh/h	842	848	802	688
V/C Ratio	0.590	0.728	0.537	0.780
Control Delay, s/veh	13.2	18.4	12.3	25.1
LOS	B	C	B	D
95th %tile Queue, veh	4	7	3	8



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	690	105	78	894	41	24
Future Volume (vph)	690	105	78	894	41	24
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.951	
Flt Protected			0.950		0.969	
Satd. Flow (prot)	1829	0	1630	1863	1581	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	1829	0	1630	1863	1581	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	114	85	972	45	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	864	0	85	972	71	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

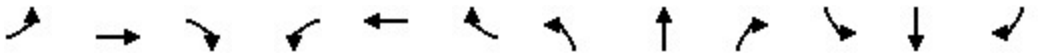
Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	690	105	78	894	41	24
Future Vol, veh/h	690	105	78	894	41	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	750	114	85	972	45	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	864	0	1948	807
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	1141	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	779	-	71	381
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	305	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	779	-	63	381
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	271	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.82	121.22
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	91	-	-	779	-
HCM Lane V/C Ratio	0.774	-	-	0.109	-
HCM Control Delay (s/veh)	121.2	-	-	10.2	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	4	-	-	0.4	-

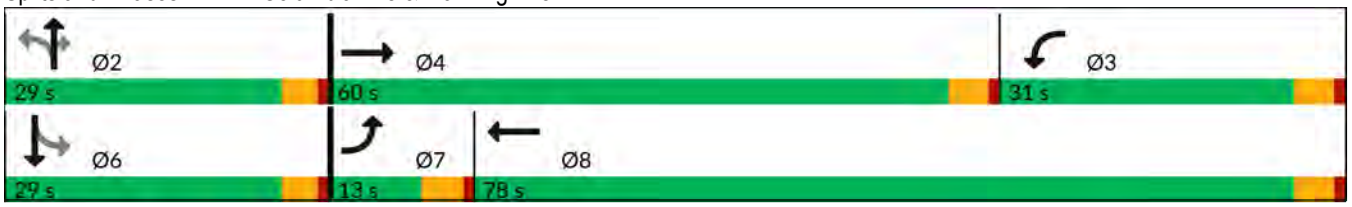


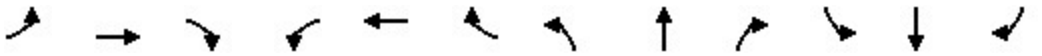
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	571	46	375	784	36	32	34	218	23	84	53
Future Volume (vph)	32	571	46	375	784	36	32	34	218	23	84	53
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.993				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.993	
Satd. Flow (prot)	1630	3490	0	1630	1847	0	0	1818	1458	0	1753	0
Flt Permitted	0.950			0.950				0.728			0.951	
Satd. Flow (perm)	1630	3490	0	1630	1847	0	0	1356	1458	0	1679	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			4				237		19	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	621	50	408	852	39	35	37	237	25	91	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	671	0	408	891	0	0	72	237	0	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	60.0		31.0	78.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	10.8%	50.0%		25.8%	65.0%		24.2%	24.2%	24.2%	24.2%	24.2%	
Maximum Green (s)	8.4	55.4		26.4	73.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.9	23.3		33.3	54.2			13.9	13.9		13.9	
Actuated g/C Ratio	0.09	0.28		0.40	0.65			0.17	0.17		0.17	
v/c Ratio	0.23	0.68		0.63	0.74			0.32	0.54		0.59	
Control Delay (s/veh)	46.2	31.0		27.3	16.9			38.5	10.2		39.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	46.2	31.0		27.3	16.9			38.5	10.2		39.8	
LOS	D	C		C	B			D	B		D	
Approach Delay (s/veh)		31.7			20.2			16.8			39.8	
Approach LOS		C			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 83.2			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 24.4		Intersection LOS: C	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	571	46	375	784	36	32	34	218	23	84	53
Future Volume (veh/h)	32	571	46	375	784	36	32	34	218	23	84	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	35	621	50	408	852	39	35	37	237	25	91	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	871	70	529	965	44	226	208	304	98	205	116
Arrive On Green	0.04	0.26	0.25	0.32	0.54	0.53	0.21	0.21	0.21	0.21	0.21	0.20
Sat Flow, veh/h	1641	3322	267	1641	1772	81	641	999	1460	129	982	556
Grp Volume(v), veh/h	35	332	339	408	0	891	72	0	237	174	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1812	1641	0	1853	1640	0	1460	1667	0	0
Q Serve(g_s), s	1.2	9.8	9.9	13.0	0.0	24.4	0.0	0.0	8.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.2	9.8	9.9	13.0	0.0	24.4	1.8	0.0	8.9	5.1	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.04	0.49		1.00	0.14		0.33
Lane Grp Cap(c), veh/h	66	466	475	529	0	1009	434	0	304	418	0	0
V/C Ratio(X)	0.53	0.71	0.71	0.77	0.00	0.88	0.17	0.00	0.78	0.42	0.00	0.00
Avail Cap(c_a), veh/h	255	1718	1751	765	0	2367	768	0	630	776	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.3	19.4	19.4	17.7	0.0	11.6	18.9	0.0	21.7	20.2	0.0	0.0
Incr Delay (d2), s/veh	6.5	2.0	2.0	3.0	0.0	2.8	0.2	0.0	4.3	0.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.5	3.6	4.2	0.0	6.5	0.7	0.0	2.8	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	33.8	21.4	21.5	20.7	0.0	14.4	19.1	0.0	26.0	20.8	0.0	0.0
LnGrp LOS	C	C	C	C		B	B		C	C		
Approach Vol, veh/h		706			1299			309			174	
Approach Delay, s/veh		22.0			16.4			24.4			20.8	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	16.1	22.7	19.2	16.1	6.3	35.5
Change Period (Y+Rc), s	4.2	4.6	4.6	4.2	4.6	4.6
Max Green Setting (Gmax), s	24.8	26.4	55.4	24.8	8.4	73.4
Max Q Clear Time (g_c+I1), s	10.9	15.0	11.9	7.1	3.2	26.4
Green Ext Time (p_c), s	1.0	1.2	2.5	0.5	0.0	4.5

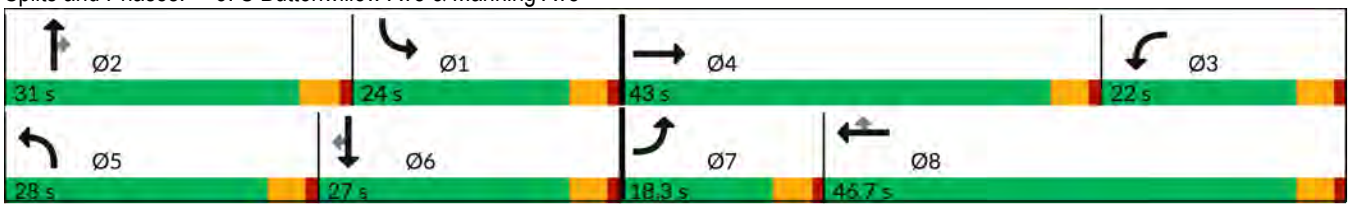
Intersection Summary	
HCM 7th Control Delay, s/veh	19.3
HCM 7th LOS	B

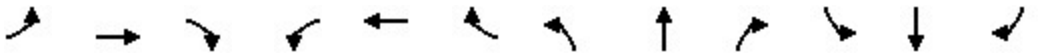
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	424	134	113	618	167	244	282	135	171	375	153
Future Volume (vph)	106	424	134	113	618	167	244	282	135	171	375	153
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.964				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3412	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3412	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37				128			147			136
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			1322			1321			4072	
Travel Time (s)		32.8			16.4			16.4			50.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	461	146	123	672	182	265	307	147	186	408	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	607	0	123	672	182	265	307	147	186	408	166
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	18.3	43.0		22.0	46.7	46.7	28.0	31.0	31.0	24.0	27.0	27.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	15.3%	35.8%		18.3%	38.9%	38.9%	23.3%	25.8%	25.8%	20.0%	22.5%	22.5%
Maximum Green (s)	13.8	38.5		17.5	42.2	42.2	23.5	26.5	26.5	19.5	22.5	22.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	11.6	22.9		14.6	25.9	25.9	20.7	27.2	27.2	20.7	27.2	27.2
Actuated g/C Ratio	0.11	0.22		0.14	0.25	0.25	0.20	0.26	0.26	0.20	0.26	0.26
v/c Ratio	0.64	0.78		0.54	0.76	0.40	0.82	0.33	0.30	0.57	0.84	0.34
Control Delay (s/veh)	62.5	43.4		52.5	42.4	13.7	61.3	34.4	7.7	46.7	54.9	11.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.5	43.4		52.5	42.4	13.7	61.3	34.4	7.7	46.7	54.9	11.7
LOS	E	D		D	D	B	E	C	A	D	D	B
Approach Delay (s/veh)		46.5			38.3			38.9			43.5	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 103.7			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 41.5		Intersection LOS: D	
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	424	134	113	618	167	244	282	135	171	375	153
Future Volume (veh/h)	106	424	134	113	618	167	244	282	135	171	375	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	115	461	146	123	672	182	265	307	147	186	408	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	574	180	191	867	356	307	1119	460	229	500	390
Arrive On Green	0.09	0.22	0.22	0.12	0.24	0.24	0.19	0.31	0.31	0.14	0.27	0.27
Sat Flow, veh/h	1641	2661	836	1641	3554	1460	1641	3554	1460	1641	1870	1460
Grp Volume(v), veh/h	115	307	300	123	672	182	265	307	147	186	408	166
Grp Sat Flow(s),veh/h/ln	1641	1777	1720	1641	1777	1460	1641	1777	1460	1641	1870	1460
Q Serve(g_s), s	5.8	13.8	14.0	6.0	14.8	6.1	13.2	5.4	6.5	9.3	17.2	7.9
Cycle Q Clear(g_c), s	5.8	13.8	14.0	6.0	14.8	6.1	13.2	5.4	6.5	9.3	17.2	7.9
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	383	371	191	867	356	307	1119	460	229	500	390
V/C Ratio(X)	0.80	0.80	0.81	0.65	0.77	0.51	0.86	0.27	0.32	0.81	0.82	0.43
Avail Cap(c_a), veh/h	269	813	787	341	1782	732	458	1119	460	380	500	390
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	37.6	31.3	31.4	35.5	29.6	12.5	33.2	21.6	22.0	35.1	28.9	25.5
Incr Delay (d2), s/veh	9.7	3.9	4.3	3.6	1.5	1.1	10.8	0.6	1.8	6.9	13.7	3.4
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	2.5	5.7	5.6	2.4	5.8	2.8	5.7	2.1	2.2	3.8	8.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	47.3	35.2	35.6	39.1	31.2	13.6	44.0	22.2	23.8	42.0	42.5	28.8
LnGrp LOS	D	D	D	D	C	B	D	C	C	D	D	C
Approach Vol, veh/h		722			977			719			760	
Approach Delay, s/veh		37.3			28.9			30.5			39.4	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	31.0	14.3	22.6	20.2	27.0	11.9	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	26.5	17.5	38.5	23.5	22.5	13.8	42.2
Max Q Clear Time (g_c+I1), s	11.3	8.5	8.0	16.0	15.2	19.2	7.8	16.8
Green Ext Time (p_c), s	0.4	1.7	0.2	2.2	0.6	0.8	0.1	3.7

Intersection Summary	
HCM 7th Control Delay, s/veh	33.7
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	475	0	2	555	0	6
Future Volume (vph)	475	0	2	555	0	6
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1484	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1484	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1322			1305	869	
Travel Time (s)	16.4			16.2	10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	516	0	2	603	0	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	516	0	0	605	7	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.8%		ICU Level of Service A	
Analysis Period (min) 15			

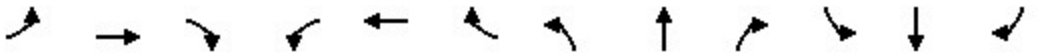
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	475	0	2	555	0	6
Future Vol, veh/h	475	0	2	555	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	516	0	2	603	0	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	516	0	1124	516
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	608	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1049	-	227	559
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	544	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	227	559
Mov Cap-2 Maneuver	-	-	-	-	227	-
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	542	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.03	11.52
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	559	-	-	6	-
HCM Lane V/C Ratio	0.012	-	-	0.002	-
HCM Control Delay (s/veh)	11.5	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	17	14	0	24	18	645	4	9	550	11
Future Volume (vph)	14	0	17	14	0	24	18	645	4	9	550	11
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.926			0.914			0.999			0.997	
Flt Protected		0.978			0.982			0.999			0.999	
Satd. Flow (prot)	0	1687	0	0	1672	0	0	1859	0	0	1855	0
Flt Permitted		0.978			0.982			0.999			0.999	
Satd. Flow (perm)	0	1687	0	0	1672	0	0	1859	0	0	1855	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	18	15	0	26	20	701	4	10	598	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	41	0	0	725	0	0	620	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	17	14	0	24	18	645	4	9	550	11
Future Vol, veh/h	14	0	17	14	0	24	18	645	4	9	550	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	18	15	0	26	20	701	4	10	598	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1364	1368	604	1360	1372	703	610	0	0	705	0	0
Stage 1	623	623	-	742	742	-	-	-	-	-	-	-
Stage 2	740	745	-	617	629	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	125	147	498	126	146	437	969	-	-	893	-	-
Stage 1	474	478	-	407	422	-	-	-	-	-	-	-
Stage 2	408	421	-	477	475	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	112	139	498	115	139	437	969	-	-	893	-	-
Mov Cap-2 Maneuver	112	139	-	115	139	-	-	-	-	-	-	-
Stage 1	466	470	-	394	408	-	-	-	-	-	-	-
Stage 2	371	407	-	452	467	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	27.37	25.66	0.24	0.14
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	49	-	-	194	215	28	-	-
HCM Lane V/C Ratio	0.02	-	-	0.173	0.192	0.011	-	-
HCM Control Delay (s/veh)	8.8	0	-	27.4	25.7	9.1	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.7	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	140	366	587	107	37	189
Future Volume (vph)	140	366	587	107	37	189
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.887	
Flt Protected	0.986			0.959		
Satd. Flow (prot)	1526	0	0	1786	1652	0
Flt Permitted	0.986			0.959		
Satd. Flow (perm)	1526	0	0	1786	1652	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1920			1972	678	
Travel Time (s)	23.8			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	398	638	116	40	205
Shared Lane Traffic (%)						
Lane Group Flow (vph)	550	0	0	754	245	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 94.6%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	326.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	366	587	107	37	189
Future Vol, veh/h	140	366	587	107	37	189
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	152	398	638	116	40	205

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1535	143	246	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	1392	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 128	905	1320	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 62	905	1320	-	-	-
Mov Cap-2 Maneuver	~ 62	-	-	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	230	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	$907.97	8.67	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1235	-	190	-	-
HCM Lane V/C Ratio	0.483	-	2.902	-	-
HCM Control Delay (s/veh)	10.2	0	$ 908	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	2.7	-	49.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	52	62	568	558	34
Future Volume (vph)	58	52	62	568	558	34
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.936				0.992	
Flt Protected	0.974			0.995		
Satd. Flow (prot)	1564	0	0	1853	1848	0
Flt Permitted	0.974			0.995		
Satd. Flow (perm)	1564	0	0	1853	1848	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	57	67	617	607	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	0	0	684	644	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

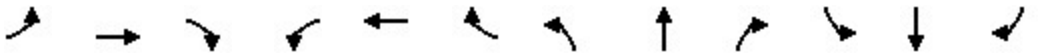
Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	52	62	568	558	34
Future Vol, veh/h	58	52	62	568	558	34
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	57	67	617	607	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1377	625	643	0	-	0
Stage 1	625	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	160	485	941	-	-	-
Stage 1	534	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	142	485	941	-	-	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	41.34	0.9	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	177	-	214	-	-
HCM Lane V/C Ratio	0.072	-	0.56	-	-
HCM Control Delay (s/veh)	9.1	0	41.3	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.2	-	3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	274	84	86	369	115	144	175	82	89	270	179
Future Volume (vph)	107	274	84	86	369	115	144	175	82	89	270	179
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.973			0.972			0.955	
Flt Protected		0.989			0.993			0.982			0.992	
Satd. Flow (prot)	0	1798	0	0	1800	0	0	1778	0	0	1765	0
Flt Permitted		0.989			0.993			0.982			0.992	
Satd. Flow (perm)	0	1798	0	0	1800	0	0	1778	0	0	1765	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	298	91	93	401	125	157	190	89	97	293	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	505	0	0	619	0	0	436	0	0	585	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 89.1%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	20.2
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	505	619	436	585
Demand Flow Rate, veh/h	515	632	445	597
Vehicles Circulating, veh/h	493	472	521	664
Vehicles Exiting, veh/h	768	494	487	440
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.3	19.3	12.6	32.0
Approach LOS	B	C	B	D

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	515	632	445	597
Cap Entry Lane, veh/h	835	853	811	701
Entry HV Adj Factor	0.981	0.979	0.980	0.980
Flow Entry, veh/h	505	619	436	585
Cap Entry, veh/h	818	835	795	687
V/C Ratio	0.617	0.741	0.549	0.852
Control Delay, s/veh	14.3	19.3	12.6	32.0
LOS	B	C	B	D
95th %tile Queue, veh	4	7	3	10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	12	3	1	38	3
Future Volume (vph)	1	12	3	1	38	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.875				0.991	
Flt Protected				0.964	0.955	
Satd. Flow (prot)	1630	0	0	1796	1763	0
Flt Permitted				0.964	0.955	
Satd. Flow (perm)	1630	0	0	1796	1763	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	698			1920	515	
Travel Time (s)	8.7			23.8	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	13	3	1	41	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	4	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	12	3	1	38	3
Future Vol, veh/h	1	12	3	1	38	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	13	3	1	41	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	14	0	15	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1604	-	1003	1075
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1604	-	1001	1075
Mov Cap-2 Maneuver	-	-	-	-	1001	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1013	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.44	8.74
HCM LOS			A

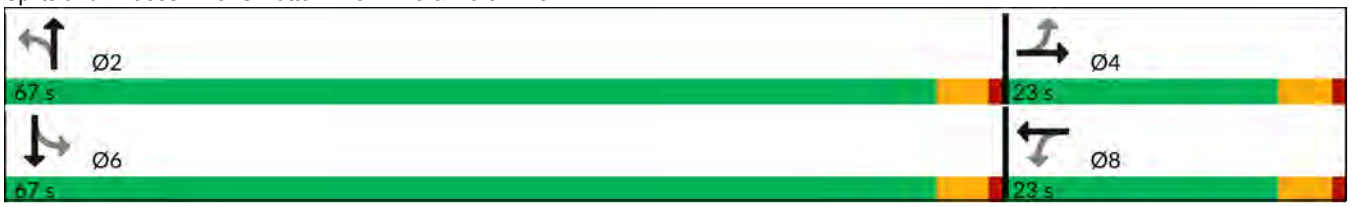
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1006	-	-	1350	-
HCM Lane V/C Ratio	0.044	-	-	0.002	-
HCM Control Delay (s/veh)	8.7	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

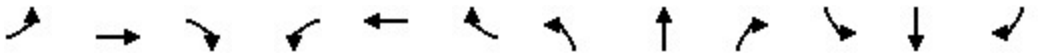
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	17	14	0	24	18	645	4	9	550	11
Future Volume (vph)	14	0	17	14	0	24	18	645	4	9	550	11
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.926			0.914			0.999			0.997	
Flt Protected		0.978			0.982			0.999			0.999	
Satd. Flow (prot)	0	1687	0	0	1672	0	0	1859	0	0	1855	0
Flt Permitted								0.982			0.990	
Satd. Flow (perm)	0	1725	0	0	1703	0	0	1827	0	0	1839	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			26			1			3	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	18	15	0	26	20	701	4	10	598	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	41	0	0	725	0	0	620	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	23.0	23.0		23.0	23.0		67.0	67.0		67.0	67.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		74.4%	74.4%		74.4%	74.4%	
Maximum Green (s)	18.5	18.5		18.5	18.5		62.5	62.5		62.5	62.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		6.5			6.5			33.9			33.9	
Actuated g/C Ratio		0.17			0.17			0.87			0.87	
v/c Ratio		0.11			0.13			0.46			0.39	
Control Delay (s/veh)		13.4			12.3			3.9			3.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		13.4			12.3			3.9			3.3	
LOS		B			B			A			A	
Approach Delay (s/veh)		13.4			12.3			3.9			3.3	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 39			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay (s/veh): 4.1		Intersection LOS: A	
Intersection Capacity Utilization 55.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: S Buttonwillow Ave & North Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	17	14	0	24	18	645	4	9	550	11
Future Volume (veh/h)	14	0	17	14	0	24	18	645	4	9	550	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	15	0	18	15	0	26	20	701	4	10	598	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	0	58	258	0	67	175	967	5	168	962	19
Arrive On Green	0.07	0.00	0.07	0.07	0.00	0.07	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	728	0	874	583	0	1011	19	1815	10	9	1805	36
Grp Volume(v), veh/h	33	0	0	41	0	0	725	0	0	620	0	0
Grp Sat Flow(s),veh/h/ln	1603	0	0	1595	0	0	1844	0	0	1850	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	0.5	0.0	0.0	6.6	0.0	0.0	5.2	0.0	0.0
Prop In Lane	0.45		0.55	0.37		0.63	0.03		0.01	0.02		0.02
Lane Grp Cap(c), veh/h	339	0	0	324	0	0	1147	0	0	1149	0	0
V/C Ratio(X)	0.10	0.00	0.00	0.13	0.00	0.00	0.63	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	1469	0	0	1471	0	0	5216	0	0	5253	0	0
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	10.0	0.0	0.0	4.0	0.0	0.0	3.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.1	0.0	0.0	10.2	0.0	0.0	4.6	0.0	0.0	4.1	0.0	0.0
LnGrp LOS	B			B			A			A		
Approach Vol, veh/h		33			41			725			620	
Approach Delay, s/veh		10.1			10.2			4.6			4.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.4		6.0		16.4		6.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		62.5		18.5		62.5		18.5				
Max Q Clear Time (g_c+I1), s		8.6		2.4		7.2		2.5				
Green Ext Time (p_c), s		3.3		0.0		2.6		0.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	4.6
HCM 7th LOS	A



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	458	39	20	481	40	28
Future Volume (vph)	458	39	20	481	40	28
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989				0.945	
Flt Protected			0.950		0.971	
Satd. Flow (prot)	1842	0	1630	1863	1574	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	1842	0	1630	1863	1574	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	498	42	22	523	43	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	0	22	523	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			

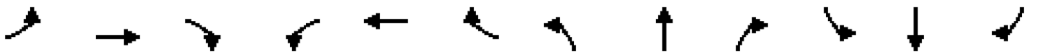
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	458	39	20	481	40	28
Future Vol, veh/h	458	39	20	481	40	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	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	498	42	22	523	43	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	540	0	1085	519
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	566	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1028	-	240	557
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1028	-	235	557
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	556	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.34	20.34
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	308	-	-	1028	-
HCM Lane V/C Ratio	0.24	-	-	0.021	-
HCM Control Delay (s/veh)	20.3	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

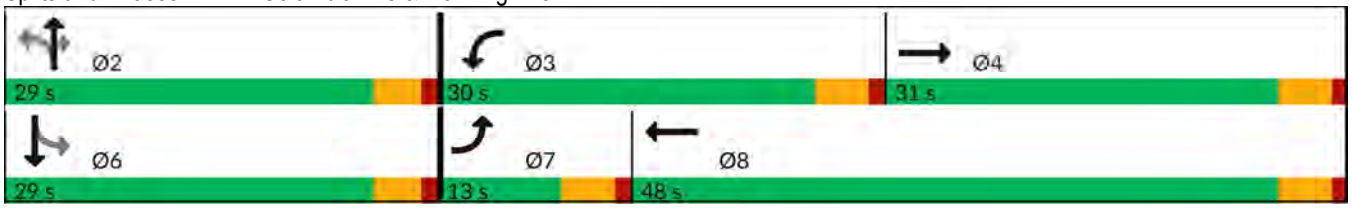


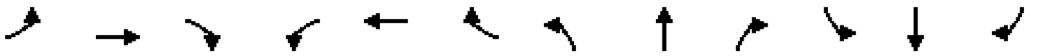
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	426	36	191	435	14	48	55	231	15	54	28
Future Volume (vph)	31	426	36	191	435	14	48	55	231	15	54	28
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.988			0.995				0.850		0.961	
Flt Protected	0.950			0.950				0.977			0.992	
Satd. Flow (prot)	1630	3487	0	1630	1851	0	0	1820	1458	0	1766	0
Flt Permitted	0.950			0.950				0.848			0.947	
Satd. Flow (perm)	1630	3487	0	1630	1851	0	0	1580	1458	0	1685	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2				251		22	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	463	39	208	473	15	52	60	251	16	59	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	502	0	208	488	0	0	112	251	0	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	31.0		30.0	48.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	14.4%	34.4%		33.3%	53.3%		32.2%	32.2%	32.2%	32.2%	32.2%	
Maximum Green (s)	8.4	26.4		25.4	43.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.5	13.7		13.0	26.8			10.6	10.6		10.6	
Actuated g/C Ratio	0.15	0.27		0.26	0.54			0.21	0.21		0.21	
v/c Ratio	0.14	0.52		0.49	0.49			0.34	0.50		0.28	
Control Delay (s/veh)	24.9	18.6		21.9	12.2			21.4	7.0		17.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	24.9	18.6		21.9	12.2			21.4	7.0		17.1	
LOS	C	B		C	B			C	A		B	
Approach Delay (s/veh)		19.0			15.1			11.5			17.1	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 49.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay (s/veh): 15.7		Intersection LOS: B	
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

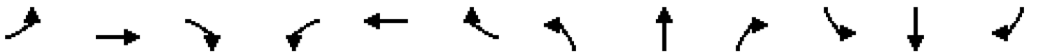




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	426	36	191	435	14	48	55	231	15	54	28
Future Volume (veh/h)	31	426	36	191	435	14	48	55	231	15	54	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	34	463	39	208	473	15	52	60	251	16	59	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	824	69	300	692	22	278	267	362	139	270	119
Arrive On Green	0.05	0.25	0.23	0.18	0.38	0.37	0.25	0.25	0.25	0.25	0.25	0.24
Sat Flow, veh/h	1641	3308	278	1641	1801	57	553	1076	1460	115	1089	482
Grp Volume(v), veh/h	34	248	254	208	0	488	112	0	251	105	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1809	1641	0	1858	1629	0	1460	1686	0	0
Q Serve(g_s), s	0.8	4.6	4.6	4.5	0.0	8.2	0.0	0.0	5.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	4.6	4.6	4.5	0.0	8.2	1.8	0.0	5.9	1.8	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.03	0.46		1.00	0.15		0.29
Lane Grp Cap(c), veh/h	78	443	451	300	0	714	545	0	362	529	0	0
V/C Ratio(X)	0.43	0.56	0.56	0.69	0.00	0.68	0.21	0.00	0.69	0.20	0.00	0.00
Avail Cap(c_a), veh/h	394	1279	1302	1137	0	2179	1195	0	973	1196	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	12.3	12.4	14.3	0.0	9.7	11.3	0.0	12.8	11.3	0.0	0.0
Incr Delay (d2), s/veh	3.7	1.1	1.1	2.9	0.0	1.2	0.2	0.0	2.4	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.2	1.3	1.3	0.0	1.8	0.5	0.0	1.4	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.1	13.4	13.5	17.2	0.0	10.8	11.5	0.0	15.2	11.5	0.0	0.0
LnGrp LOS	C	B	B	B		B	B		B	B		
Approach Vol, veh/h		536			696			363			105	
Approach Delay, s/veh		13.9			12.7			14.0			11.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.9	13.3		13.3	5.8	18.4				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		24.8	25.4	26.4		24.8	8.4	43.4				
Max Q Clear Time (g_c+I1), s		7.9	6.5	6.6		3.8	2.8	10.2				
Green Ext Time (p_c), s		1.2	0.6	1.7		0.3	0.0	1.8				

Intersection Summary		
HCM 7th Control Delay, s/veh		13.3
HCM 7th LOS		B

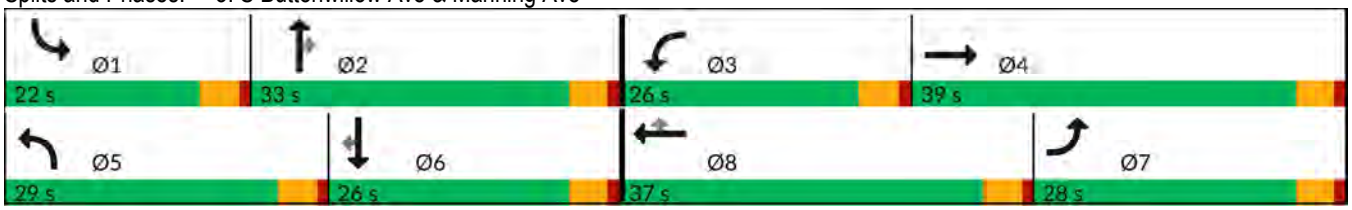


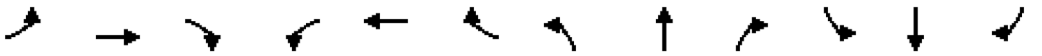
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	285	104	51	230	93	156	244	28	100	248	68
Future Volume (vph)	63	285	104	51	230	93	156	244	28	100	248	68
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.98			0.98			0.96
Frt		0.960				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3369	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3369	0	1630	3539	1430	1630	3539	1429	1630	1863	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43				136			136			177
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			661			1321			4072	
Travel Time (s)		32.8			8.2			16.4			50.5	
Confl. Peds. (#/hr)			5			5			5			5
Confl. Bikes (#/hr)			2			2			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	310	113	55	250	101	170	265	30	109	270	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	423	0	55	250	101	170	265	30	109	270	74
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	28.0	39.0		26.0	37.0	37.0	29.0	33.0	33.0	22.0	26.0	26.0
Total Split (%)	23.3%	32.5%		21.7%	30.8%	30.8%	24.2%	27.5%	27.5%	18.3%	21.7%	21.7%
Maximum Green (s)	23.5	34.5		21.5	32.5	32.5	24.5	28.5	28.5	17.5	21.5	21.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	11.0	16.7		8.6	14.3	14.3	14.3	34.4	34.4	11.3	28.1	28.1
Actuated g/C Ratio	0.13	0.20		0.10	0.17	0.17	0.17	0.41	0.41	0.14	0.34	0.34
v/c Ratio	0.32	0.60		0.33	0.41	0.28	0.61	0.18	0.04	0.50	0.43	0.13
Control Delay (s/veh)	41.7	31.7		45.5	34.3	4.4	44.5	21.7	0.1	45.6	29.3	0.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.7	31.7		45.5	34.3	4.4	44.5	21.7	0.1	45.6	29.3	0.4
LOS	D	C		D	C	A	D	C	A	D	C	A
Approach Delay (s/veh)		33.0			28.4			28.6			28.5	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 83.6			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay (s/veh): 29.7		Intersection LOS: C	
Intersection Capacity Utilization 63.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





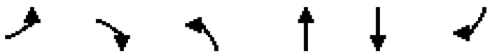
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	285	104	51	230	93	156	244	28	100	248	68
Future Volume (veh/h)	63	285	104	51	230	93	156	244	28	100	248	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	68	310	113	55	250	101	170	265	30	109	270	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	491	174	68	517	207	215	1482	599	140	694	526
Arrive On Green	0.09	0.19	0.19	0.04	0.15	0.15	0.13	0.42	0.42	0.09	0.37	0.37
Sat Flow, veh/h	1641	2541	904	1641	3554	1423	1641	3554	1436	1641	1870	1418
Grp Volume(v), veh/h	68	214	209	55	250	101	170	265	30	109	270	74
Grp Sat Flow(s),veh/h/ln	1641	1777	1667	1641	1777	1423	1641	1777	1436	1641	1870	1418
Q Serve(g_s), s	2.7	7.6	7.9	2.3	4.4	3.3	6.9	3.2	0.9	4.4	7.3	1.5
Cycle Q Clear(g_c), s	2.7	7.6	7.9	2.3	4.4	3.3	6.9	3.2	0.9	4.4	7.3	1.5
Prop In Lane	1.00		0.54	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	343	322	68	517	207	215	1482	599	140	694	526
V/C Ratio(X)	0.47	0.63	0.65	0.81	0.48	0.49	0.79	0.18	0.05	0.78	0.39	0.14
Avail Cap(c_a), veh/h	564	897	842	516	1690	677	588	1482	599	420	694	526
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	29.6	25.3	25.4	32.5	26.8	15.0	28.8	12.5	11.9	30.6	15.8	6.0
Incr Delay (d2), s/veh	2.3	1.9	2.2	19.6	0.7	1.8	6.4	0.3	0.2	9.1	1.6	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.9	2.9	1.2	1.7	1.4	2.7	1.1	0.2	1.9	2.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.9	27.2	27.6	52.1	27.5	16.7	35.2	12.8	12.0	39.7	17.4	6.6
LnGrp LOS	C	C	C	D	C	B	D	B	B	D	B	A
Approach Vol, veh/h		491			406			465			453	
Approach Delay, s/veh		28.0			28.2			21.0			21.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	33.0	7.3	17.7	13.4	29.9	10.6	14.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	28.5	21.5	34.5	24.5	21.5	23.5	32.5
Max Q Clear Time (g_c+I1), s	6.4	5.2	4.3	9.9	8.9	9.3	4.7	6.4
Green Ext Time (p_c), s	0.2	1.1	0.1	1.5	0.5	1.0	0.1	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	24.5
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	21	31	416	406	14
Future Volume (vph)	4	21	31	416	406	14
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.885				0.996	
Flt Protected	0.993			0.997		
Satd. Flow (prot)	1508	0	0	1857	1855	0
Flt Permitted	0.993			0.997		
Satd. Flow (perm)	1508	0	0	1857	1855	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			1310	1321	
Travel Time (s)	19.7			16.2	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	23	34	452	441	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	486	456	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			

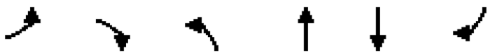
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	21	31	416	406	14
Future Vol, veh/h	4	21	31	416	406	14
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	23	34	452	441	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	968	449	457	0	-	0
Stage 1	449	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	281	610	1104	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	270	610	1104	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	617	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.49	0.58	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	125	-	508	-	-
HCM Lane V/C Ratio	0.031	-	0.054	-	-
HCM Control Delay (s/veh)	8.4	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	33	48	35	21	41	34
Future Volume (vph)	33	48	35	21	41	34
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.939	
Flt Protected	0.980			0.970		
Satd. Flow (prot)	1547	0	0	1807	1749	0
Flt Permitted	0.980			0.970		
Satd. Flow (perm)	1547	0	0	1807	1749	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1009			1972	678	
Travel Time (s)	12.5			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	52	38	23	45	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	0	61	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.6%		ICU Level of Service A	
Analysis Period (min) 15			

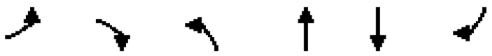
Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	48	35	21	41	34
Future Vol, veh/h	33	48	35	21	41	34
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	52	38	23	45	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	162	63	82	0	-	0
Stage 1	63	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	829	1002	1516	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	808	1002	1516	-	-	-
Mov Cap-2 Maneuver	808	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	925	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.37	4.65	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1125	-	912	-	-
HCM Lane V/C Ratio	0.025	-	0.096	-	-
HCM Control Delay (s/veh)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	44	40	422	382	33
Future Volume (vph)	38	44	40	422	382	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.927				0.989	
Flt Protected	0.977			0.996		
Satd. Flow (prot)	1554	0	0	1855	1842	0
Flt Permitted	0.977			0.996		
Satd. Flow (perm)	1554	0	0	1855	1842	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	48	43	459	415	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	502	451	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	44	40	422	382	33
Future Vol, veh/h	38	44	40	422	382	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	48	43	459	415	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	979	433	451	0	-	0
Stage 1	433	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	277	623	1109	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	263	623	1109	-	-	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.31	0.73	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	156	-	381	-	-
HCM Lane V/C Ratio	0.039	-	0.234	-	-
HCM Control Delay (s/veh)	8.4	0	17.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	298	148	63	259	116	108	229	54	76	165	85
Future Volume (vph)	121	298	148	63	259	116	108	229	54	76	165	85
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.964			0.981			0.965	
Flt Protected		0.989			0.993			0.986			0.988	
Satd. Flow (prot)	0	1778	0	0	1783	0	0	1802	0	0	1776	0
Flt Permitted		0.989			0.993			0.986			0.988	
Satd. Flow (perm)	0	1778	0	0	1783	0	0	1802	0	0	1776	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	324	161	68	282	126	117	249	59	83	179	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	617	0	0	476	0	0	425	0	0	354	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	617	476	425	354
Demand Flow Rate, veh/h	629	486	433	362
Vehicles Circulating, veh/h	337	508	550	476
Vehicles Exiting, veh/h	501	475	416	518
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.5	13.7	12.9	9.6
Approach LOS	B	B	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	629	486	433	362
Cap Entry Lane, veh/h	979	822	787	849
Entry HV Adj Factor	0.980	0.980	0.982	0.979
Flow Entry, veh/h	617	476	425	354
Cap Entry, veh/h	959	806	773	831
V/C Ratio	0.643	0.591	0.550	0.426
Control Delay, s/veh	13.5	13.7	12.9	9.6
LOS	B	B	B	A
95th %tile Queue, veh	5	4	3	2



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	472	39	25	492	40	35
Future Volume (vph)	472	39	25	492	40	35
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.937	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	1844	0	1630	1863	1566	0
Flt Permitted			0.950		0.974	
Satd. Flow (perm)	1844	0	1630	1863	1566	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	513	42	27	535	43	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	555	0	27	535	81	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

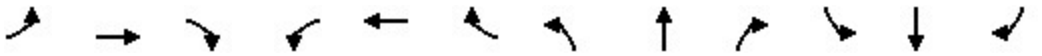
Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	39	25	492	40	35
Future Vol, veh/h	472	39	25	492	40	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	513	42	27	535	43	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	555	0	1123	534
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	589	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1015	-	227	546
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	554	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1015	-	221	546
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.42	20.96
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	306	-	-	1015	-
HCM Lane V/C Ratio	0.266	-	-	0.027	-
HCM Control Delay (s/veh)	21	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.1	-

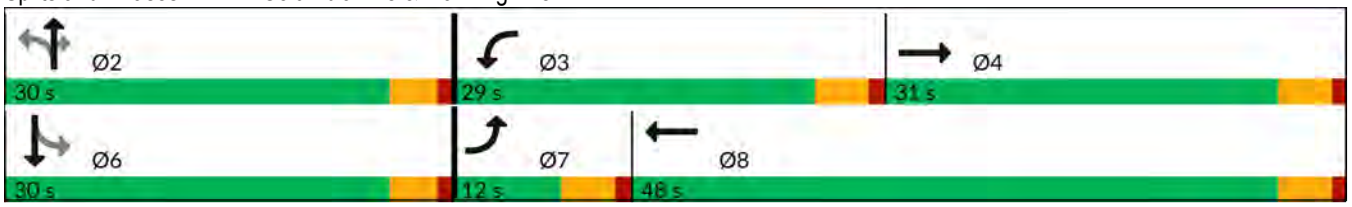


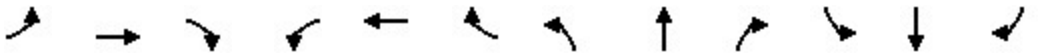
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	447	36	194	451	17	48	55	236	17	54	28
Future Volume (vph)	31	447	36	194	451	17	48	55	236	17	54	28
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.995				0.850		0.962	
Flt Protected	0.950			0.950				0.977			0.992	
Satd. Flow (prot)	1630	3491	0	1630	1851	0	0	1820	1458	0	1768	0
Flt Permitted	0.950			0.950				0.854			0.941	
Satd. Flow (perm)	1630	3491	0	1630	1851	0	0	1591	1458	0	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3				257		22	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	486	39	211	490	18	52	60	257	18	59	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	525	0	211	508	0	0	112	257	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	12.0	31.0		29.0	48.0		30.0	30.0	30.0	30.0	30.0	
Total Split (%)	13.3%	34.4%		32.2%	53.3%		33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	7.4	26.4		24.4	43.4		25.8	25.8	25.8	25.8	25.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.5	14.3		13.2	27.9			10.6	10.6		10.6	
Actuated g/C Ratio	0.15	0.28		0.26	0.55			0.21	0.21		0.21	
v/c Ratio	0.14	0.53		0.50	0.50			0.34	0.51		0.29	
Control Delay (s/veh)	26.2	18.7		22.5	11.9			22.1	7.2		17.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	26.2	18.7		22.5	11.9			22.1	7.2		17.9	
LOS	C	B		C	B			C	A		B	
Approach Delay (s/veh)		19.2			15.0			11.7			17.9	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay (s/veh): 15.8		Intersection LOS: B	
Intersection Capacity Utilization 51.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	447	36	194	451	17	48	55	236	17	54	28
Future Volume (veh/h)	31	447	36	194	451	17	48	55	236	17	54	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	34	486	39	211	490	18	52	60	257	18	59	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	842	67	302	699	26	277	268	366	142	270	118
Arrive On Green	0.05	0.25	0.24	0.18	0.39	0.37	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1641	3323	266	1641	1790	66	558	1069	1460	129	1078	470
Grp Volume(v), veh/h	34	259	266	211	0	508	112	0	257	107	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1812	1641	0	1856	1627	0	1460	1677	0	0
Q Serve(g_s), s	0.8	4.9	5.0	4.6	0.0	8.8	0.0	0.0	6.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	4.9	5.0	4.6	0.0	8.8	1.8	0.0	6.2	1.9	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.04	0.46		1.00	0.17		0.28
Lane Grp Cap(c), veh/h	78	450	459	302	0	725	545	0	366	530	0	0
V/C Ratio(X)	0.44	0.58	0.58	0.70	0.00	0.70	0.21	0.00	0.70	0.20	0.00	0.00
Avail Cap(c_a), veh/h	341	1246	1270	1065	0	2121	1205	0	986	1199	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	12.6	12.6	14.7	0.0	9.9	11.5	0.0	13.1	11.5	0.0	0.0
Incr Delay (d2), s/veh	3.9	1.2	1.2	2.9	0.0	1.2	0.2	0.0	2.5	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.3	1.4	1.4	0.0	2.0	0.5	0.0	1.5	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.7	13.7	13.8	17.6	0.0	11.1	11.7	0.0	15.6	11.7	0.0	0.0
LnGrp LOS	C	B	B	B		B	B		B	B		
Approach Vol, veh/h		559			719			369			107	
Approach Delay, s/veh		14.2			13.0			14.4			11.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	13.7	11.1	13.8	13.7	5.8	19.0
Change Period (Y+Rc), s	4.2	4.6	4.6	4.2	4.6	4.6
Max Green Setting (Gmax), s	25.8	24.4	26.4	25.8	7.4	43.4
Max Q Clear Time (g_c+I1), s	8.2	6.6	7.0	3.9	2.8	10.8
Green Ext Time (p_c), s	1.3	0.6	1.7	0.3	0.0	1.9

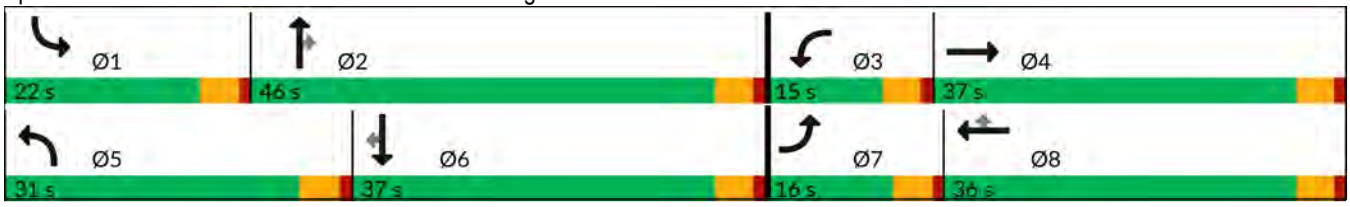
Intersection Summary	
HCM 7th Control Delay, s/veh	13.6
HCM 7th LOS	B

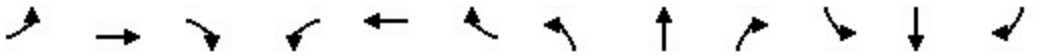
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	285	135	53	230	93	181	249	29	100	252	68
Future Volume (vph)	63	285	135	53	230	93	181	249	29	100	252	68
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.952				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3369	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3369	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				136			95			136
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			1322			1321			4072	
Travel Time (s)		32.8			16.4			16.4			50.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	310	147	58	250	101	197	271	32	109	274	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	457	0	58	250	101	197	271	32	109	274	74
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	16.0	37.0		15.0	36.0	36.0	31.0	46.0	46.0	22.0	37.0	37.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	13.3%	30.8%		12.5%	30.0%	30.0%	25.8%	38.3%	38.3%	18.3%	30.8%	30.8%
Maximum Green (s)	11.5	32.5		10.5	31.5	31.5	26.5	41.5	41.5	17.5	32.5	32.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	9.1	18.2		8.6	17.6	17.6	17.0	44.6	44.6	11.8	36.1	36.1
Actuated g/C Ratio	0.10	0.19		0.09	0.18	0.18	0.18	0.47	0.47	0.12	0.38	0.38
v/c Ratio	0.44	0.66		0.40	0.38	0.27	0.68	0.16	0.04	0.54	0.39	0.12
Control Delay (s/veh)	54.9	36.3		54.6	37.1	4.2	51.4	19.9	0.1	53.4	28.4	0.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.9	36.3		54.6	37.1	4.2	51.4	19.9	0.1	53.4	28.4	0.4
LOS	D	D		D	D	A	D	B	A	D	C	A
Approach Delay (s/veh)		38.7			31.5			31.0			29.8	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 95.6			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 33.0		Intersection LOS: C	
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	285	135	53	230	93	181	249	29	100	252	68
Future Volume (veh/h)	63	285	135	53	230	93	181	249	29	100	252	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	68	310	147	58	250	101	197	271	32	109	274	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	402	187	72	578	237	238	1738	714	138	801	625
Arrive On Green	0.05	0.17	0.17	0.04	0.16	0.16	0.15	0.49	0.49	0.08	0.43	0.43
Sat Flow, veh/h	1641	2357	1093	1641	3554	1460	1641	3554	1460	1641	1870	1460
Grp Volume(v), veh/h	68	232	225	58	250	101	197	271	32	109	274	74
Grp Sat Flow(s),veh/h/ln	1641	1777	1674	1641	1777	1460	1641	1777	1460	1641	1870	1460
Q Serve(g_s), s	3.5	10.6	10.9	3.0	5.4	5.3	9.9	3.6	1.0	5.5	8.3	2.6
Cycle Q Clear(g_c), s	3.5	10.6	10.9	3.0	5.4	5.3	9.9	3.6	1.0	5.5	8.3	2.6
Prop In Lane	1.00		0.65	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	86	303	286	72	578	237	238	1738	714	138	801	625
V/C Ratio(X)	0.79	0.76	0.79	0.80	0.43	0.43	0.83	0.16	0.04	0.79	0.34	0.12
Avail Cap(c_a), veh/h	222	681	641	203	1319	542	512	1738	714	338	801	625
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	39.8	33.6	33.7	40.2	32.0	32.0	35.2	12.0	11.3	38.1	16.3	14.6
Incr Delay (d2), s/veh	15.1	4.0	4.8	18.1	0.5	1.2	7.2	0.2	0.1	9.7	1.2	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	1.7	4.5	4.4	1.5	2.2	1.8	4.1	1.2	0.3	2.4	3.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.9	37.6	38.5	58.3	32.5	33.2	42.4	12.2	11.4	47.8	17.4	15.0
LnGrp LOS	D	D	D	E	C	C	D	B	B	D	B	B
Approach Vol, veh/h		525			409			500			457	
Approach Delay, s/veh		40.2			36.3			24.1			24.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	46.0	8.2	19.0	16.8	40.8	8.9	18.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	41.5	10.5	32.5	26.5	32.5	11.5	31.5
Max Q Clear Time (g_c+I1), s	7.5	5.6	5.0	12.9	11.9	10.3	5.5	7.4
Green Ext Time (p_c), s	0.2	1.2	0.0	1.5	0.5	1.2	0.1	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	31.3
HCM 7th LOS	C



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	414	0	7	376	0	4
Future Volume (vph)	414	0	7	376	0	4
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.999		
Satd. Flow (prot)	1863	0	0	1861	1484	0
Flt Permitted				0.999		
Satd. Flow (perm)	1863	0	0	1861	1484	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1322			1305	869	
Travel Time (s)	16.4			16.2	10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	450	0	8	409	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	450	0	0	417	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.4%		ICU Level of Service A	
Analysis Period (min) 15			

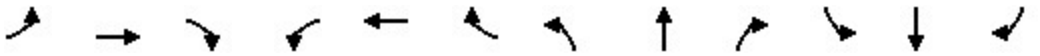
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	414	0	7	376	0	4
Future Vol, veh/h	414	0	7	376	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	450	0	8	409	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	450	0	874	450
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1110	-	320	609
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1110	-	317	609
Mov Cap-2 Maneuver	-	-	-	-	317	-
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.15	10.95
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	609	-	-	33	-
HCM Lane V/C Ratio	0.007	-	-	0.007	-
HCM Control Delay (s/veh)	11	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	21	10	0	18	31	440	11	29	414	14
Future Volume (vph)	4	0	21	10	0	18	31	440	11	29	414	14
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.885			0.913			0.997			0.996	
Flt Protected		0.993			0.983			0.997			0.997	
Satd. Flow (prot)	0	1637	0	0	1672	0	0	1852	0	0	1850	0
Flt Permitted		0.993			0.983			0.997			0.997	
Satd. Flow (perm)	0	1637	0	0	1672	0	0	1852	0	0	1850	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	0	23	11	0	20	34	478	12	32	450	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	31	0	0	524	0	0	497	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	21	10	0	18	31	440	11	29	414	14
Future Vol, veh/h	4	0	21	10	0	18	31	440	11	29	414	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	23	11	0	20	34	478	12	32	450	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1066	1078	458	1065	1080	484	465	0	0	490	0	0
Stage 1	521	521	-	552	552	-	-	-	-	-	-	-
Stage 2	546	558	-	513	528	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	200	219	603	200	218	583	1096	-	-	1073	-	-
Stage 1	539	532	-	518	515	-	-	-	-	-	-	-
Stage 2	522	512	-	544	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	201	603	177	201	583	1096	-	-	1073	-	-
Mov Cap-2 Maneuver	178	201	-	177	201	-	-	-	-	-	-	-
Stage 1	517	511	-	496	493	-	-	-	-	-	-	-
Stage 2	483	490	-	503	507	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	13.8	17.39	0.54	0.54
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	115	-	-	436	321	113	-	-
HCM Lane V/C Ratio	0.031	-	-	0.062	0.095	0.029	-	-
HCM Control Delay (s/veh)	8.4	0	-	13.8	17.4	8.5	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	49	37	21	41	37
Future Volume (vph)	37	49	37	21	41	37
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923				0.936	
Flt Protected	0.979			0.969		
Satd. Flow (prot)	1550	0	0	1805	1744	0
Flt Permitted	0.979			0.969		
Satd. Flow (perm)	1550	0	0	1805	1744	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1920			1972	678	
Travel Time (s)	23.8			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	53	40	23	45	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	0	63	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	49	37	21	41	37
Future Vol, veh/h	37	49	37	21	41	37
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	53	40	23	45	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	168	65	85	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	822	999	1512	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	800	999	1512	-	-	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.45	4.75	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1148	-	903	-	-
HCM Lane V/C Ratio	0.027	-	0.104	-	-
HCM Control Delay (s/veh)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	44	40	482	406	33
Future Volume (vph)	38	44	40	482	406	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.927				0.990	
Flt Protected	0.977			0.996		
Satd. Flow (prot)	1554	0	0	1855	1844	0
Flt Permitted	0.977			0.996		
Satd. Flow (perm)	1554	0	0	1855	1844	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	48	43	524	441	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	567	477	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

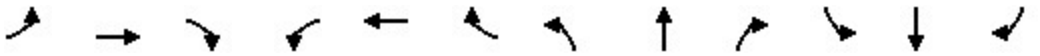
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	44	40	482	406	33
Future Vol, veh/h	38	44	40	482	406	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	48	43	524	441	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1070	459	477	0	-	0
Stage 1	459	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	245	602	1085	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	231	602	1085	-	-	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	600	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	19.03	0.65	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	138	-	345	-	-
HCM Lane V/C Ratio	0.04	-	0.258	-	-
HCM Control Delay (s/veh)	8.5	0	19	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	298	148	63	259	118	108	249	54	76	182	98
Future Volume (vph)	149	298	148	63	259	118	108	249	54	76	182	98
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.964			0.982			0.963	
Flt Protected		0.988			0.993			0.987			0.989	
Satd. Flow (prot)	0	1778	0	0	1783	0	0	1805	0	0	1774	0
Flt Permitted		0.988			0.993			0.987			0.989	
Satd. Flow (perm)	0	1778	0	0	1783	0	0	1805	0	0	1774	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	324	161	68	282	128	117	271	59	83	198	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	647	0	0	478	0	0	447	0	0	388	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 94.1%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	647	478	447	388
Demand Flow Rate, veh/h	659	488	455	396
Vehicles Circulating, veh/h	356	560	580	476
Vehicles Exiting, veh/h	516	475	435	572
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	15.2	15.4	14.6	10.4
Approach LOS	C	C	B	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	659	488	455	396
Cap Entry Lane, veh/h	960	779	764	849
Entry HV Adj Factor	0.981	0.980	0.982	0.980
Flow Entry, veh/h	647	478	447	388
Cap Entry, veh/h	942	764	750	832
V/C Ratio	0.687	0.626	0.596	0.466
Control Delay, s/veh	15.2	15.4	14.6	10.4
LOS	C	C	B	B
95th %tile Queue, veh	6	4	4	3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2	44	6	1	26	3
Future Volume (vph)	2	44	6	1	26	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.987	
Flt Protected				0.958	0.957	
Satd. Flow (prot)	1621	0	0	1785	1759	0
Flt Permitted				0.958	0.957	
Satd. Flow (perm)	1621	0	0	1785	1759	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	698			1920	515	
Travel Time (s)	8.7			23.8	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	48	7	1	28	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	0	8	31	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	44	6	1	26	3
Future Vol, veh/h	2	44	6	1	26	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	48	7	1	28	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	40	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1557	-	971	1050
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	1009	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1557	-	967	1050
Mov Cap-2 Maneuver	-	-	-	-	967	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	1004	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	6.28	8.81
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	975	-	-	1543	-
HCM Lane V/C Ratio	0.032	-	-	0.004	-
HCM Control Delay (s/veh)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	535	46	24	570	41	29
Future Volume (vph)	535	46	24	570	41	29
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989				0.944	
Flt Protected			0.950		0.972	
Satd. Flow (prot)	1842	0	1630	1863	1574	0
Flt Permitted			0.950		0.972	
Satd. Flow (perm)	1842	0	1630	1863	1574	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	582	50	26	620	45	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	632	0	26	620	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

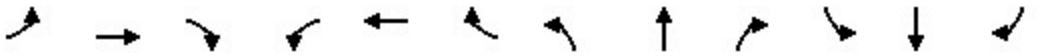
Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	535	46	24	570	41	29
Future Vol, veh/h	535	46	24	570	41	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	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	582	50	26	620	45	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	632	0	1278	607
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	672	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	951	-	183	497
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	508	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	951	-	178	497
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	494	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.36	26.45
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	243	-	-	951	-
HCM Lane V/C Ratio	0.313	-	-	0.027	-
HCM Control Delay (s/veh)	26.4	-	-	8.9	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

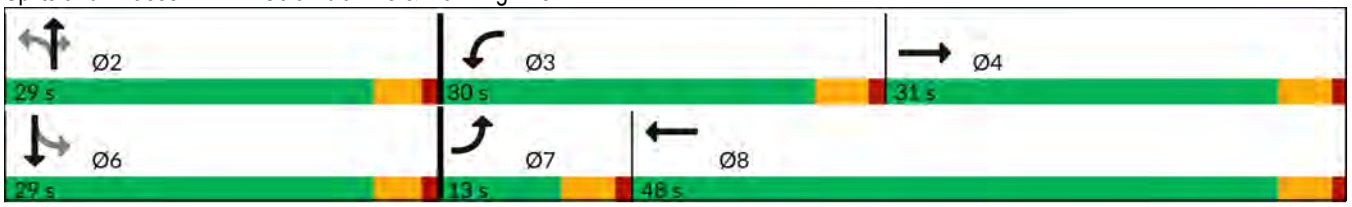


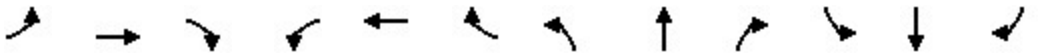
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	505	43	224	510	16	52	59	249	16	56	29
Future Volume (vph)	37	505	43	224	510	16	52	59	249	16	56	29
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.988			0.996				0.850		0.961	
Flt Protected	0.950			0.950				0.977			0.992	
Satd. Flow (prot)	1630	3487	0	1630	1853	0	0	1820	1458	0	1765	0
Flt Permitted	0.950			0.950				0.857			0.945	
Satd. Flow (perm)	1630	3487	0	1630	1853	0	0	1596	1458	0	1682	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2				271		23	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	549	47	243	554	17	57	64	271	17	61	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	596	0	243	571	0	0	121	271	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	31.0		30.0	48.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	14.4%	34.4%		33.3%	53.3%		32.2%	32.2%	32.2%	32.2%	32.2%	
Maximum Green (s)	8.4	26.4		25.4	43.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.8	16.0		14.9	31.1			11.1	11.1		11.1	
Actuated g/C Ratio	0.14	0.29		0.27	0.57			0.20	0.20		0.20	
v/c Ratio	0.17	0.58		0.55	0.54			0.38	0.53		0.31	
Control Delay (s/veh)	28.5	20.1		24.2	12.4			25.0	7.8		19.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	28.5	20.1		24.2	12.4			25.0	7.8		19.8	
LOS	C	C		C	B			C	A		B	
Approach Delay (s/veh)		20.6			16.0			13.1			19.8	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 54.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 17.1		Intersection LOS: B	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

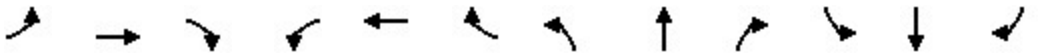




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	505	43	224	510	16	52	59	249	16	56	29
Future Volume (veh/h)	37	505	43	224	510	16	52	59	249	16	56	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	40	549	47	243	554	17	57	64	271	17	61	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	871	74	336	756	23	270	260	369	126	272	123
Arrive On Green	0.05	0.26	0.25	0.20	0.42	0.41	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1641	3303	282	1641	1803	55	583	1029	1460	115	1077	489
Grp Volume(v), veh/h	40	295	301	243	0	571	121	0	271	110	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1808	1641	0	1859	1613	0	1460	1680	0	0
Q Serve(g_s), s	1.0	6.3	6.3	5.9	0.0	11.1	0.1	0.0	7.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	6.3	6.3	5.9	0.0	11.1	2.2	0.0	7.3	2.1	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.03	0.47		1.00	0.15		0.29
Lane Grp Cap(c), veh/h	81	469	477	336	0	779	530	0	369	521	0	0
V/C Ratio(X)	0.49	0.63	0.63	0.72	0.00	0.73	0.23	0.00	0.74	0.21	0.00	0.00
Avail Cap(c_a), veh/h	343	1116	1135	992	0	1901	1039	0	849	1042	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.9	14.0	14.0	16.0	0.0	10.5	12.8	0.0	14.8	12.8	0.0	0.0
Incr Delay (d2), s/veh	4.6	1.4	1.4	3.0	0.0	1.4	0.2	0.0	2.9	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.9	1.9	1.8	0.0	2.7	0.7	0.0	1.9	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.5	15.4	15.4	18.9	0.0	11.8	13.1	0.0	17.6	13.0	0.0	0.0
LnGrp LOS	C	B	B	B		B	B		B	B		
Approach Vol, veh/h		636			814			392			110	
Approach Delay, s/veh		16.0			13.9			16.2			13.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.9	12.8	15.3		14.9	6.1	22.0				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		24.8	25.4	26.4		24.8	8.4	43.4				
Max Q Clear Time (g_c+I1), s		9.3	7.9	8.3		4.1	3.0	13.1				
Green Ext Time (p_c), s		1.3	0.7	2.0		0.3	0.0	2.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	15.0
HCM 7th LOS	B

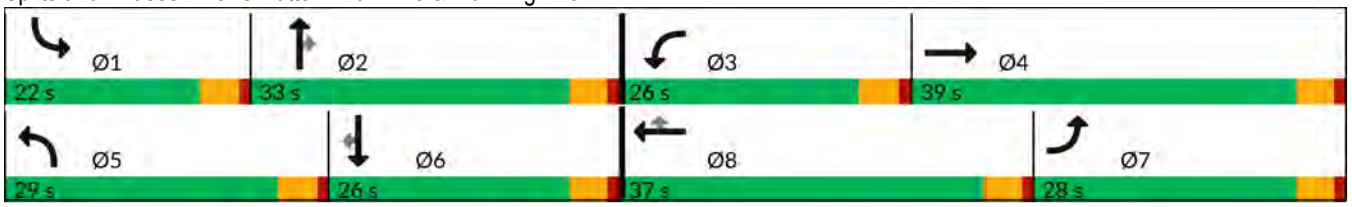


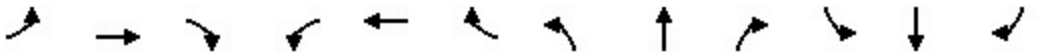
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	334	122	63	286	116	172	269	31	110	274	75
Future Volume (vph)	74	334	122	63	286	116	172	269	31	110	274	75
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.98			0.97			0.96
Frt		0.960				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3369	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3369	0	1630	3539	1430	1630	3539	1409	1630	1863	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44				136			136			177
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			965			1321			4072	
Travel Time (s)		32.8			12.0			16.4			50.5	
Confl. Peds. (#/hr)			5			5			5			5
Confl. Bikes (#/hr)			2			2			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	363	133	68	311	126	187	292	34	120	298	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	496	0	68	311	126	187	292	34	120	298	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	28.0	39.0		26.0	37.0	37.0	29.0	33.0	33.0	22.0	26.0	26.0
Total Split (%)	23.3%	32.5%		21.7%	30.8%	30.8%	24.2%	27.5%	27.5%	18.3%	21.7%	21.7%
Maximum Green (s)	23.5	34.5		21.5	32.5	32.5	24.5	28.5	28.5	17.5	21.5	21.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	12.1	18.5		9.4	15.8	15.8	15.6	31.7	31.7	11.9	28.1	28.1
Actuated g/C Ratio	0.14	0.21		0.11	0.18	0.18	0.18	0.36	0.36	0.14	0.32	0.32
v/c Ratio	0.36	0.66		0.39	0.49	0.34	0.64	0.23	0.06	0.54	0.50	0.14
Control Delay (s/veh)	43.1	34.2		47.9	36.2	7.8	46.7	23.5	0.2	48.6	32.5	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.1	34.2		47.9	36.2	7.8	46.7	23.5	0.2	48.6	32.5	0.5
LOS	D	C		D	D	A	D	C	A	D	C	A
Approach Delay (s/veh)		35.4			30.7			30.4			31.1	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 87.3			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 32.0		Intersection LOS: C	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	334	122	63	286	116	172	269	31	110	274	75
Future Volume (veh/h)	74	334	122	63	286	116	172	269	31	110	274	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97	1.00		0.97
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	80	363	133	68	311	126	187	292	34	120	298	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	534	192	86	573	230	232	1402	560	153	647	491
Arrive On Green	0.10	0.21	0.21	0.05	0.16	0.16	0.14	0.39	0.39	0.09	0.35	0.35
Sat Flow, veh/h	1641	2533	911	1641	3554	1425	1641	3554	1419	1641	1870	1417
Grp Volume(v), veh/h	80	253	243	68	311	126	187	292	34	120	298	82
Grp Sat Flow(s),veh/h/ln	1641	1777	1667	1641	1777	1425	1641	1777	1419	1641	1870	1417
Q Serve(g_s), s	3.3	9.5	9.7	3.0	5.8	4.4	8.0	3.9	1.1	5.2	9.0	1.9
Cycle Q Clear(g_c), s	3.3	9.5	9.7	3.0	5.8	4.4	8.0	3.9	1.1	5.2	9.0	1.9
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	374	351	86	573	230	232	1402	560	153	647	491
V/C Ratio(X)	0.48	0.67	0.69	0.79	0.54	0.55	0.81	0.21	0.06	0.79	0.46	0.17
Avail Cap(c_a), veh/h	534	849	796	488	1599	641	556	1402	560	397	647	491
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	30.6	26.2	26.3	33.8	27.9	15.3	30.0	14.4	13.6	32.1	18.4	7.0
Incr Delay (d2), s/veh	2.1	2.1	2.5	14.7	0.8	2.0	6.5	0.3	0.2	8.6	2.3	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.7	3.6	1.4	2.2	1.8	3.2	1.4	0.3	2.2	3.7	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.7	28.4	28.8	48.5	28.7	17.3	36.5	14.8	13.8	40.6	20.7	7.7
LnGrp LOS	C	C	C	D	C	B	D	B	B	D	C	A
Approach Vol, veh/h		576			505			513			500	
Approach Delay, s/veh		29.1			28.5			22.6			23.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	33.0	8.3	19.7	14.7	29.5	11.9	16.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	28.5	21.5	34.5	24.5	21.5	23.5	32.5
Max Q Clear Time (g_c+I1), s	7.2	5.9	5.0	11.7	10.0	11.0	5.3	7.8
Green Ext Time (p_c), s	0.2	1.2	0.1	1.8	0.5	1.0	0.2	1.7

Intersection Summary	
HCM 7th Control Delay, s/veh	26.0
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	423	0	0	383	0	0
Future Volume (vph)	423	0	0	383	0	0
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1716	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1716	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	965			771	1109	
Travel Time (s)	12.0			9.6	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	460	0	0	416	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	460	0	0	416	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	423	0	0	383	0	0
Future Vol, veh/h	423	0	0	383	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	460	0	0	416	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	460	0	876	460
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	416	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1101	-	319	601
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1101	-	319	601
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	666	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1101	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	21	31	459	448	14
Future Volume (vph)	4	21	31	459	448	14
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.885				0.996	
Flt Protected	0.993			0.997		
Satd. Flow (prot)	1508	0	0	1857	1855	0
Flt Permitted	0.993			0.997		
Satd. Flow (perm)	1508	0	0	1857	1855	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			1310	1321	
Travel Time (s)	19.7			16.2	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	23	34	499	487	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	533	502	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	21	31	459	448	14
Future Vol, veh/h	4	21	31	459	448	14
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	23	34	499	487	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1061	495	502	0	-	0
Stage 1	495	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	248	575	1062	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	575	1062	-	-	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.16	0.54	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	114	-	468	-	-
HCM Lane V/C Ratio	0.032	-	0.058	-	-
HCM Control Delay (s/veh)	8.5	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	56	46	28	44	37
Future Volume (vph)	39	56	46	28	44	37
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.939	
Flt Protected	0.980			0.970		
Satd. Flow (prot)	1547	0	0	1807	1749	0
Flt Permitted	0.980			0.970		
Satd. Flow (perm)	1547	0	0	1807	1749	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1009			1972	678	
Travel Time (s)	12.5			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	61	50	30	48	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	80	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	56	46	28	44	37
Future Vol, veh/h	39	56	46	28	44	37
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	61	50	30	48	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	198	68	88	0	-	0
Stage 1	68	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	790	995	1508	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	764	995	1508	-	-	-
Mov Cap-2 Maneuver	764	-	-	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.6	4.64	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1119	-	885	-	-
HCM Lane V/C Ratio	0.033	-	0.117	-	-
HCM Control Delay (s/veh)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	44	40	466	422	33
Future Volume (vph)	38	44	40	466	422	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.927				0.990	
Flt Protected	0.977			0.996		
Satd. Flow (prot)	1554	0	0	1855	1844	0
Flt Permitted	0.977			0.996		
Satd. Flow (perm)	1554	0	0	1855	1844	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	48	43	507	459	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	550	495	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

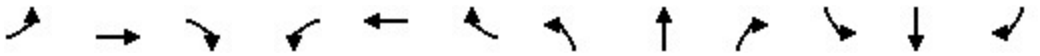
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	44	40	466	422	33
Future Vol, veh/h	38	44	40	466	422	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	48	43	507	459	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1070	477	495	0	-	0
Stage 1	477	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	245	588	1069	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	231	588	1069	-	-	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	552	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	19.16	0.67	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	142	-	343	-	-
HCM Lane V/C Ratio	0.041	-	0.26	-	-
HCM Control Delay (s/veh)	8.5	0	19.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	306	152	65	266	119	119	253	60	84	182	94
Future Volume (vph)	124	306	152	65	266	119	119	253	60	84	182	94
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.964			0.981			0.965	
Flt Protected		0.989			0.993			0.986			0.988	
Satd. Flow (prot)	0	1778	0	0	1783	0	0	1802	0	0	1776	0
Flt Permitted		0.989			0.993			0.986			0.988	
Satd. Flow (perm)	0	1778	0	0	1783	0	0	1802	0	0	1776	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	333	165	71	289	129	129	275	65	91	198	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	633	0	0	489	0	0	469	0	0	391	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	633	489	469	391
Demand Flow Rate, veh/h	646	499	479	399
Vehicles Circulating, veh/h	367	550	571	499
Vehicles Exiting, veh/h	531	499	442	551
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	15.1	15.5	15.4	10.9
Approach LOS	C	C	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	646	499	479	399
Cap Entry Lane, veh/h	949	787	771	829
Entry HV Adj Factor	0.980	0.980	0.980	0.980
Flow Entry, veh/h	633	489	469	391
Cap Entry, veh/h	930	772	755	813
V/C Ratio	0.681	0.634	0.621	0.481
Control Delay, s/veh	15.1	15.5	15.4	10.9
LOS	C	C	C	B
95th %tile Queue, veh	6	5	4	3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	550	46	29	581	41	36
Future Volume (vph)	550	46	29	581	41	36
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.937	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	1844	0	1630	1863	1566	0
Flt Permitted			0.950		0.974	
Satd. Flow (perm)	1844	0	1630	1863	1566	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	598	50	32	632	45	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	648	0	32	632	84	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

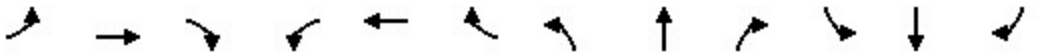
Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	550	46	29	581	41	36
Future Vol, veh/h	550	46	29	581	41	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	598	50	32	632	45	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	648	0	1317	623
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	695	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	938	-	174	486
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	495	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	938	-	168	486
Mov Cap-2 Maneuver	-	-	-	-	168	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	479	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.43	27.56
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	242	-	-	938	-
HCM Lane V/C Ratio	0.346	-	-	0.034	-
HCM Control Delay (s/veh)	27.6	-	-	9	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

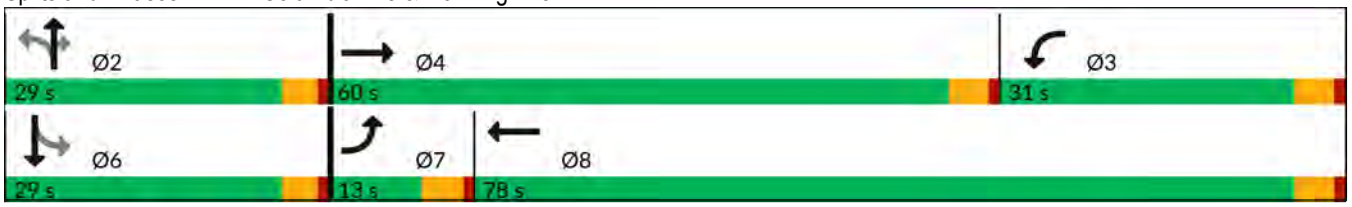


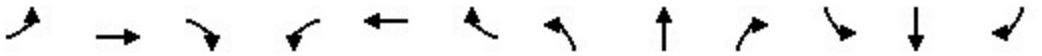
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	527	43	227	526	20	52	59	254	19	56	29
Future Volume (vph)	37	527	43	227	526	20	52	59	254	19	56	29
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.994				0.850		0.962	
Flt Protected	0.950			0.950				0.977			0.991	
Satd. Flow (prot)	1630	3490	0	1630	1849	0	0	1820	1458	0	1764	0
Flt Permitted	0.950			0.950				0.853			0.933	
Satd. Flow (perm)	1630	3490	0	1630	1849	0	0	1589	1458	0	1661	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3				276		15	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	573	47	247	572	22	57	64	276	21	61	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	620	0	247	594	0	0	121	276	0	114	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	60.0		31.0	78.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	10.8%	50.0%		25.8%	65.0%		24.2%	24.2%	24.2%	24.2%	24.2%	
Maximum Green (s)	8.4	55.4		26.4	73.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	7.9	17.9		15.5	33.5			11.7	11.7		11.7	
Actuated g/C Ratio	0.14	0.31		0.27	0.58			0.20	0.20		0.20	
v/c Ratio	0.18	0.57		0.57	0.55			0.38	0.54		0.33	
Control Delay (s/veh)	29.7	20.0		25.8	12.6			26.0	7.9		22.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	29.7	20.0		25.8	12.6			26.0	7.9		22.4	
LOS	C	B		C	B			C	A		C	
Approach Delay (s/veh)		20.6			16.5			13.4			22.4	
Approach LOS		C			B			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 57.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay (s/veh): 17.6		Intersection LOS: B	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	527	43	227	526	20	52	59	254	19	56	29
Future Volume (veh/h)	37	527	43	227	526	20	52	59	254	19	56	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	40	573	47	247	572	22	57	64	276	21	61	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	898	74	339	767	29	268	259	370	132	267	118
Arrive On Green	0.05	0.27	0.26	0.21	0.43	0.42	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1641	3316	271	1641	1787	69	590	1024	1460	142	1053	466
Grp Volume(v), veh/h	40	306	314	247	0	594	121	0	276	114	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1811	1641	0	1856	1613	0	1460	1662	0	0
Q Serve(g_s), s	1.1	6.8	6.8	6.3	0.0	12.0	0.0	0.0	7.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	6.8	6.8	6.3	0.0	12.0	2.3	0.0	7.8	2.3	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.04	0.47		1.00	0.18		0.28
Lane Grp Cap(c), veh/h	80	481	491	339	0	796	527	0	370	517	0	0
V/C Ratio(X)	0.50	0.64	0.64	0.73	0.00	0.75	0.23	0.00	0.75	0.22	0.00	0.00
Avail Cap(c_a), veh/h	331	2232	2275	994	0	3080	1003	0	819	994	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.7	14.3	14.4	16.5	0.0	10.7	13.3	0.0	15.3	13.3	0.0	0.0
Incr Delay (d2), s/veh	4.8	1.4	1.4	3.0	0.0	1.4	0.2	0.0	3.0	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.0	2.1	2.0	0.0	3.0	0.7	0.0	2.1	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.5	15.7	15.8	19.5	0.0	12.1	13.5	0.0	18.3	13.5	0.0	0.0
LnGrp LOS	C	B	B	B		B	B		B	B		
Approach Vol, veh/h		660			841			397			114	
Approach Delay, s/veh		16.3			14.3			16.9			13.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.3	13.2	16.1		15.3	6.2	23.1				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		24.8	26.4	55.4		24.8	8.4	73.4				
Max Q Clear Time (g_c+I1), s		9.8	8.3	8.8		4.3	3.1	14.0				
Green Ext Time (p_c), s		1.3	0.8	2.3		0.3	0.0	2.4				

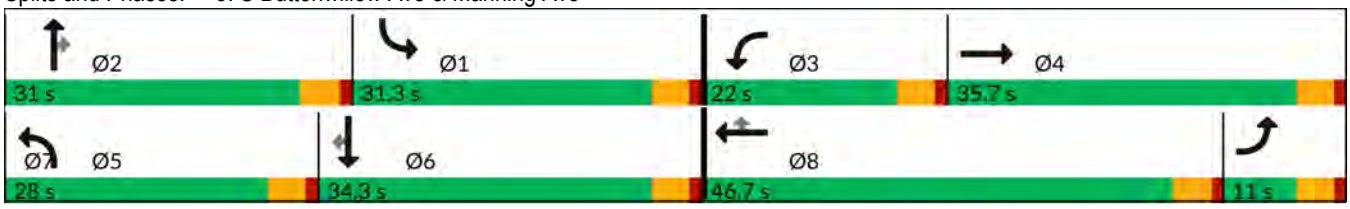
Intersection Summary	
HCM 7th Control Delay, s/veh	15.4
HCM 7th LOS	B

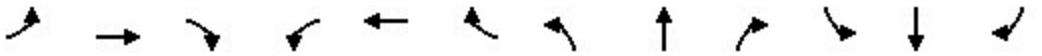
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	334	155	65	286	116	198	274	32	110	278	75
Future Volume (vph)	74	334	155	65	286	116	198	274	32	110	278	75
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.953				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3373	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3373	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61				126			136			136
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			1322			1321			4072	
Travel Time (s)		32.8			16.4			16.4			50.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	363	168	71	311	126	215	298	35	120	302	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	531	0	71	311	126	215	298	35	120	302	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	11.0	35.7		22.0	46.7	46.7	28.0	31.0	31.0	31.3	34.3	34.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	9.2%	29.8%		18.3%	38.9%	38.9%	23.3%	25.8%	25.8%	26.1%	28.6%	28.6%
Maximum Green (s)	6.5	31.2		17.5	42.2	42.2	23.5	26.5	26.5	26.8	29.8	29.8
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	12.7	21.6		9.7	15.9	15.9	17.2	27.4	27.4	20.3	30.5	30.5
Actuated g/C Ratio	0.13	0.23		0.10	0.17	0.17	0.18	0.29	0.29	0.21	0.32	0.32
v/c Ratio	0.37	0.65		0.43	0.53	0.36	0.73	0.29	0.07	0.34	0.50	0.15
Control Delay (s/veh)	45.7	34.7		51.5	39.7	9.5	53.2	30.2	0.3	36.7	33.2	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.7	34.7		51.5	39.7	9.5	53.2	30.2	0.3	36.7	33.2	1.4
LOS	D	C		D	D	A	D	C	A	D	C	A
Approach Delay (s/veh)		36.1			33.9			37.3			28.8	
Approach LOS		D			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 94.8			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 34.2		Intersection LOS: C	
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	334	155	65	286	116	198	274	32	110	278	75
Future Volume (veh/h)	74	334	155	65	286	116	198	274	32	110	278	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	80	363	168	71	311	126	215	298	35	120	302	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	463	211	90	462	190	258	1168	480	325	691	540
Arrive On Green	0.12	0.20	0.20	0.05	0.13	0.13	0.16	0.33	0.33	0.20	0.37	0.37
Sat Flow, veh/h	1641	2372	1080	1641	3554	1460	1641	3554	1460	1641	1870	1460
Grp Volume(v), veh/h	80	270	261	71	311	126	215	298	35	120	302	82
Grp Sat Flow(s),veh/h/ln	1641	1777	1676	1641	1777	1460	1641	1777	1460	1641	1870	1460
Q Serve(g_s), s	3.6	11.6	11.9	3.4	6.7	6.6	10.2	5.0	1.0	5.1	9.8	1.9
Cycle Q Clear(g_c), s	3.6	11.6	11.9	3.4	6.7	6.6	10.2	5.0	1.0	5.1	9.8	1.9
Prop In Lane	1.00		0.64	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	347	327	90	462	190	258	1168	480	325	691	540
V/C Ratio(X)	0.41	0.78	0.80	0.79	0.67	0.66	0.83	0.26	0.07	0.37	0.44	0.15
Avail Cap(c_a), veh/h	197	688	649	356	1860	764	478	1168	480	545	691	540
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	32.8	30.8	30.9	37.6	33.4	33.4	33.0	19.8	10.5	28.0	19.1	6.8
Incr Delay (d2), s/veh	1.3	3.8	4.4	14.0	1.7	3.9	7.0	0.5	0.3	0.7	2.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.8	4.7	1.6	2.7	2.3	4.2	1.9	0.4	1.9	4.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.2	34.6	35.4	51.6	35.1	37.3	39.9	20.4	10.8	28.7	21.1	7.4
LnGrp LOS	C	C	D	D	D	D	D	C	B	C	C	A
Approach Vol, veh/h		611			508			548			504	
Approach Delay, s/veh		34.9			38.0			27.4			20.7	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.5	31.0	8.9	20.2	17.2	34.3	14.2	15.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.8	26.5	17.5	31.2	23.5	29.8	6.5	42.2
Max Q Clear Time (g_c+I1), s	7.1	7.0	5.4	13.9	12.2	11.8	5.6	8.7
Green Ext Time (p_c), s	0.3	1.2	0.1	1.8	0.5	1.2	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	30.4
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	424	0	7	385	0	4
Future Volume (vph)	424	0	7	385	0	4
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.999		
Satd. Flow (prot)	1863	0	0	1861	1484	0
Flt Permitted				0.999		
Satd. Flow (perm)	1863	0	0	1861	1484	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1322			1305	869	
Travel Time (s)	16.4			16.2	10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	461	0	8	418	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	0	0	426	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			

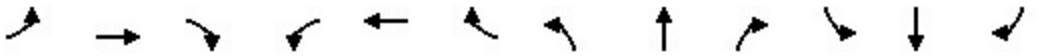
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	424	0	7	385	0	4
Future Vol, veh/h	424	0	7	385	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	461	0	8	418	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	461	0	895	461
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	434	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1100	-	311	601
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	653	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1100	-	309	601
Mov Cap-2 Maneuver	-	-	-	-	309	-
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.15	11.04
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	601	-	-	32	-
HCM Lane V/C Ratio	0.007	-	-	0.007	-
HCM Control Delay (s/veh)	11	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	21	12	0	19	31	483	11	31	456	14
Future Volume (vph)	4	0	21	12	0	19	31	483	11	31	456	14
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.885			0.917			0.997			0.996	
Flt Protected		0.993			0.981			0.997			0.997	
Satd. Flow (prot)	0	1637	0	0	1676	0	0	1852	0	0	1850	0
Flt Permitted		0.993			0.981			0.997			0.997	
Satd. Flow (perm)	0	1637	0	0	1676	0	0	1852	0	0	1850	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	0	23	13	0	21	34	525	12	34	496	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	34	0	0	571	0	0	545	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	21	12	0	19	31	483	11	31	456	14
Future Vol, veh/h	4	0	21	12	0	19	31	483	11	31	456	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	23	13	0	21	34	525	12	34	496	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1163	1175	503	1161	1177	531	511	0	0	537	0	0
Stage 1	571	571	-	598	598	-	-	-	-	-	-	-
Stage 2	592	604	-	563	578	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	172	192	568	172	191	548	1054	-	-	1031	-	-
Stage 1	506	505	-	489	491	-	-	-	-	-	-	-
Stage 2	492	488	-	511	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	174	568	150	174	548	1054	-	-	1031	-	-
Mov Cap-2 Maneuver	150	174	-	150	174	-	-	-	-	-	-	-
Stage 1	483	482	-	466	468	-	-	-	-	-	-	-
Stage 2	452	465	-	468	478	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.83	20.17	0.5	0.53
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	106	-	-	393	271	111	-	-
HCM Lane V/C Ratio	0.032	-	-	0.069	0.124	0.033	-	-
HCM Control Delay (s/veh)	8.5	0	-	14.8	20.2	8.6	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	56	46	28	44	38
Future Volume (vph)	41	56	46	28	44	38
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922				0.938	
Flt Protected	0.979			0.970		
Satd. Flow (prot)	1549	0	0	1807	1747	0
Flt Permitted	0.979			0.970		
Satd. Flow (perm)	1549	0	0	1807	1747	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1920			1972	678	
Travel Time (s)	23.8			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	61	50	30	48	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	0	80	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	56	46	28	44	38
Future Vol, veh/h	41	56	46	28	44	38
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	61	50	30	48	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	199	68	89	0	-	0
Stage 1	68	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	790	995	1506	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	763	995	1506	-	-	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.64	4.64	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1119	-	882	-	-
HCM Lane V/C Ratio	0.033	-	0.12	-	-
HCM Control Delay (s/veh)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	44	40	526	448	33
Future Volume (vph)	38	44	40	526	448	33
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.927				0.991	
Flt Protected	0.977			0.997		
Satd. Flow (prot)	1554	0	0	1857	1846	0
Flt Permitted	0.977			0.997		
Satd. Flow (perm)	1554	0	0	1857	1846	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	48	43	572	487	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	615	523	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.7%		ICU Level of Service C	
Analysis Period (min) 15			

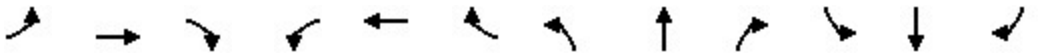
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	44	40	526	448	33
Future Vol, veh/h	38	44	40	526	448	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	48	43	572	487	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1164	505	523	0	-	0
Stage 1	505	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	215	567	1044	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	202	567	1044	-	-	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	515	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	21.34	0.61	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	127	-	309	-	-
HCM Lane V/C Ratio	0.042	-	0.289	-	-
HCM Control Delay (s/veh)	8.6	0	21.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	306	152	65	266	121	119	273	60	85	200	107
Future Volume (vph)	152	306	152	65	266	121	119	273	60	85	200	107
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.964			0.982			0.963	
Flt Protected		0.988			0.993			0.987			0.989	
Satd. Flow (prot)	0	1778	0	0	1783	0	0	1805	0	0	1774	0
Flt Permitted		0.988			0.993			0.987			0.989	
Satd. Flow (perm)	0	1778	0	0	1783	0	0	1805	0	0	1774	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	333	165	71	289	132	129	297	65	92	217	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	663	0	0	492	0	0	491	0	0	425	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 98.3%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	663	492	491	425
Demand Flow Rate, veh/h	676	502	501	433
Vehicles Circulating, veh/h	387	603	602	499
Vehicles Exiting, veh/h	545	500	461	606
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	17.3	17.8	17.7	11.8
Approach LOS	C	C	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	676	502	501	433
Cap Entry Lane, veh/h	930	746	747	829
Entry HV Adj Factor	0.981	0.981	0.980	0.981
Flow Entry, veh/h	663	492	491	425
Cap Entry, veh/h	912	731	732	814
V/C Ratio	0.727	0.673	0.671	0.522
Control Delay, s/veh	17.3	17.8	17.7	11.8
LOS	C	C	C	B
95th %tile Queue, veh	7	5	5	3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2	50	0	1	29	0
Future Volume (vph)	2	50	0	1	29	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870					
Flt Protected					0.950	
Satd. Flow (prot)	1621	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1621	0	0	1863	1770	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	698			1920	515	
Travel Time (s)	8.7			23.8	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	54	0	1	32	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	0	0	1	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	50	0	1	29	0
Future Vol, veh/h	2	50	0	1	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	54	0	1	32	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	30	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1548	-	984	1045
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	1022	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1548	-	984	1045
Mov Cap-2 Maneuver	-	-	-	-	984	-
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	1022	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	8.78
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	984	-	-	1548	-
HCM Lane V/C Ratio	0.032	-	-	-	-
HCM Control Delay (s/veh)	8.8	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	855	73	40	952	46	32
Future Volume (vph)	855	73	40	952	46	32
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989				0.944	
Flt Protected			0.950		0.971	
Satd. Flow (prot)	1842	0	1630	1863	1573	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	1842	0	1630	1863	1573	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	929	79	43	1035	50	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1008	0	43	1035	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

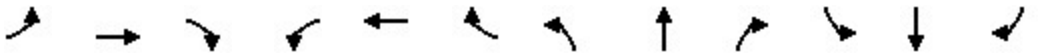
Intersection	
Int Delay, s/veh	8.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	855	73	40	952	46	32
Future Vol, veh/h	855	73	40	952	46	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	929	79	43	1035	50	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1009	0	2091	969
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	1122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	687	-	58	308
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	311	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	687	-	54	308
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	292	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.43	201.32
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	82	-	-	687	-
HCM Lane V/C Ratio	1.038	-	-	0.063	-
HCM Control Delay (s/veh)	201.3	-	-	10.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	5.8	-	-	0.2	-

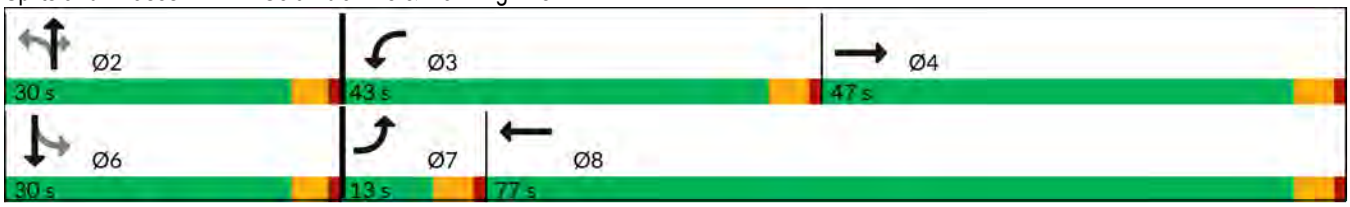


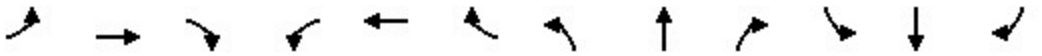
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	843	71	361	823	26	65	74	311	17	62	32
Future Volume (vph)	61	843	71	361	823	26	65	74	311	17	62	32
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.988			0.995				0.850		0.961	
Flt Protected	0.950			0.950				0.977			0.993	
Satd. Flow (prot)	1630	3486	0	1630	1851	0	0	1820	1458	0	1766	0
Flt Permitted	0.950			0.950				0.760			0.944	
Satd. Flow (perm)	1630	3486	0	1630	1851	0	0	1416	1458	0	1679	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			2				338		16	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	916	77	392	895	28	71	80	338	18	67	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	993	0	392	923	0	0	151	338	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	47.0		43.0	77.0		30.0	30.0	30.0	30.0	30.0	
Total Split (%)	10.8%	39.2%		35.8%	64.2%		25.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	8.4	42.4		38.4	72.4		25.8	25.8	25.8	25.8	25.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	8.7	32.8		28.1	55.6			16.1	16.1		16.1	
Actuated g/C Ratio	0.10	0.36		0.31	0.62			0.18	0.18		0.18	
v/c Ratio	0.42	0.78		0.77	0.81			0.60	0.63		0.38	
Control Delay (s/veh)	54.8	31.5		41.2	21.8			48.2	10.1		35.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	54.8	31.5		41.2	21.8			48.2	10.1		35.7	
LOS	D	C		D	C			D	B		D	
Approach Delay (s/veh)		33.0			27.6			21.9			35.7	
Approach LOS		C			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 89.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 28.9		Intersection LOS: C	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave

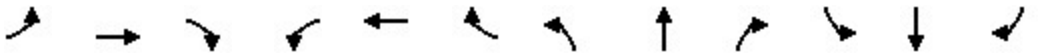




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	843	71	361	823	26	65	74	311	17	62	32
Future Volume (veh/h)	61	843	71	361	823	26	65	74	311	17	62	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	66	916	77	392	895	28	71	80	338	18	67	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	1090	92	448	983	31	233	243	378	83	267	124
Arrive On Green	0.06	0.33	0.32	0.27	0.55	0.54	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1641	3309	278	1641	1802	56	666	939	1460	135	1032	480
Grp Volume(v), veh/h	66	492	501	392	0	923	151	0	338	120	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1810	1641	0	1858	1605	0	1460	1647	0	0
Q Serve(g_s), s	3.4	22.2	22.2	19.8	0.0	38.8	1.3	0.0	19.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	22.2	22.2	19.8	0.0	38.8	5.9	0.0	19.3	4.7	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.03	0.47		1.00	0.15		0.29
Lane Grp Cap(c), veh/h	94	585	596	448	0	1014	476	0	378	474	0	0
V/C Ratio(X)	0.71	0.84	0.84	0.87	0.00	0.91	0.32	0.00	0.90	0.25	0.00	0.00
Avail Cap(c_a), veh/h	170	882	899	739	0	1567	540	0	438	539	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.1	26.9	27.0	30.0	0.0	17.8	25.9	0.0	31.0	25.6	0.0	0.0
Incr Delay (d2), s/veh	9.3	4.6	4.6	6.6	0.0	5.6	0.4	0.0	18.7	0.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	9.0	9.2	7.8	0.0	14.3	2.3	0.0	8.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.4	31.6	31.5	36.6	0.0	23.4	26.3	0.0	49.7	25.8	0.0	0.0
LnGrp LOS	D	C	C	D		C	C		D	C		
Approach Vol, veh/h		1059			1315			489			120	
Approach Delay, s/veh		32.7			27.3			42.4			25.8	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	26.4	27.7	32.5	26.4	8.9	51.3
Change Period (Y+Rc), s	4.2	4.6	4.6	4.2	4.6	4.6
Max Green Setting (Gmax), s	25.8	38.4	42.4	25.8	8.4	72.4
Max Q Clear Time (g_c+I1), s	21.3	21.8	24.2	6.7	5.4	40.8
Green Ext Time (p_c), s	0.9	1.3	3.7	0.3	0.0	4.6

Intersection Summary	
HCM 7th Control Delay, s/veh	31.6
HCM 7th LOS	C

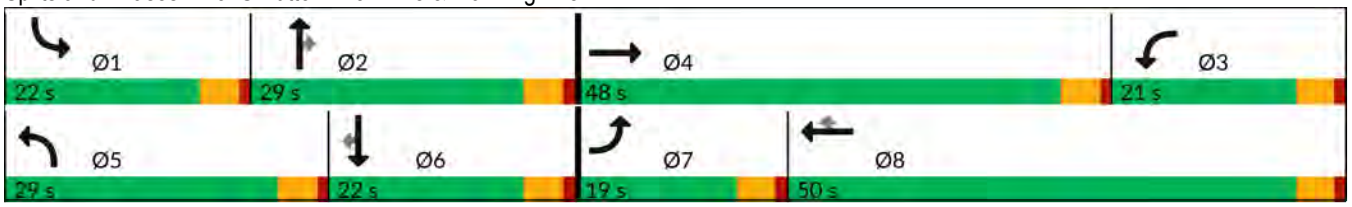


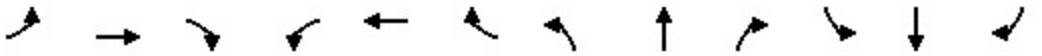
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	539	197	122	548	222	232	363	42	149	369	101
Future Volume (vph)	119	539	197	122	548	222	232	363	42	149	369	101
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.98			0.97			0.96
Frt		0.960				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3369	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3369	0	1630	3539	1431	1630	3539	1408	1630	1863	1406
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49				200			136			177
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			965			1321			4072	
Travel Time (s)		32.8			12.0			16.4			50.5	
Confl. Peds. (#/hr)			5			5			5			5
Confl. Bikes (#/hr)			2			2			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	586	214	133	596	241	252	395	46	162	401	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	800	0	133	596	241	252	395	46	162	401	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	19.0	48.0		21.0	50.0	50.0	29.0	29.0	29.0	22.0	22.0	22.0
Total Split (%)	15.8%	40.0%		17.5%	41.7%	41.7%	24.2%	24.2%	24.2%	18.3%	18.3%	18.3%
Maximum Green (s)	14.5	43.5		16.5	45.5	45.5	24.5	24.5	24.5	17.5	17.5	17.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	12.6	30.9		13.2	31.5	31.5	20.6	33.2	33.2	14.8	27.4	27.4
Actuated g/C Ratio	0.11	0.28		0.12	0.29	0.29	0.19	0.30	0.30	0.13	0.25	0.25
v/c Ratio	0.70	0.82		0.68	0.59	0.44	0.83	0.37	0.09	0.75	0.87	0.23
Control Delay (s/veh)	70.1	42.7		67.3	36.4	9.7	67.9	34.0	0.3	69.4	62.7	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.1	42.7		67.3	36.4	9.7	67.9	34.0	0.3	69.4	62.7	1.4
LOS	E	D		E	D	A	E	C	A	E	E	A
Approach Delay (s/veh)		46.5			34.0			44.1			54.3	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 110.4			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 43.9		Intersection LOS: D	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	539	197	122	548	222	232	363	42	149	369	101
Future Volume (veh/h)	119	539	197	122	548	222	232	363	42	149	369	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	129	586	214	133	596	241	252	395	46	162	401	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	721	263	165	1026	414	293	1011	403	197	423	319
Arrive On Green	0.10	0.29	0.29	0.10	0.29	0.29	0.18	0.28	0.28	0.12	0.23	0.23
Sat Flow, veh/h	1641	2526	920	1641	3554	1433	1641	3554	1414	1641	1870	1410
Grp Volume(v), veh/h	129	412	388	133	596	241	252	395	46	162	401	110
Grp Sat Flow(s),veh/h/ln	1641	1777	1670	1641	1777	1433	1641	1777	1414	1641	1870	1410
Q Serve(g_s), s	6.6	18.6	18.6	6.8	12.3	12.4	12.8	7.7	1.5	8.3	18.2	5.6
Cycle Q Clear(g_c), s	6.6	18.6	18.6	6.8	12.3	12.4	12.8	7.7	1.5	8.3	18.2	5.6
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	507	477	165	1026	414	293	1011	403	197	423	319
V/C Ratio(X)	0.81	0.81	0.81	0.81	0.58	0.58	0.86	0.39	0.11	0.82	0.95	0.35
Avail Cap(c_a), veh/h	276	898	844	314	1878	757	467	1011	403	334	423	319
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	38.1	28.6	28.6	37.9	26.2	26.2	34.3	24.8	11.6	37.0	32.8	28.0
Incr Delay (d2), s/veh	9.2	3.2	3.4	8.9	0.5	1.3	9.2	1.1	0.6	8.3	32.5	2.9
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	7.5	7.1	2.9	4.7	3.9	5.4	3.1	0.7	3.5	11.2	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	47.2	31.8	32.1	46.7	26.7	27.5	43.5	25.9	12.2	45.2	65.4	30.9
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	E	C
Approach Vol, veh/h		929			970			693			673	
Approach Delay, s/veh		34.0			29.6			31.4			54.9	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	29.0	13.2	29.1	19.9	24.0	12.9	29.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	24.5	16.5	43.5	24.5	17.5	14.5	45.5
Max Q Clear Time (g_c+I1), s	10.3	9.7	8.8	20.6	14.8	20.2	8.6	14.4
Green Ext Time (p_c), s	0.3	1.5	0.2	3.1	0.6	0.0	0.2	3.7

Intersection Summary	
HCM 7th Control Delay, s/veh	36.5
HCM 7th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	456	0	0	413	0	0
Future Volume (vph)	456	0	0	413	0	0
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	0	1863	1716	0
Flt Permitted						
Satd. Flow (perm)	1863	0	0	1863	1716	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	965			771	1109	
Travel Time (s)	12.0			9.6	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	496	0	0	449	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	496	0	0	449	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	456	0	0	413	0	0
Future Vol, veh/h	456	0	0	413	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	496	0	0	449	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	496	0	945	496
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	449	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1068	-	291	574
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1068	-	291	574
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	643	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1068	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	22	32	618	603	14
Future Volume (vph)	4	22	32	618	603	14
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.884				0.997	
Flt Protected	0.993			0.998		
Satd. Flow (prot)	1506	0	0	1859	1857	0
Flt Permitted	0.993			0.998		
Satd. Flow (perm)	1506	0	0	1859	1857	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			1310	1321	
Travel Time (s)	19.7			16.2	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	24	35	672	655	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	707	670	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	22	32	618	603	14
Future Vol, veh/h	4	22	32	618	603	14
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	24	35	672	655	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1404	663	671	0	-	0
Stage 1	663	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	154	461	920	-	-	-
Stage 1	512	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	144	461	920	-	-	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	471	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	16.37	0.45	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	89	-	345	-	-
HCM Lane V/C Ratio	0.038	-	0.082	-	-
HCM Control Delay (s/veh)	9.1	0	16.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	90	104	62	55	45
Future Volume (vph)	62	90	104	62	55	45
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.939	
Flt Protected	0.980			0.970		
Satd. Flow (prot)	1547	0	0	1807	1749	0
Flt Permitted	0.980			0.970		
Satd. Flow (perm)	1547	0	0	1807	1749	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1009			1972	678	
Travel Time (s)	12.5			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	98	113	67	60	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	165	0	0	180	109	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	90	104	62	55	45
Future Vol, veh/h	62	90	104	62	55	45
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	98	113	67	60	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	378	84	109	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	624	975	1482	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	575	975	1482	-	-	-
Mov Cap-2 Maneuver	575	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.06	4.78	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1128	-	759	-	-
HCM Lane V/C Ratio	0.076	-	0.218	-	-
HCM Control Delay (s/veh)	7.6	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	45	41	627	568	34
Future Volume (vph)	39	45	41	627	568	34
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.927				0.992	
Flt Protected	0.977			0.997		
Satd. Flow (prot)	1554	0	0	1857	1848	0
Flt Permitted	0.977			0.997		
Satd. Flow (perm)	1554	0	0	1857	1848	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	49	45	682	617	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	91	0	0	727	654	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 78.6%		ICU Level of Service D	
Analysis Period (min) 15			

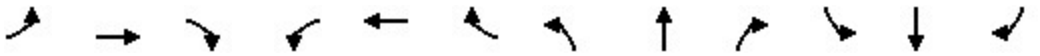
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	45	41	627	568	34
Future Vol, veh/h	39	45	41	627	568	34
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	49	45	682	617	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1407	636	654	0	-	0
Stage 1	636	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	153	478	933	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	141	478	933	-	-	-
Mov Cap-2 Maneuver	141	-	-	-	-	-
Stage 1	487	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	31.1	0.56	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	110	-	227	-	-
HCM Lane V/C Ratio	0.048	-	0.402	-	-
HCM Control Delay (s/veh)	9.1	0	31.1	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.2	-	1.8	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	329	164	70	286	128	160	340	80	113	245	126
Future Volume (vph)	134	329	164	70	286	128	160	340	80	113	245	126
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.964			0.981			0.965	
Flt Protected		0.989			0.993			0.986			0.988	
Satd. Flow (prot)	0	1778	0	0	1783	0	0	1802	0	0	1776	0
Flt Permitted		0.989			0.993			0.986			0.988	
Satd. Flow (perm)	0	1778	0	0	1783	0	0	1802	0	0	1776	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	358	178	76	311	139	174	370	87	123	266	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	682	0	0	526	0	0	631	0	0	526	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 105.2%		ICU Level of Service G	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	27.1
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	682	526	631	526
Demand Flow Rate, veh/h	696	537	643	536
Vehicles Circulating, veh/h	474	703	639	572
Vehicles Exiting, veh/h	634	579	531	668
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	24.6	27.4	37.0	18.4
Approach LOS	C	D	E	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	696	537	643	536
Cap Entry Lane, veh/h	851	674	719	770
Entry HV Adj Factor	0.980	0.979	0.981	0.981
Flow Entry, veh/h	682	526	631	526
Cap Entry, veh/h	834	660	705	755
V/C Ratio	0.818	0.797	0.894	0.696
Control Delay, s/veh	24.6	27.4	37.0	18.4
LOS	C	D	E	C
95th %tile Queue, veh	9	8	11	6



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	869	73	45	963	46	39
Future Volume (vph)	869	73	45	963	46	39
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.938	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	1844	0	1630	1863	1567	0
Flt Permitted			0.950		0.974	
Satd. Flow (perm)	1844	0	1630	1863	1567	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	2176			1309	3105	
Travel Time (s)	27.0			16.2	38.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	945	79	49	1047	50	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1024	0	49	1047	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.7%		ICU Level of Service B	
Analysis Period (min) 15			

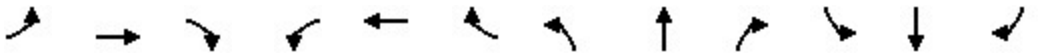
Intersection	
Int Delay, s/veh	9.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	869	73	45	963	46	39
Future Vol, veh/h	869	73	45	963	46	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	945	79	49	1047	50	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1024	0	2129	984
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	1145	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	678	-	55	301
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	303	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	678	-	51	301
Mov Cap-2 Maneuver	-	-	-	-	51	-
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	282	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.48	229.56
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	82	-	-	678	-
HCM Lane V/C Ratio	1.127	-	-	0.072	-
HCM Control Delay (s/veh)	229.6	-	-	10.7	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	6.6	-	-	0.2	-

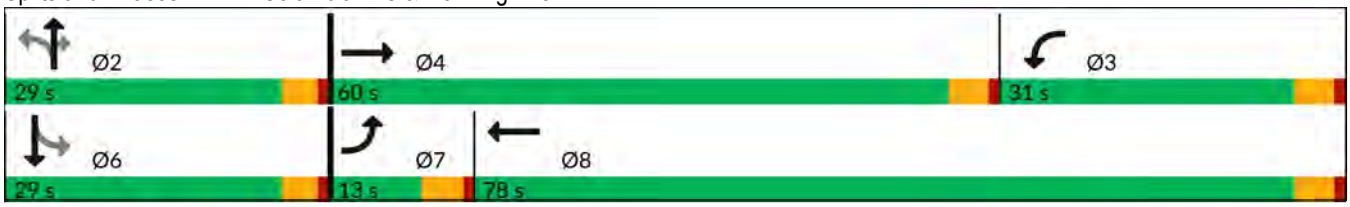


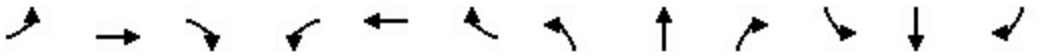
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	864	71	364	839	29	65	74	316	19	62	32
Future Volume (vph)	61	864	71	364	839	29	65	74	316	19	62	32
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	100		0	55		0	0		115	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.989			0.995				0.850		0.962	
Flt Protected	0.950			0.950				0.977			0.992	
Satd. Flow (prot)	1630	3490	0	1630	1851	0	0	1820	1458	0	1766	0
Flt Permitted	0.950			0.950				0.736			0.933	
Satd. Flow (perm)	1630	3490	0	1630	1851	0	0	1371	1458	0	1661	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3				343		15	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1309			2645			1456			513	
Travel Time (s)		16.2			32.8			18.0			6.4	
Confl. Peds. (#/hr)			5			5						5
Confl. Bikes (#/hr)			2			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	939	77	396	912	32	71	80	343	21	67	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1016	0	396	944	0	0	151	343	0	123	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.6	22.0		8.6	20.6		20.0	20.0	20.0	24.5	24.5	
Total Split (s)	13.0	60.0		31.0	78.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	10.8%	50.0%		25.8%	65.0%		24.2%	24.2%	24.2%	24.2%	24.2%	
Maximum Green (s)	8.4	55.4		26.4	73.4		24.8	24.8	24.8	24.8	24.8	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.6	-0.6		-0.6	-0.6			-0.2	-0.2		-0.2	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0					7.0	7.0	
Flash Don't Walk (s)		10.4			9.0					13.3	13.3	
Pedestrian Calls (#/hr)		5			5					5	5	
Act Effct Green (s)	8.5	35.0		29.4	58.6			15.8	15.8		15.8	
Actuated g/C Ratio	0.09	0.38		0.32	0.63			0.17	0.17		0.17	
v/c Ratio	0.44	0.77		0.77	0.81			0.65	0.64		0.42	
Control Delay (s/veh)	55.7	29.5		43.5	21.6			51.6	10.5		36.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay (s/veh)	55.7	29.5		43.5	21.6			51.6	10.5		36.6	
LOS	E	C		D	C			D	B		D	
Approach Delay (s/veh)		31.1			28.0			23.0			36.6	
Approach LOS		C			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 92.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 28.6		Intersection LOS: C	
Intersection Capacity Utilization 73.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: N Columbia Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	864	71	364	839	29	65	74	316	19	62	32
Future Volume (veh/h)	61	864	71	364	839	29	65	74	316	19	62	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	66	939	77	396	912	32	71	80	343	21	67	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	1120	92	440	986	35	233	243	378	90	258	119
Arrive On Green	0.06	0.34	0.33	0.27	0.55	0.54	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1641	3317	272	1641	1794	63	669	937	1460	164	996	462
Grp Volume(v), veh/h	66	503	513	396	0	944	151	0	343	123	0	0
Grp Sat Flow(s),veh/h/ln	1641	1777	1812	1641	0	1857	1607	0	1460	1622	0	0
Q Serve(g_s), s	3.5	23.2	23.3	20.7	0.0	41.4	1.1	0.0	20.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	23.2	23.3	20.7	0.0	41.4	6.1	0.0	20.2	4.9	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.03	0.47		1.00	0.17		0.28
Lane Grp Cap(c), veh/h	93	600	612	440	0	1020	475	0	378	467	0	0
V/C Ratio(X)	0.71	0.84	0.84	0.90	0.00	0.93	0.32	0.00	0.91	0.26	0.00	0.00
Avail Cap(c_a), veh/h	166	1120	1142	498	0	1546	510	0	411	502	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.2	27.2	27.2	31.3	0.0	18.4	26.6	0.0	31.9	26.3	0.0	0.0
Incr Delay (d2), s/veh	9.4	3.2	3.2	17.7	0.0	7.0	0.4	0.0	22.6	0.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	9.2	9.4	9.5	0.0	15.7	2.4	0.0	8.8	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.6	30.4	30.4	49.1	0.0	25.4	27.0	0.0	54.5	26.6	0.0	0.0
LnGrp LOS	D	C	C	D		C	C		D	C		
Approach Vol, veh/h		1082			1340			494			123	
Approach Delay, s/veh		31.6			32.4			46.1			26.6	
Approach LOS		C			C			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	27.9	34.0		27.0	9.1	52.8				
Change Period (Y+Rc), s		4.2	4.6	4.6		4.2	4.6	4.6				
Max Green Setting (Gmax), s		24.8	26.4	55.4		24.8	8.4	73.4				
Max Q Clear Time (g_c+I1), s		22.2	22.7	25.3		6.9	5.5	43.4				
Green Ext Time (p_c), s		0.6	0.6	4.2		0.4	0.0	4.8				

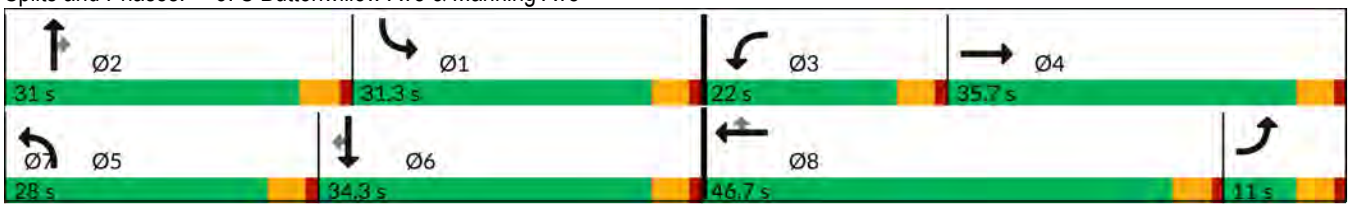
Intersection Summary	
HCM 7th Control Delay, s/veh	34.1
HCM 7th LOS	C

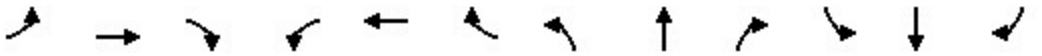
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	539	228	124	548	222	257	368	43	149	373	101
Future Volume (vph)	119	539	228	124	548	222	257	368	43	149	373	101
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	250		0	200		110	130		200	80		90
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1630	3380	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1630	3380	0	1630	3539	1458	1630	3539	1458	1630	1863	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				192			136			136
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2645			1322			1321			4072	
Travel Time (s)		32.8			16.4			16.4			50.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	586	248	135	596	241	279	400	47	162	405	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	834	0	135	596	241	279	400	47	162	405	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	35.7		8.5	35.7	35.7	8.5	31.3	31.3	8.5	31.3	31.3
Total Split (s)	11.0	35.7		22.0	46.7	46.7	28.0	31.0	31.0	31.3	34.3	34.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	9.2%	29.8%		18.3%	38.9%	38.9%	23.3%	25.8%	25.8%	26.1%	28.6%	28.6%
Maximum Green (s)	6.5	31.2		17.5	42.2	42.2	23.5	26.5	26.5	26.8	29.8	29.8
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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
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
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		24.2			24.2	24.2		19.8	19.8		19.8	19.8
Pedestrian Calls (#/hr)		5			5	5		5	5		5	5
Act Effct Green (s)	18.1	29.6		14.1	25.5	25.5	22.1	27.0	27.0	25.2	30.0	30.0
Actuated g/C Ratio	0.16	0.26		0.12	0.22	0.22	0.19	0.24	0.24	0.22	0.26	0.26
v/c Ratio	0.50	0.91		0.68	0.75	0.51	0.88	0.48	0.10	0.45	0.83	0.23
Control Delay (s/veh)	52.9	53.4		65.5	47.8	13.2	73.8	40.9	0.5	44.0	56.5	4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.9	53.4		65.5	47.8	13.2	73.8	40.9	0.5	44.0	56.5	4.5
LOS	D	D		E	D	B	E	D	A	D	E	A
Approach Delay (s/veh)		53.4			41.7			51.0			45.0	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.9			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 47.7		Intersection LOS: D	
Intersection Capacity Utilization 79.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: S Buttonwillow Ave & Manning Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	539	228	124	548	222	257	368	43	149	373	101
Future Volume (veh/h)	119	539	228	124	548	222	257	368	43	149	373	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1723	1870	1723	1723	1870	1723	1723	1870	1723	1723	1870	1723
Adj Flow Rate, veh/h	129	586	248	135	596	241	279	400	47	162	405	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	646	273	163	749	308	309	881	362	359	521	407
Arrive On Green	0.15	0.27	0.27	0.10	0.21	0.21	0.19	0.25	0.25	0.22	0.28	0.28
Sat Flow, veh/h	1641	2434	1028	1641	3554	1460	1641	3554	1460	1641	1870	1460
Grp Volume(v), veh/h	129	428	406	135	596	241	279	400	47	162	405	110
Grp Sat Flow(s),veh/h/ln	1641	1777	1685	1641	1777	1460	1641	1777	1460	1641	1870	1460
Q Serve(g_s), s	7.7	24.9	25.0	8.6	17.0	16.7	17.8	10.2	2.0	9.2	21.3	4.2
Cycle Q Clear(g_c), s	7.7	24.9	25.0	8.6	17.0	16.7	17.8	10.2	2.0	9.2	21.3	4.2
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	472	447	163	749	308	309	881	362	359	521	407
V/C Ratio(X)	0.51	0.91	0.91	0.83	0.80	0.78	0.90	0.45	0.13	0.45	0.78	0.27
Avail Cap(c_a), veh/h	253	518	492	268	1402	576	360	881	362	411	521	407
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	41.5	38.0	38.0	47.3	40.0	39.9	42.5	34.1	17.9	36.2	35.5	13.5
Incr Delay (d2), s/veh	1.7	18.6	19.7	10.3	2.0	4.4	23.0	1.7	0.7	0.9	10.9	1.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	12.5	12.0	3.8	7.2	6.0	8.7	4.3	1.0	3.5	10.6	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.2	56.6	57.7	57.6	42.0	44.3	65.5	35.8	18.6	37.1	46.4	15.1
LnGrp LOS	D	E	E	E	D	D	E	D	B	D	D	B
Approach Vol, veh/h		963			972			726			677	
Approach Delay, s/veh		55.3			44.7			46.1			39.1	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.9	31.0	15.1	32.9	24.6	34.3	21.0	27.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.8	26.5	17.5	31.2	23.5	29.8	6.5	42.2
Max Q Clear Time (g_c+I1), s	11.2	12.2	10.6	27.0	19.8	23.3	9.7	19.0
Green Ext Time (p_c), s	0.4	1.5	0.2	1.4	0.3	1.1	0.0	3.5

Intersection Summary	
HCM 7th Control Delay, s/veh	46.9
HCM 7th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	457	0	7	415	0	4
Future Volume (vph)	457	0	7	415	0	4
Ideal Flow (vphpl)	1900	1750	1750	1900	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.999		
Satd. Flow (prot)	1863	0	0	1861	1484	0
Flt Permitted				0.999		
Satd. Flow (perm)	1863	0	0	1861	1484	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1322			1305	869	
Travel Time (s)	16.4			16.2	10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	497	0	8	451	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	497	0	0	459	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.11	1.11	1.00	1.11	1.11
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			

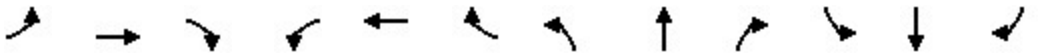
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	457	0	7	415	0	4
Future Vol, veh/h	457	0	7	415	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	497	0	8	451	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	497	0	963	497
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	466	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1067	-	284	573
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	631	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1067	-	281	573
Mov Cap-2 Maneuver	-	-	-	-	281	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	625	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.14	11.33
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	573	-	-	30	-
HCM Lane V/C Ratio	0.008	-	-	0.007	-
HCM Control Delay (s/veh)	11.3	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	10	0	18	32	642	11	29	611	14
Future Volume (vph)	4	0	22	10	0	18	32	642	11	29	611	14
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.884			0.913			0.998			0.997	
Flt Protected		0.993			0.983			0.998			0.998	
Satd. Flow (prot)	0	1635	0	0	1672	0	0	1855	0	0	1853	0
Flt Permitted		0.993			0.983			0.998			0.998	
Satd. Flow (perm)	0	1635	0	0	1672	0	0	1855	0	0	1853	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1588			698			1310			1321	
Travel Time (s)		19.7			8.7			16.2			16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	0	24	11	0	20	35	698	12	32	664	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	31	0	0	745	0	0	711	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	22	10	0	18	32	642	11	29	611	14
Future Vol, veh/h	4	0	22	10	0	18	32	642	11	29	611	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	24	11	0	20	35	698	12	32	664	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1502	1514	672	1501	1516	704	679	0	0	710	0	0
Stage 1	735	735	-	773	773	-	-	-	-	-	-	-
Stage 2	767	779	-	727	742	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	100	120	456	100	119	437	913	-	-	889	-	-
Stage 1	411	426	-	392	409	-	-	-	-	-	-	-
Stage 2	395	406	-	415	422	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	84	106	456	84	105	437	913	-	-	889	-	-
Mov Cap-2 Maneuver	84	106	-	84	105	-	-	-	-	-	-	-
Stage 1	388	401	-	367	383	-	-	-	-	-	-	-
Stage 2	353	380	-	371	398	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.77	29.9	0.43	0.41
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	84	-	-	272	175	79	-	-
HCM Lane V/C Ratio	0.038	-	-	0.104	0.174	0.035	-	-
HCM Control Delay (s/veh)	9.1	0	-	19.8	29.9	9.2	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	91	106	62	55	48
Future Volume (vph)	66	91	106	62	55	48
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922				0.937	
Flt Protected	0.979			0.969		
Satd. Flow (prot)	1549	0	0	1805	1745	0
Flt Permitted	0.979			0.969		
Satd. Flow (perm)	1549	0	0	1805	1745	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1920			1972	678	
Travel Time (s)	23.8			24.4	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	99	115	67	60	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	171	0	0	182	112	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	91	106	62	55	48
Future Vol, veh/h	66	91	106	62	55	48
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	99	115	67	60	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	384	86	112	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	619	973	1478	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	569	973	1478	-	-	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.22	4.82	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1136	-	749	-	-
HCM Lane V/C Ratio	0.078	-	0.228	-	-
HCM Control Delay (s/veh)	7.6	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.9	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	45	41	687	592	34
Future Volume (vph)	39	45	41	687	592	34
Ideal Flow (vphpl)	1750	1750	1750	1900	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.993	
Flt Protected	0.977			0.997		
Satd. Flow (prot)	1556	0	0	1857	1850	0
Flt Permitted	0.977			0.997		
Satd. Flow (perm)	1556	0	0	1857	1850	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1753			2642	1310	
Travel Time (s)	21.7			32.8	16.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	47	43	723	623	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	0	766	659	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.00	1.00	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

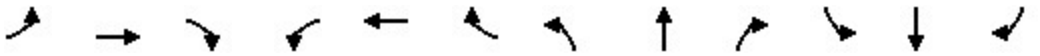
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	45	41	687	592	34
Future Vol, veh/h	39	45	41	687	592	34
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	47	43	723	623	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1451	641	659	0	-	0
Stage 1	641	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	144	475	929	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	475	929	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	438	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	32.68	0.51	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	101	-	216	-	-
HCM Lane V/C Ratio	0.046	-	0.409	-	-
HCM Control Delay (s/veh)	9.1	0	32.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.9	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	329	164	70	286	130	160	360	80	113	262	139
Future Volume (vph)	162	329	164	70	286	130	160	360	80	113	262	139
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.964			0.982			0.964	
Flt Protected		0.988			0.993			0.987			0.989	
Satd. Flow (prot)	0	1778	0	0	1783	0	0	1805	0	0	1776	0
Flt Permitted		0.988			0.993			0.987			0.989	
Satd. Flow (perm)	0	1778	0	0	1783	0	0	1805	0	0	1776	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4282			3376			788			2642	
Travel Time (s)		53.1			41.9			9.8			32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	358	178	76	311	141	174	391	87	123	285	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	712	0	0	528	0	0	652	0	0	559	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 113.7%		ICU Level of Service H	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	33.7
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	712	528	652	559
Demand Flow Rate, veh/h	727	539	665	570
Vehicles Circulating, veh/h	494	756	670	572
Vehicles Exiting, veh/h	648	579	551	723
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.6	33.4	48.5	20.8
Approach LOS	D	D	E	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	727	539	665	570
Cap Entry Lane, veh/h	834	638	697	770
Entry HV Adj Factor	0.979	0.979	0.981	0.981
Flow Entry, veh/h	712	528	652	559
Cap Entry, veh/h	816	625	683	756
V/C Ratio	0.872	0.845	0.954	0.740
Control Delay, s/veh	30.6	33.4	48.5	20.8
LOS	D	D	E	C
95th %tile Queue, veh	11	9	14	7



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2	44	6	1	26	3
Future Volume (vph)	2	44	6	1	26	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.987	
Flt Protected				0.958	0.957	
Satd. Flow (prot)	1621	0	0	1785	1759	0
Flt Permitted				0.958	0.957	
Satd. Flow (perm)	1621	0	0	1785	1759	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	698			1920	515	
Travel Time (s)	8.7			23.8	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	48	7	1	28	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	0	8	31	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	44	6	1	26	3
Future Vol, veh/h	2	44	6	1	26	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	48	7	1	28	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	40	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1557	-	971	1050
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	1009	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1557	-	967	1050
Mov Cap-2 Maneuver	-	-	-	-	967	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	1004	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	6.28	8.81
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	975	-	-	1543	-
HCM Lane V/C Ratio	0.032	-	-	0.004	-
HCM Control Delay (s/veh)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	49	149	773	702	123
Future Volume (veh/h)	42	49	149	773	702	123
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	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	1723	1723	1723	1870	1870	1723
Adj Flow Rate, veh/h	46	53	162	840	763	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	46	53	189	875	1250	219
Arrive On Green	0.06	0.06	0.81	0.81	0.81	0.81
Sat Flow, veh/h	709	816	160	1085	1549	272
Grp Volume(v), veh/h	100	0	1002	0	0	897
Grp Sat Flow(s),veh/h/ln	1540	0	1245	0	0	1821
Q Serve(g_s), s	4.5	0.0	39.2	0.0	0.0	13.1
Cycle Q Clear(g_c), s	4.5	0.0	55.9	0.0	0.0	13.1
Prop In Lane	0.46	0.53	0.16			0.15
Lane Grp Cap(c), veh/h	99	0	1064	0	0	1469
V/C Ratio(X)	1.01	0.00	0.94	0.00	0.00	0.61
Avail Cap(c_a), veh/h	99	0	1473	0	0	1997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	8.4	0.0	0.0	2.6
Incr Delay (d2), s/veh	92.6	0.0	9.9	0.0	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	4.4	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	125.3	0.0	18.3	0.0	0.0	3.0
LnGrp LOS	F		B			A
Approach Vol, veh/h	100			1002	897	
Approach Delay, s/veh	125.3			18.3	3.0	
Approach LOS	F			B	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		64.7		9.0		64.7
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		76.5		4.5		76.5
Max Q Clear Time (g_c+I1), s		57.9		6.5		15.1
Green Ext Time (p_c), s		6.1		0.0		4.7

Intersection Summary	
HCM 7th Control Delay, s/veh	16.8
HCM 7th LOS	B

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	26	48
Average Queue (ft)	7	18
95th Queue (ft)	26	39
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	32	74	110	80	280	52	53	92
Average Queue (ft)	13	44	45	64	104	21	34	39
95th Queue (ft)	37	71	85	96	197	46	51	70
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)				10	8			
Queuing Penalty (veh)				42	16			

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	92	81	108	47	151	159	57	150	75	74	74	104
Average Queue (ft)	41	37	58	21	94	36	18	92	40	33	28	71
95th Queue (ft)	82	69	99	43	149	108	38	137	71	65	51	120
Link Distance (ft)		2559	2559		602	602			2590	2590		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)						0		3				9
Queuing Penalty (veh)						0		2				33

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	320	115
Average Queue (ft)	118	33
95th Queue (ft)	242	98
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	14	0
Queuing Penalty (veh)	29	0

Network Summary

Network wide Queuing Penalty: 123

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	134
Average Queue (ft)	7	35
95th Queue (ft)	25	85
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	96	162	138	79	839	96	94	72
Average Queue (ft)	30	72	77	68	205	44	53	36
95th Queue (ft)	66	126	118	92	512	81	80	71
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)	0	3		25	16	0		
Queuing Penalty (veh)	0	1		115	31	0		

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	71	156	187	91	128	115	56	154	241	96	55	104
Average Queue (ft)	35	71	103	41	63	24	22	119	85	43	11	55
95th Queue (ft)	69	137	159	83	112	62	47	149	191	85	36	100
Link Distance (ft)		2559	2559		602	602			2590	2590		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)						0		18	0			7
Queuing Penalty (veh)						0		22	0			23

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	149	114
Average Queue (ft)	82	22
95th Queue (ft)	144	81
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	7	0
Queuing Penalty (veh)	11	0

Network Summary

Network wide Queuing Penalty: 203

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	107
Average Queue (ft)	10	25
95th Queue (ft)	31	58
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	53	116	106	79	356	54	54	91
Average Queue (ft)	14	51	56	71	127	25	33	43
95th Queue (ft)	42	84	93	86	267	54	53	88
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)		1		22	9			
Queuing Penalty (veh)		0		106	22			

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	150	136	149	110	240	212	59	154	222	99	71	105
Average Queue (ft)	55	55	74	35	127	69	18	110	71	51	35	91
95th Queue (ft)	103	98	134	86	200	167	37	157	141	99	62	124
Link Distance (ft)		2559	2559		424	424			2591	2591		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)					1	1		4	0			28
Queuing Penalty (veh)					1	1		6	1			137

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	386	115
Average Queue (ft)	249	78
95th Queue (ft)	378	155
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	26	1
Queuing Penalty (veh)	76	3

Network Summary

Network wide Queuing Penalty: 352

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	53	94
Average Queue (ft)	12	27
95th Queue (ft)	41	56
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	31	117	129	79	2719	144	140	113
Average Queue (ft)	12	56	58	62	225	31	38	52
95th Queue (ft)	35	91	99	95	999	77	77	85
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					1			
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)		0		14	14	0		
Queuing Penalty (veh)		0		74	33	1		

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	90	133	128	71	176	138	45	154	200	118	94	105
Average Queue (ft)	41	64	87	39	116	42	15	125	90	58	38	72
95th Queue (ft)	81	119	136	66	166	105	28	165	180	103	77	129
Link Distance (ft)		2559	2559		602	602			2590	2590		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)						0		9				11
Queuing Penalty (veh)						0		12				52

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	438	115
Average Queue (ft)	242	55
95th Queue (ft)	424	132
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	32	1
Queuing Penalty (veh)	95	3

Network Summary

Network wide Queuing Penalty: 270

Intersection: 1: N. East Ave & Manning Ave

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	20	53	94
Average Queue (ft)	1	23	37
95th Queue (ft)	6	51	79
Link Distance (ft)	2142	1258	3051
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	69	212	247	79	1015	97	103	139
Average Queue (ft)	29	89	100	75	355	31	50	61
95th Queue (ft)	61	158	175	92	818	72	84	115
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)		5		37	15	0	0	
Queuing Penalty (veh)		2		295	54	0	0	

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	183	233	256	225	439	476	135	155	2654	2643	225	105
Average Queue (ft)	81	122	139	193	430	426	130	154	1915	1885	95	96
95th Queue (ft)	141	206	222	312	487	509	170	155	3287	3279	234	124
Link Distance (ft)		2559	2559		424	424			2591	2591		
Upstream Blk Time (%)					69	78			43	34		
Queuing Penalty (veh)					0	0			0	0		
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)		0		0	92	92	1	77	7	12	0	32
Queuing Penalty (veh)		0		0	103	153	2	265	38	39	1	384

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	4076	115
Average Queue (ft)	3914	71
95th Queue (ft)	4695	146
Link Distance (ft)	4013	
Upstream Blk Time (%)	91	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		90
Storage Blk Time (%)	58	2
Queuing Penalty (veh)	428	29

Network Summary

Network wide Queuing Penalty: 1794

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	135	96
Average Queue (ft)	24	40
95th Queue (ft)	68	81
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	124	262	257	79	406	71	95	136
Average Queue (ft)	32	110	115	66	172	32	49	53
95th Queue (ft)	88	188	190	93	343	62	78	104
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)		11		18	12			
Queuing Penalty (veh)		3		151	45			

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	265	241	280	225	665	636	135	155	2629	2653	225	105
Average Queue (ft)	87	119	157	201	567	557	110	154	2107	2083	87	86
95th Queue (ft)	177	217	271	300	801	804	192	155	3334	3345	227	130
Link Distance (ft)		2559	2559		602	602			2590	2590		
Upstream Blk Time (%)					59	69			54	38		
Queuing Penalty (veh)					0	0			0	0		
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)	0	0		0	86	86	1	83	8	13	0	14
Queuing Penalty (veh)	0	0		0	97	144	2	287	43	44	0	170

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	4066	115
Average Queue (ft)	3899	63
95th Queue (ft)	4749	139
Link Distance (ft)	4013	
Upstream Blk Time (%)	90	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		90
Storage Blk Time (%)	68	1
Queuing Penalty (veh)	498	15

Network Summary

Network wide Queuing Penalty: 1499

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	68
Average Queue (ft)	7	26
95th Queue (ft)	26	52
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	50	134	146	79	366	92	80	72
Average Queue (ft)	22	67	71	64	135	41	47	28
95th Queue (ft)	50	111	114	96	273	80	72	69
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)		2		15	13			
Queuing Penalty (veh)		1		67	25			

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	111	108	149	107	172	141	59	148	116	118	50	104
Average Queue (ft)	43	49	83	32	92	31	19	90	69	28	15	60
95th Queue (ft)	85	86	131	73	152	85	41	145	112	74	43	101
Link Distance (ft)		2559	2559		602	602			614	614		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)						0		2	0			6
Queuing Penalty (veh)						0		2	0			18

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	264	115
Average Queue (ft)	92	14
95th Queue (ft)	196	51
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	10	0
Queuing Penalty (veh)	16	0

Network Summary

Network wide Queuing Penalty: 130

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	70
Average Queue (ft)	5	30
95th Queue (ft)	22	53
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	124	215	194	79	1254	114	135	109
Average Queue (ft)	30	113	123	77	507	41	57	34
95th Queue (ft)	86	179	185	87	934	91	99	78
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)	0	14		52	34	1	0	
Queuing Penalty (veh)	0	4		243	67	3	0	

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	130	200	279	112	153	139	129	154	378	364	74	105
Average Queue (ft)	59	54	82	52	79	29	19	107	102	58	15	64
95th Queue (ft)	118	122	169	104	135	88	57	163	249	179	52	115
Link Distance (ft)		2559	2559		602	602			614	614		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)						1	0	14	1	0		13
Queuing Penalty (veh)						1	0	17	1	0		42

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	374	115
Average Queue (ft)	117	25
95th Queue (ft)	246	87
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	12	
Queuing Penalty (veh)	20	

Network Summary

Network wide Queuing Penalty: 397

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	28	50
Average Queue (ft)	5	30
95th Queue (ft)	22	49
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	73	191	185	79	1387	159	140	96
Average Queue (ft)	25	95	99	76	476	45	65	40
95th Queue (ft)	59	156	158	84	1161	90	111	81
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)		6		37	22		1	
Queuing Penalty (veh)		2		195	50		1	

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	176	158	188	135	268	245	54	154	284	261	72	105
Average Queue (ft)	52	83	108	43	121	70	25	127	117	88	18	82
95th Queue (ft)	104	145	181	91	211	177	45	168	237	180	48	122
Link Distance (ft)		2559	2559		424	424			2591	2591		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)					1	1		13	0	0		15
Queuing Penalty (veh)					1	2		22	0	0		66

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	555	115
Average Queue (ft)	229	62
95th Queue (ft)	412	143
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	36	1
Queuing Penalty (veh)	83	3

Network Summary

Network wide Queuing Penalty: 423

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	53	128
Average Queue (ft)	10	39
95th Queue (ft)	33	86
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	125	262	287	79	2580	249	96	138
Average Queue (ft)	54	181	189	70	2245	59	55	37
95th Queue (ft)	108	237	252	102	3189	131	94	86
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)					8			
Queuing Penalty (veh)					52			
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)	1	34		32	47	1	0	
Queuing Penalty (veh)	2	12		173	106	3	0	

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	133	226	236	225	584	551	135	154	626	482	55	105
Average Queue (ft)	56	67	111	79	218	182	63	153	331	166	15	89
95th Queue (ft)	106	165	213	197	443	413	68	159	574	341	46	129
Link Distance (ft)		2559	2559		602	602			5176	5176		
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					0							
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)				0	18	25	0	74	2	1		24
Queuing Penalty (veh)				0	12	29	0	128	6	0		106

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	904	115
Average Queue (ft)	658	66
95th Queue (ft)	958	146
Link Distance (ft)	4013	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)	51	4
Queuing Penalty (veh)	116	22

Intersection: 8: S Buttonwillow Ave & Dinuba Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	481	154	257	209
Average Queue (ft)	183	57	125	87
95th Queue (ft)	362	106	243	150
Link Distance (ft)	4228	3322	736	5176
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 768

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	179
Average Queue (ft)	16	68
95th Queue (ft)	35	151
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	125	340	398	79	1155	168	140	116
Average Queue (ft)	47	154	162	75	481	75	87	49
95th Queue (ft)	98	245	262	86	1009	125	143	92
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)	0	21		40	28	1	3	
Queuing Penalty (veh)	1	13		337	101	2	4	

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	175	267	343	225	458	463	135	155	2650	2643	225	105
Average Queue (ft)	77	151	194	197	376	383	130	154	2336	2294	80	93
95th Queue (ft)	139	236	276	296	535	547	161	155	3285	3345	238	132
Link Distance (ft)		2559	2559		424	424			2591	2591		
Upstream Blk Time (%)					41	52			72	50		
Queuing Penalty (veh)					0	0			0	0		
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)		1		0	71	76	2	76	21	30	0	29
Queuing Penalty (veh)		1		0	87	169	5	345	124	31	0	309

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	4065	115
Average Queue (ft)	3870	60
95th Queue (ft)	4759	137
Link Distance (ft)	4013	
Upstream Blk Time (%)	87	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		90
Storage Blk Time (%)	57	0
Queuing Penalty (veh)	321	1

Network Summary

Network wide Queuing Penalty: 1853

Intersection: 1: N. East Ave & Manning Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	26	137
Average Queue (ft)	9	57
95th Queue (ft)	29	118
Link Distance (ft)	1258	3051
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: N Columbia Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	125	432	401	79	2575	328	139	140
Average Queue (ft)	73	248	250	75	1885	88	78	58
95th Queue (ft)	116	358	351	91	3397	201	135	113
Link Distance (ft)		1258	1258		2559	1410		465
Upstream Blk Time (%)					5			
Queuing Penalty (veh)					64			
Storage Bay Dist (ft)	100			55			115	
Storage Blk Time (%)	5	38		37	42	5	2	
Queuing Penalty (veh)	21	23		325	151	17	3	

Intersection: 3: S Buttonwillow Ave & Manning Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	196	324	391	225	654	636	135	155	2642	2642	225	105
Average Queue (ft)	119	161	195	184	447	433	122	154	2367	2359	65	74
95th Queue (ft)	198	281	315	294	771	780	177	155	3226	3241	214	133
Link Distance (ft)		2559	2559		602	602			2590	2590		
Upstream Blk Time (%)					39	44			74	59		
Queuing Penalty (veh)					0	0			0	0		
Storage Bay Dist (ft)	250			200			110	130			200	80
Storage Blk Time (%)		3		0	66	73	1	88	17	40	0	19
Queuing Penalty (veh)		4		0	82	163	3	399	106	42	0	204

Intersection: 3: S Buttonwillow Ave & Manning Ave

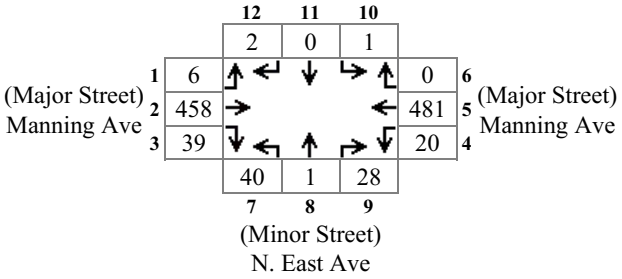
Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	4066	115
Average Queue (ft)	3860	46
95th Queue (ft)	4782	123
Link Distance (ft)	4013	
Upstream Blk Time (%)	87	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		90
Storage Blk Time (%)	66	0
Queuing Penalty (veh)	377	1

Network Summary

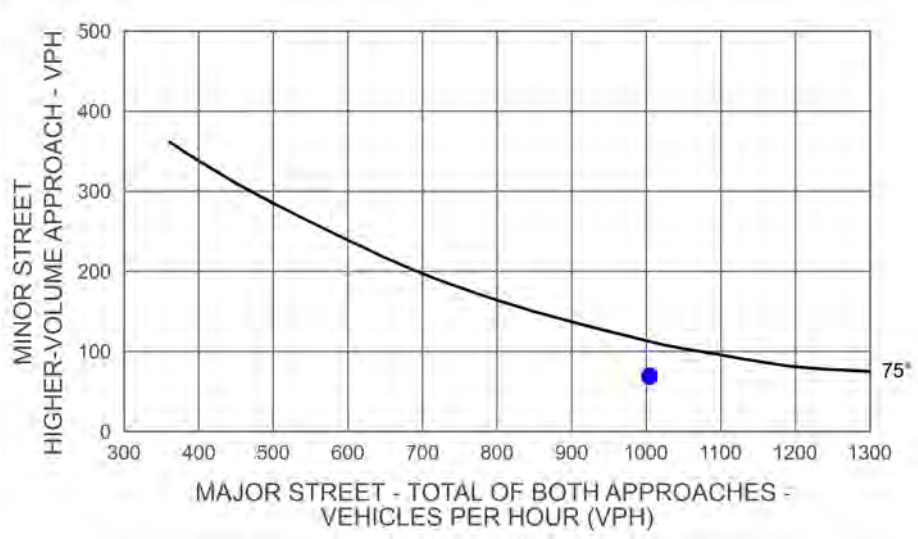
Network wide Queuing Penalty: 1985

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 1

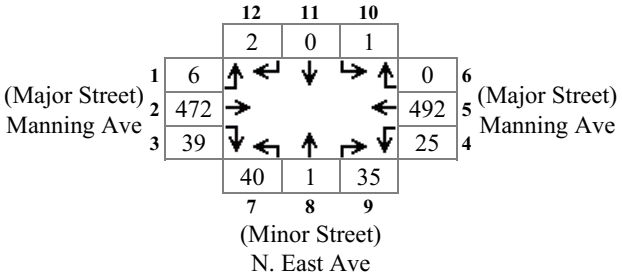


Major Total: 1004
Minor High Volume: 69

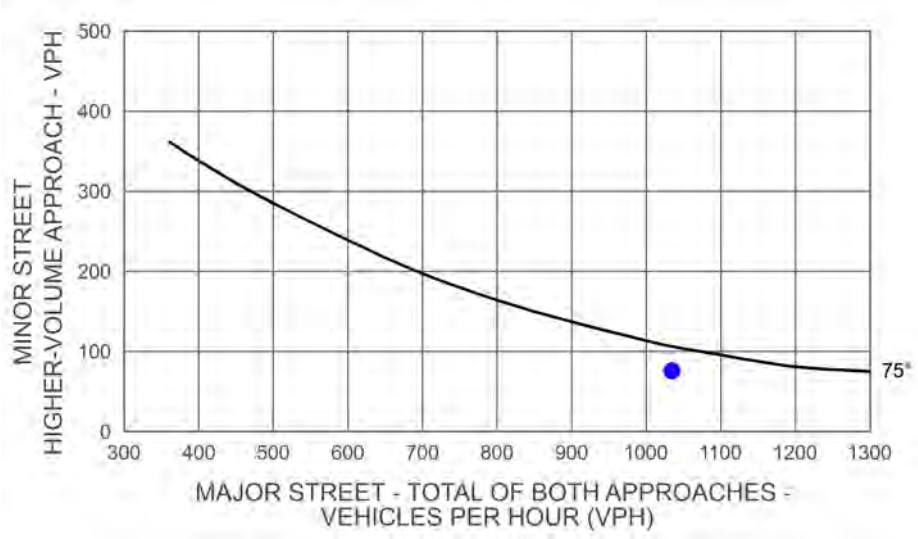


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 1

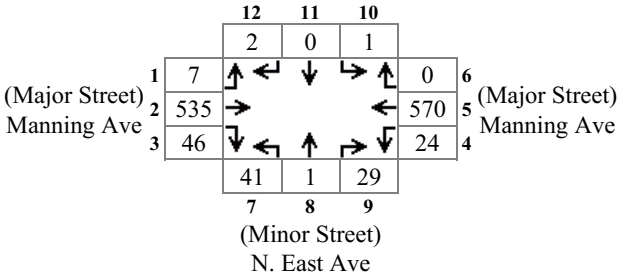


Major Total: 1034
Minor High Volume: 76

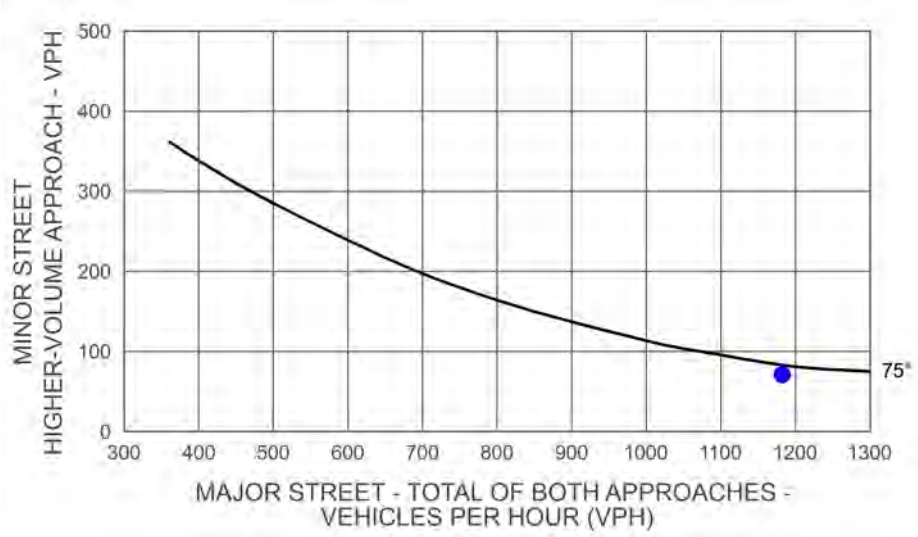


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 1

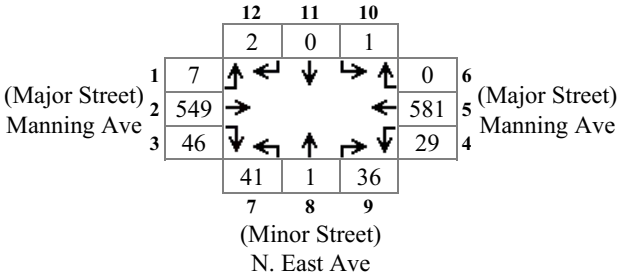


Major Total: 1182
Minor High Volume: 71

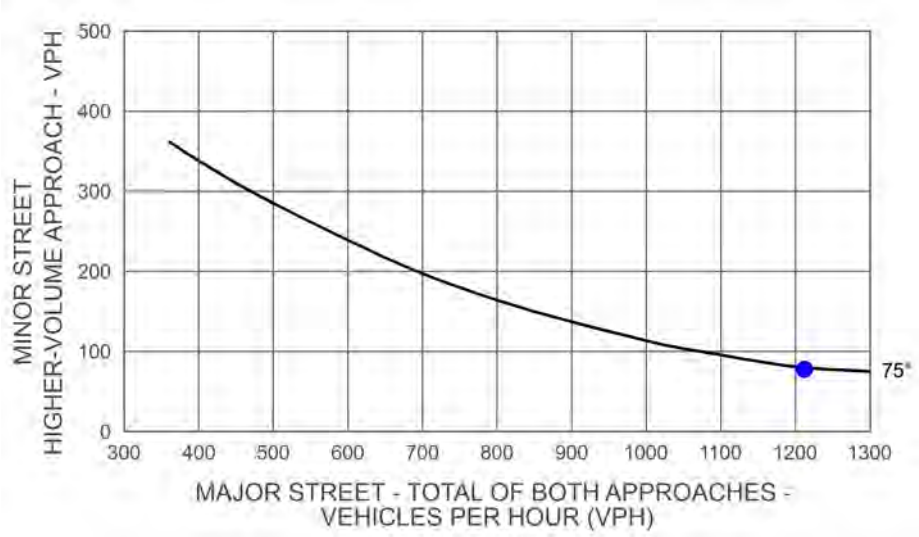


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 1

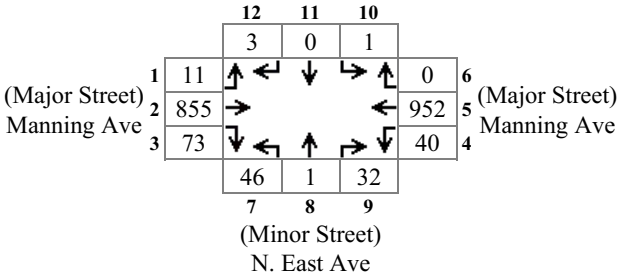


Major Total: 1212
Minor High Volume: 78

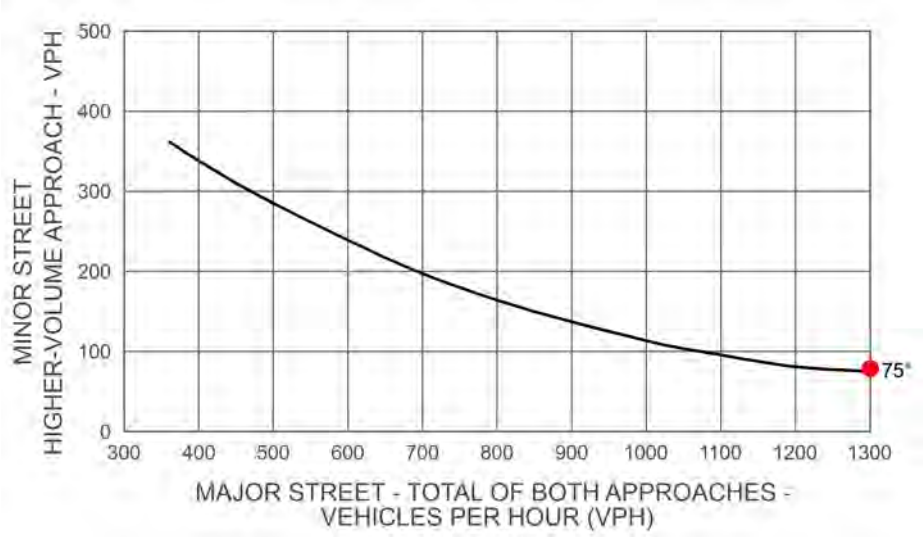


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 1



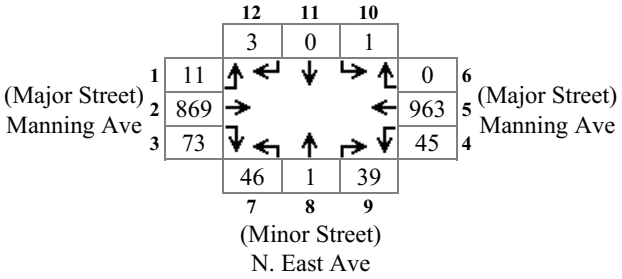
Major Total: 1931
Minor High Volume: 79



Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

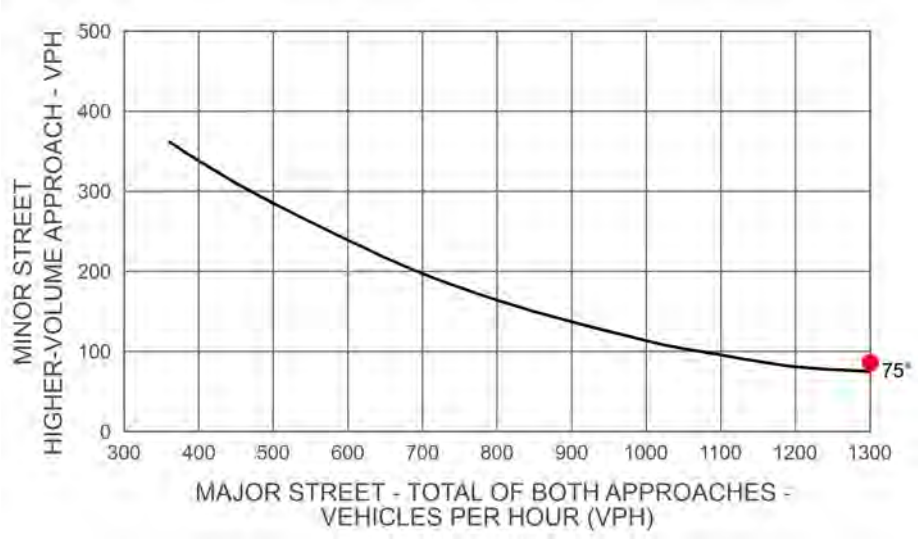
Scenario: PM Future+Project

Intersection #: 1



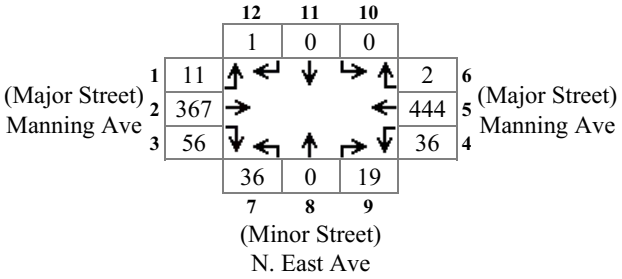
Major Total: 1961

Minor High Volume: 86

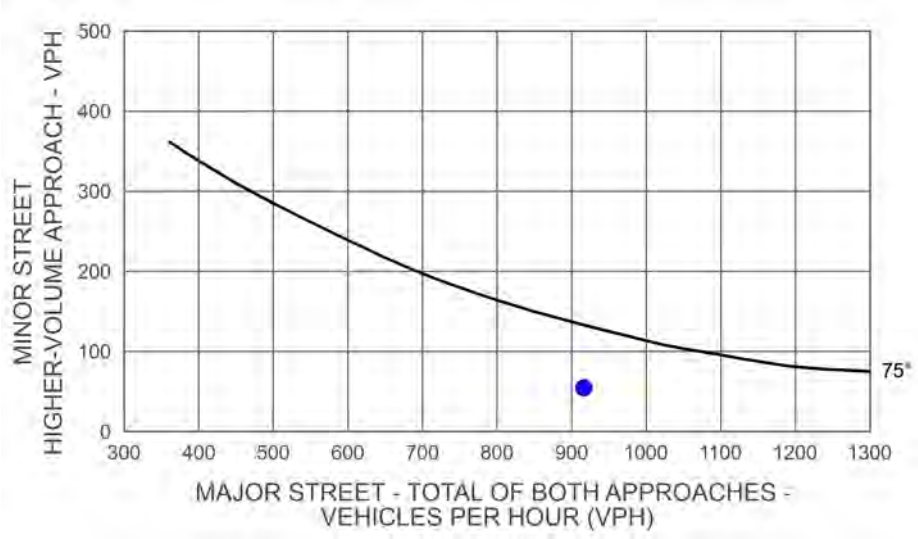


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 1

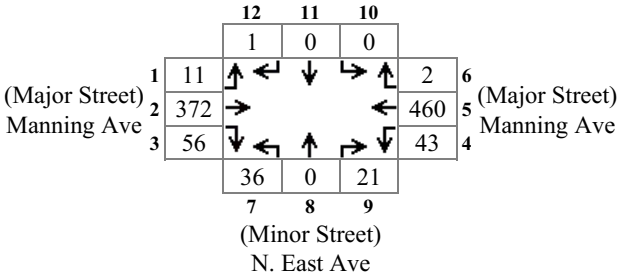


Major Total: 916
Minor High Volume: 55

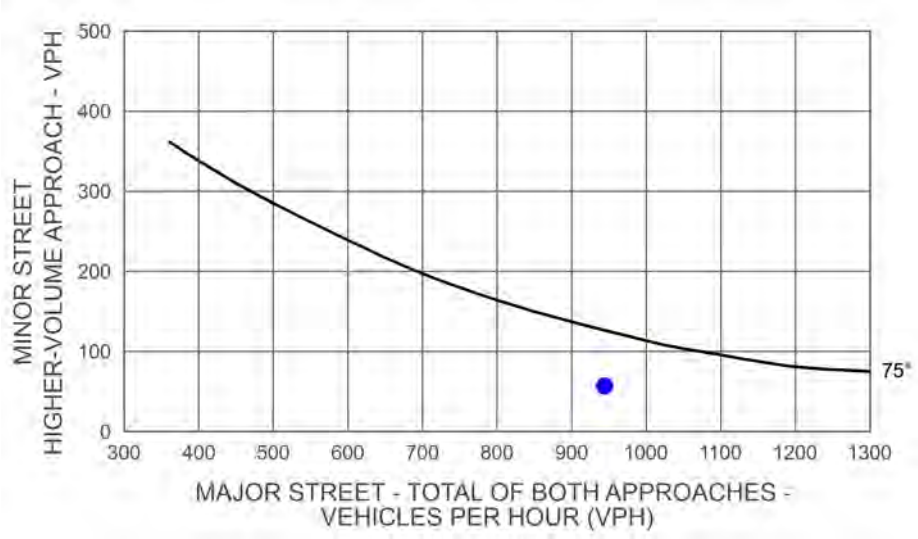


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 1

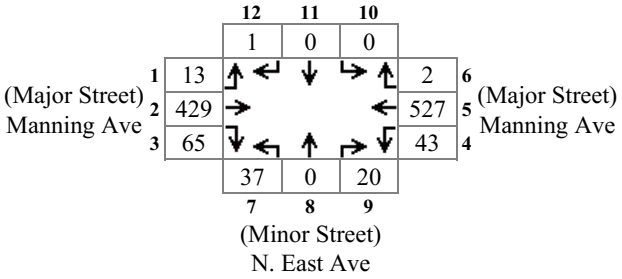


Major Total: 944
Minor High Volume: 57

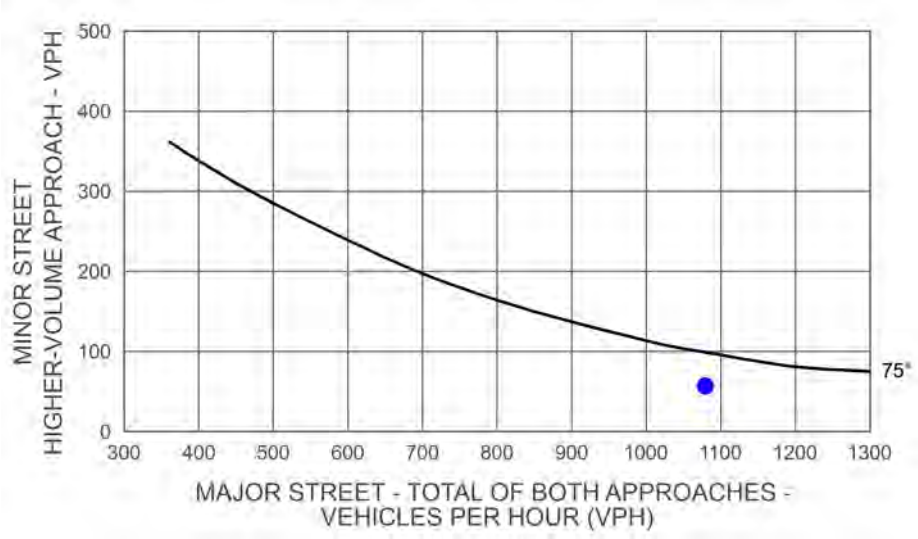


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 1

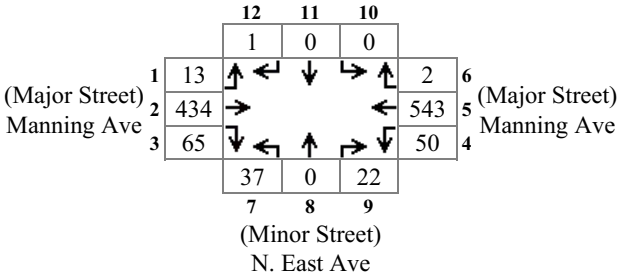


Major Total: 1079
Minor High Volume: 57

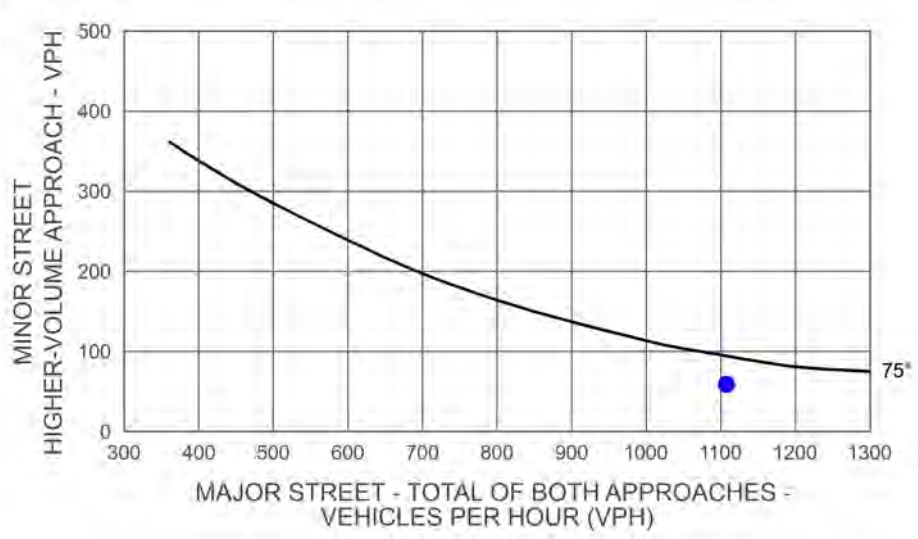


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 1



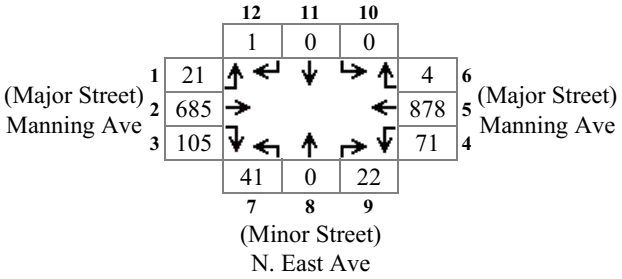
Major Total: 1107
Minor High Volume: 59



Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

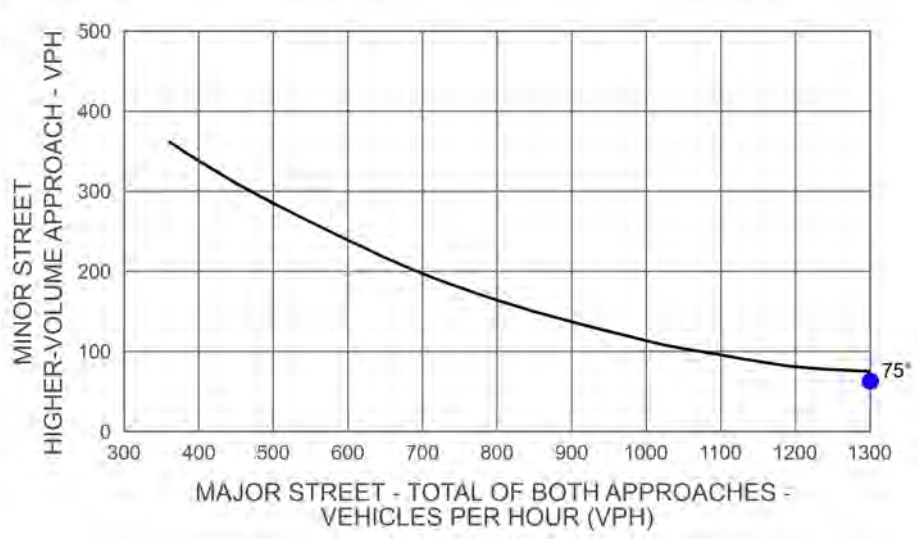
Scenario: AM Future

Intersection #: 1



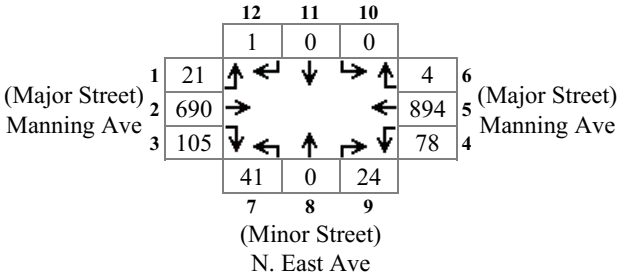
Major Total: 1764

Minor High Volume: 63

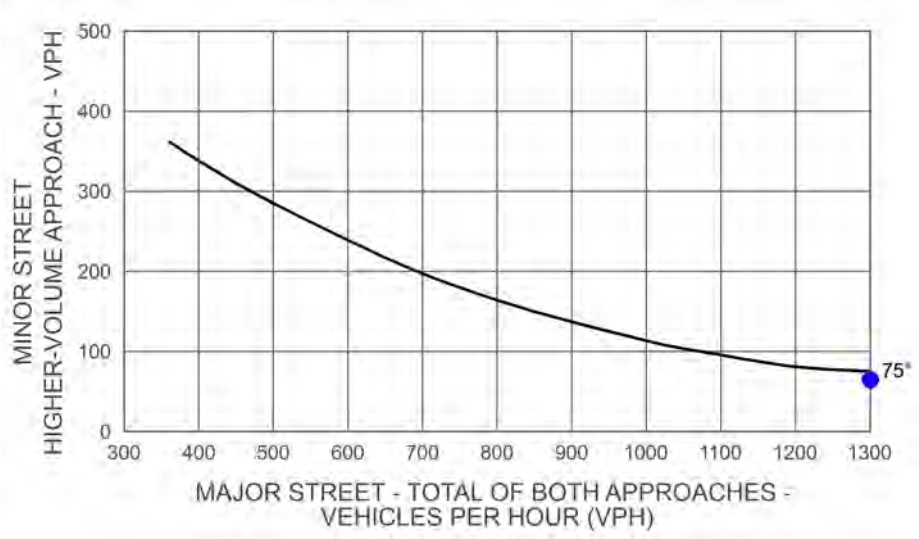


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 1

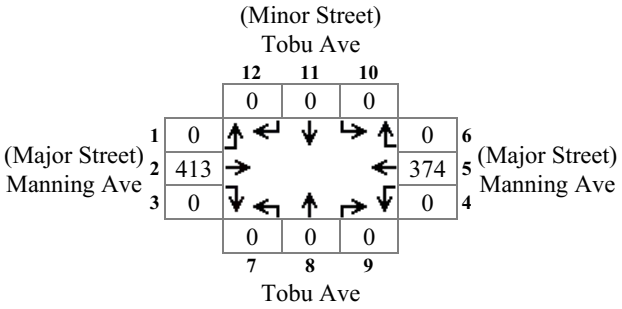


Major Total: 1792
Minor High Volume: 65

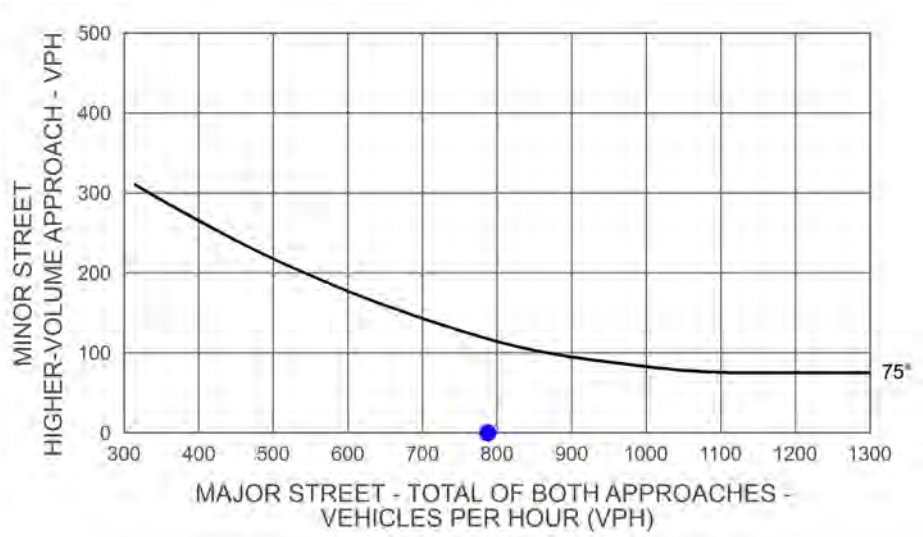


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 4

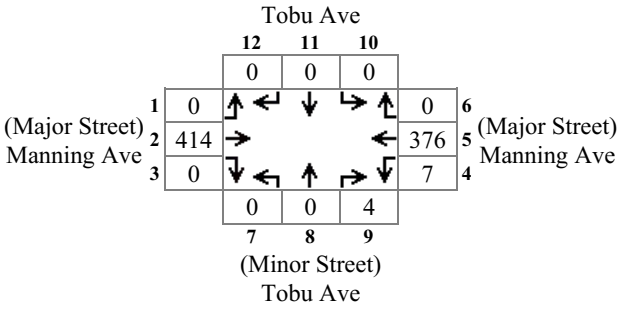


Major Total: 787
Minor High Volume: 0

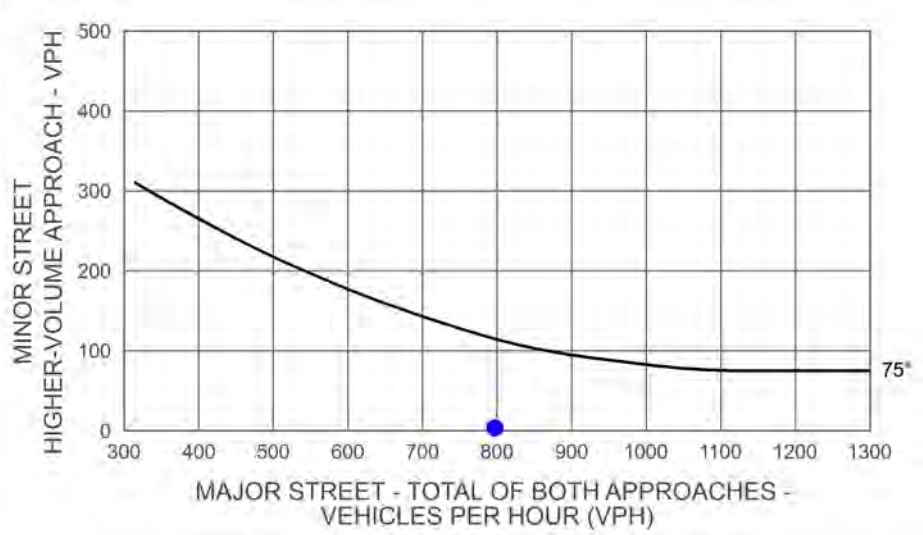


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 4

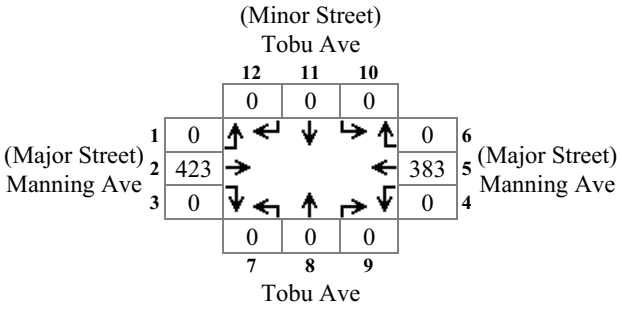


Major Total: 797
Minor High Volume: 4

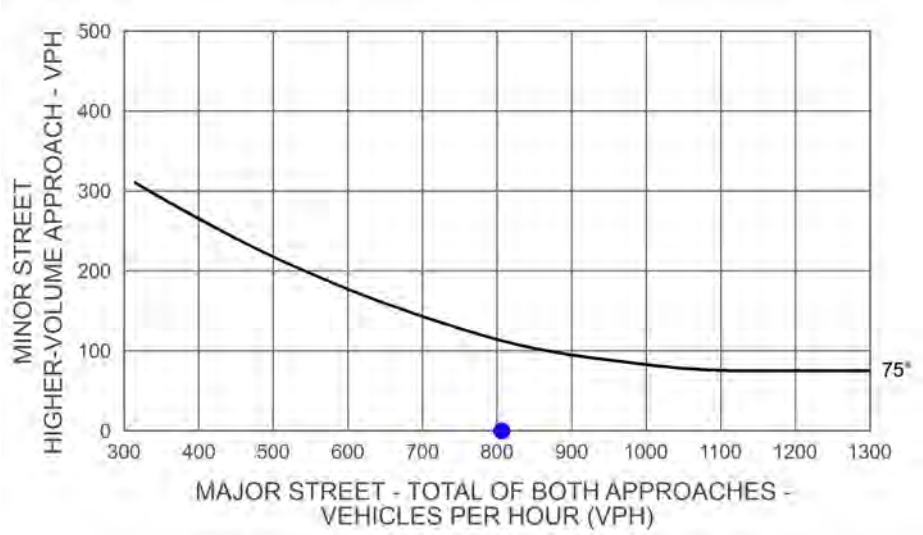


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 4

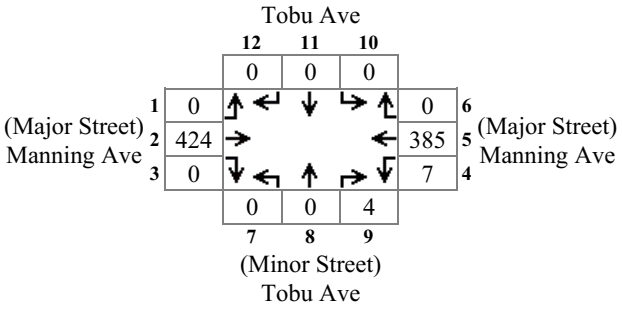


Major Total: 806
Minor High Volume: 0

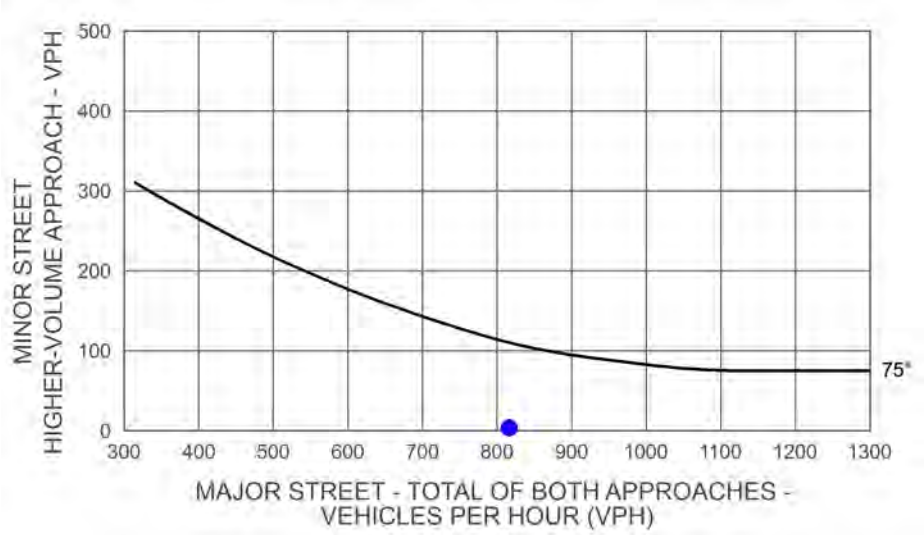


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 4

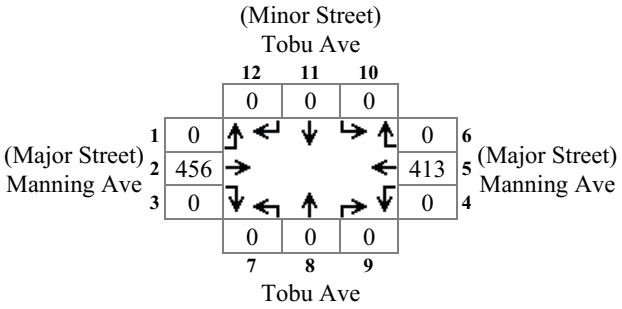


Major Total: 816
Minor High Volume: 4

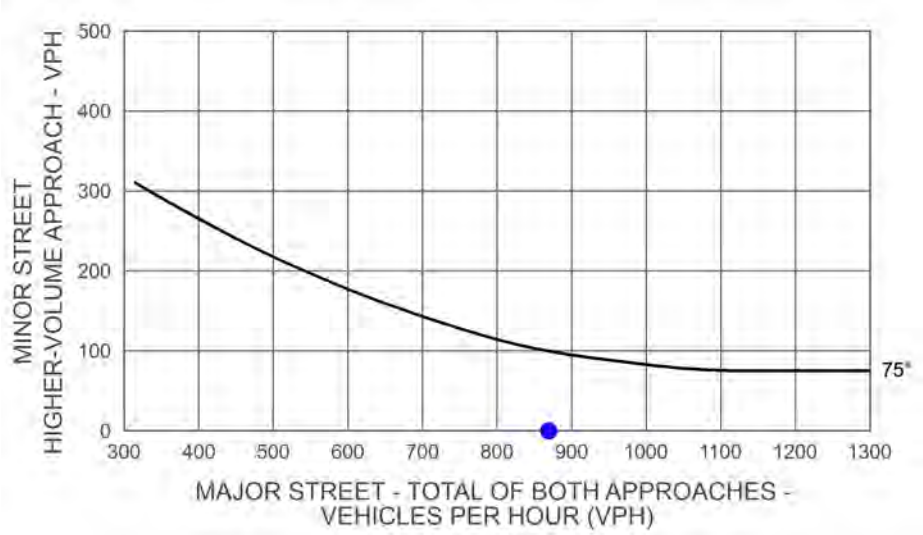


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 4

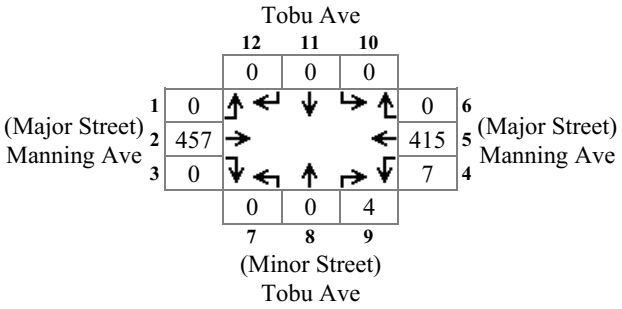


Major Total: 869
Minor High Volume: 0

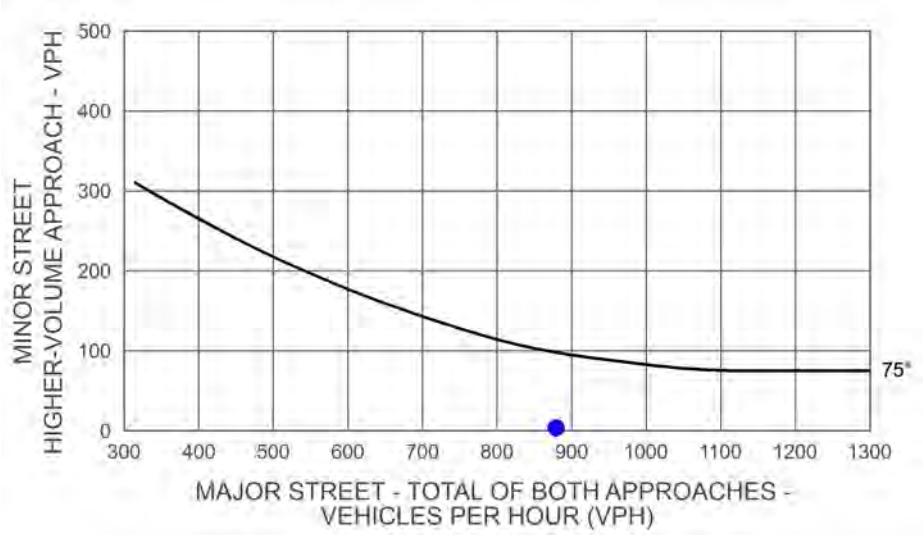


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 4

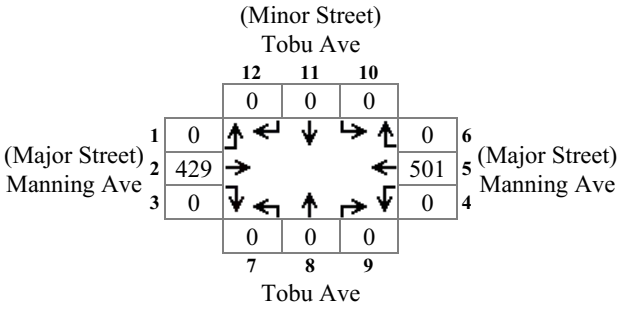


Major Total: 879
Minor High Volume: 4

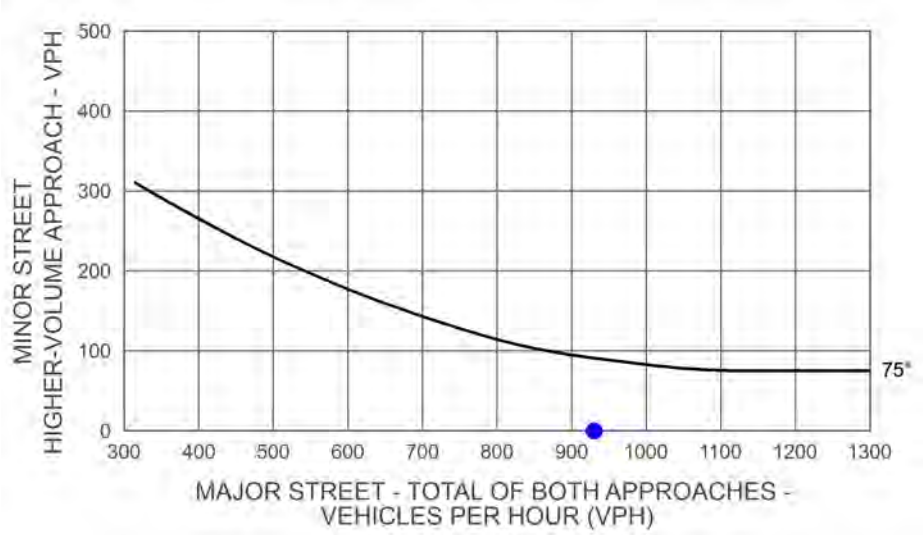


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 4

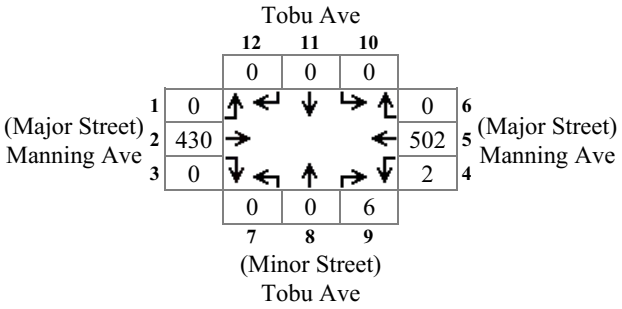


Major Total: 930
Minor High Volume: 0

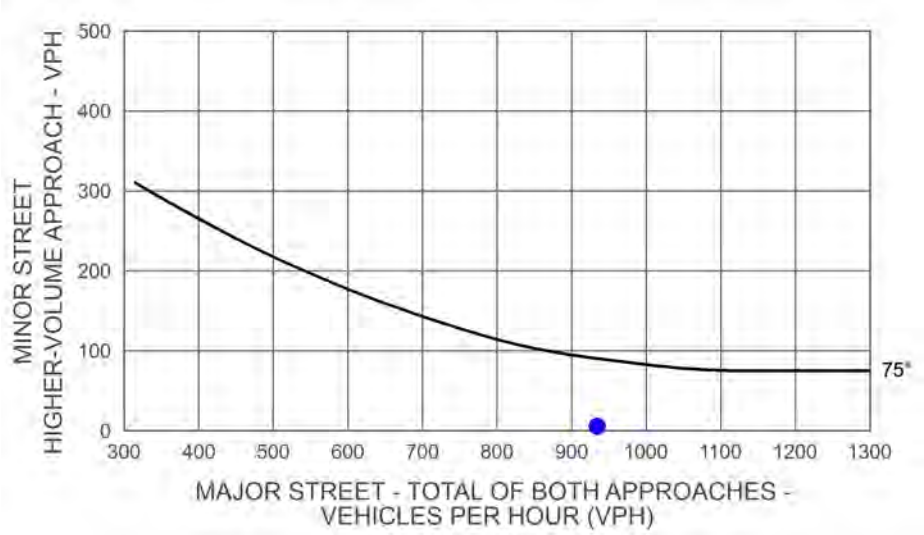


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 4

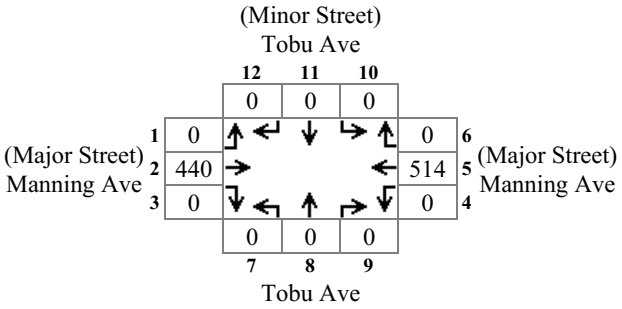


Major Total: 934
Minor High Volume: 6

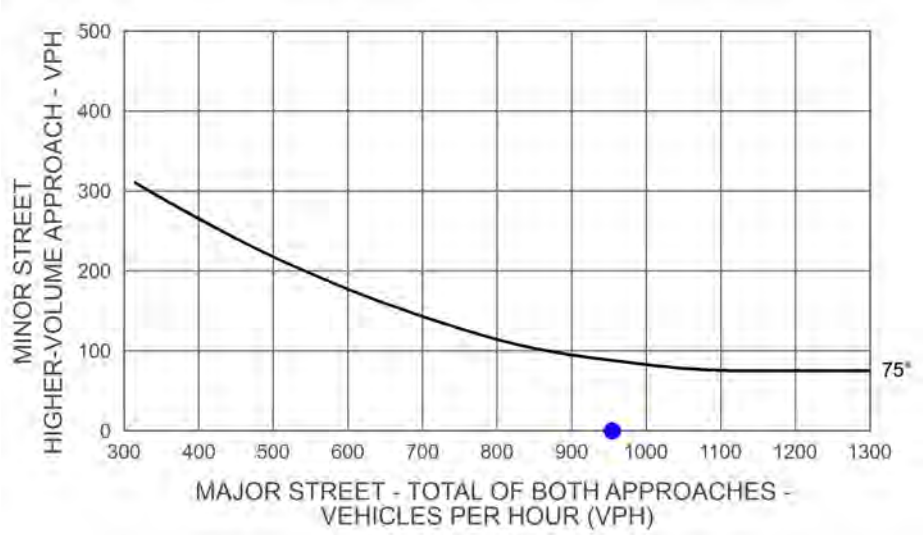


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 4

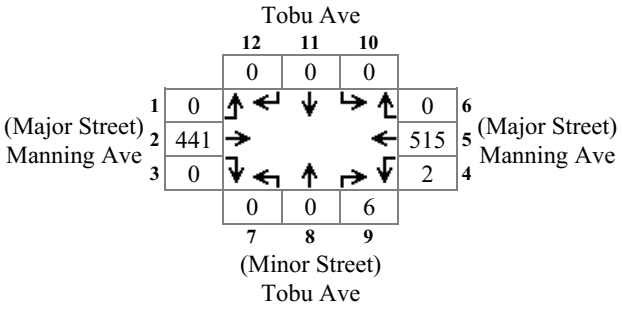


Major Total: 954
Minor High Volume: 0

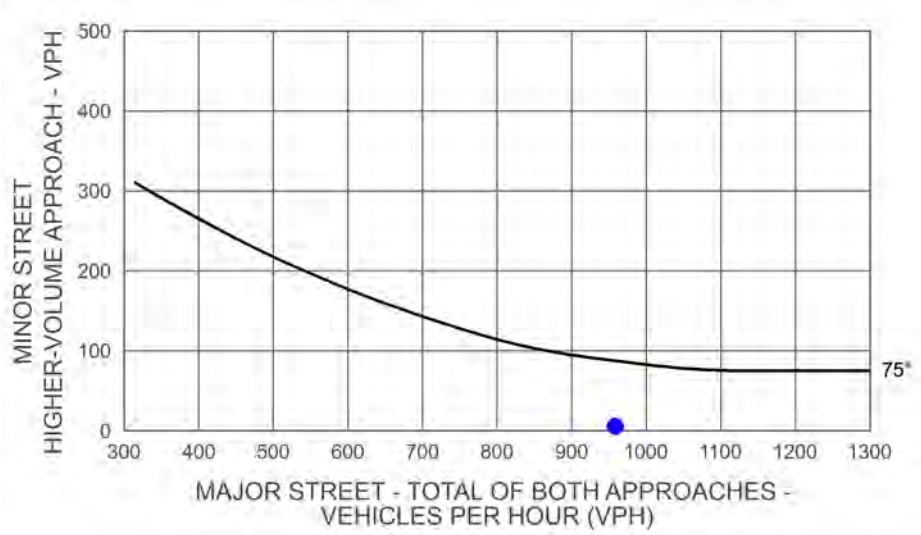


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 4

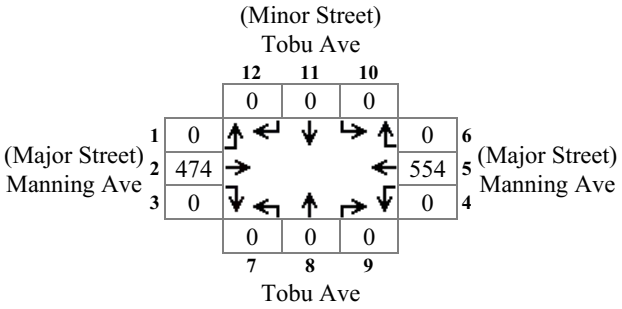


Major Total: 958
Minor High Volume: 6

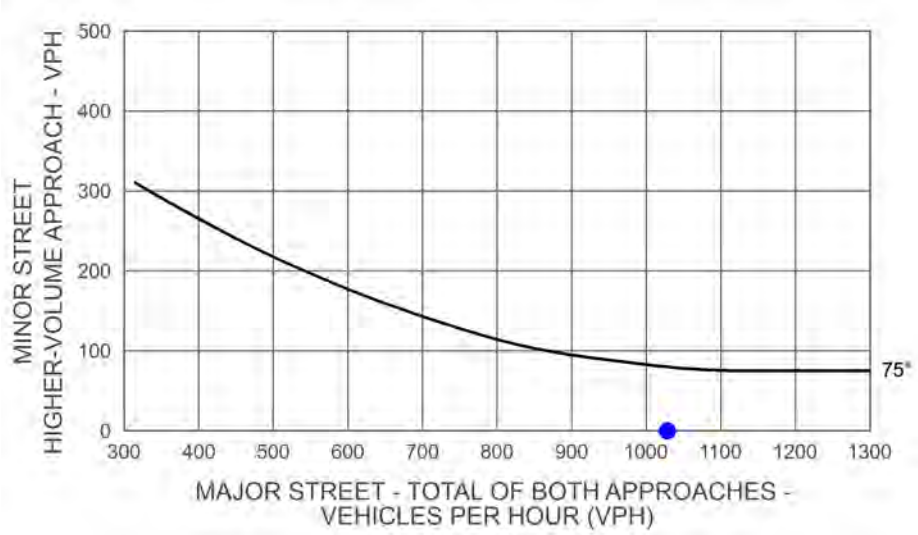


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 4

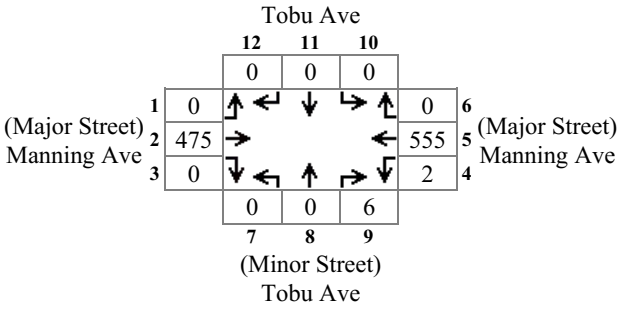


Major Total: 1028
Minor High Volume: 0

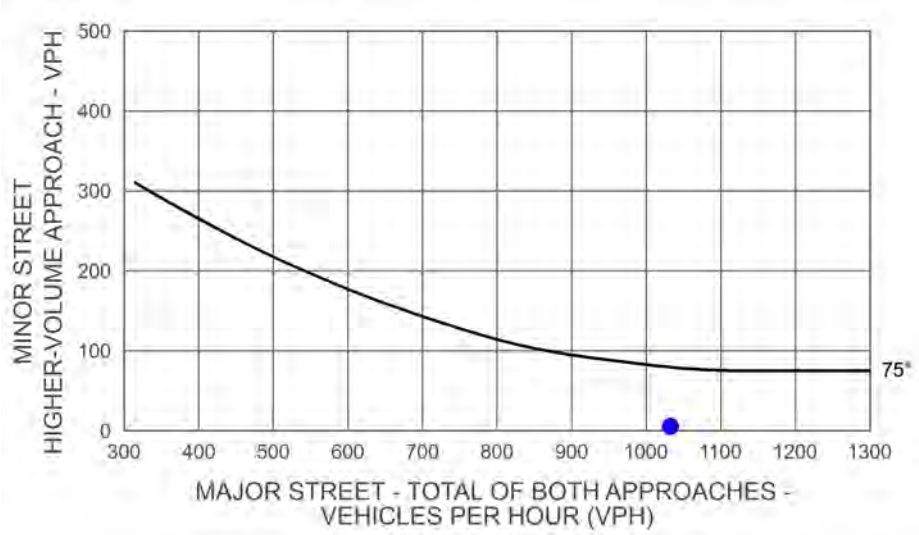


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 4

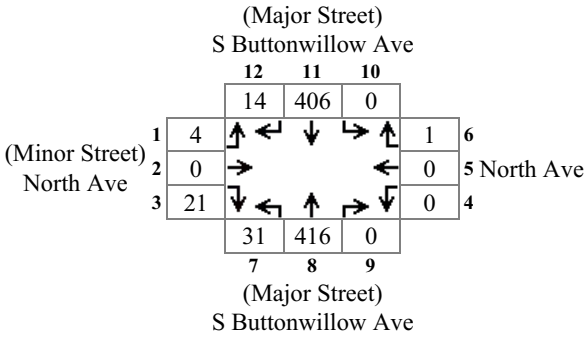


Major Total: 1032
Minor High Volume: 6

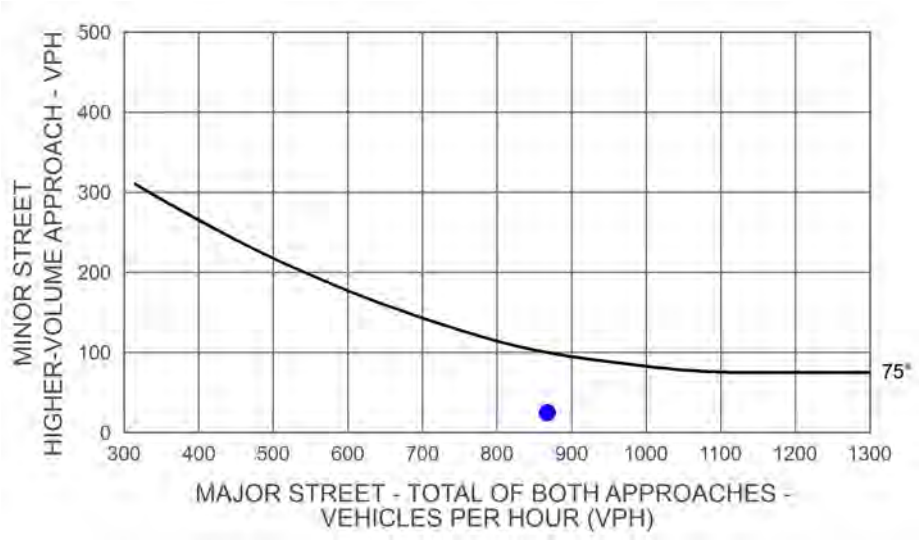


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 5

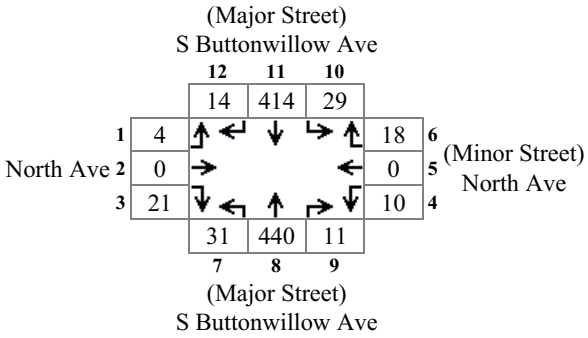


Major Total: 867
Minor High Volume: 25

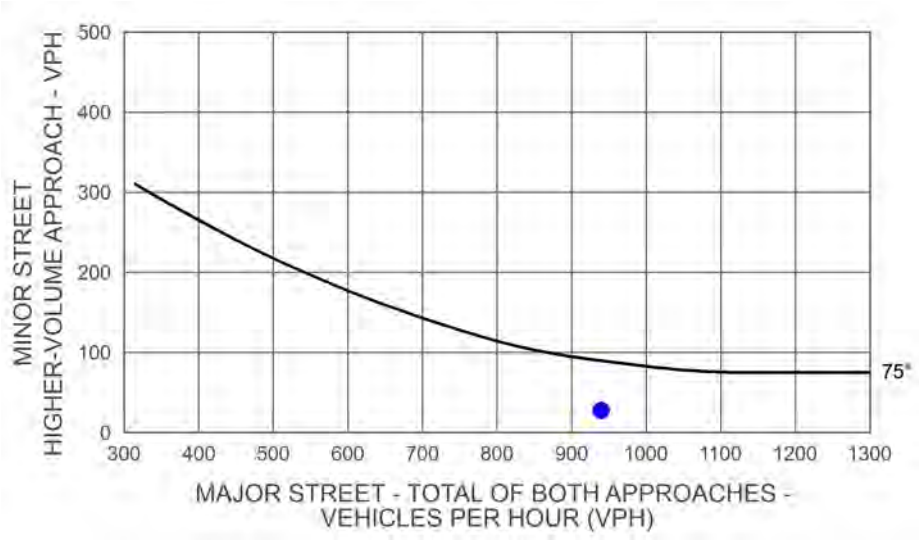


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 5

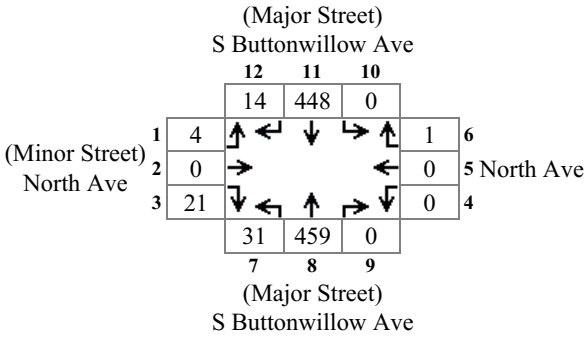


Major Total: 939
Minor High Volume: 28

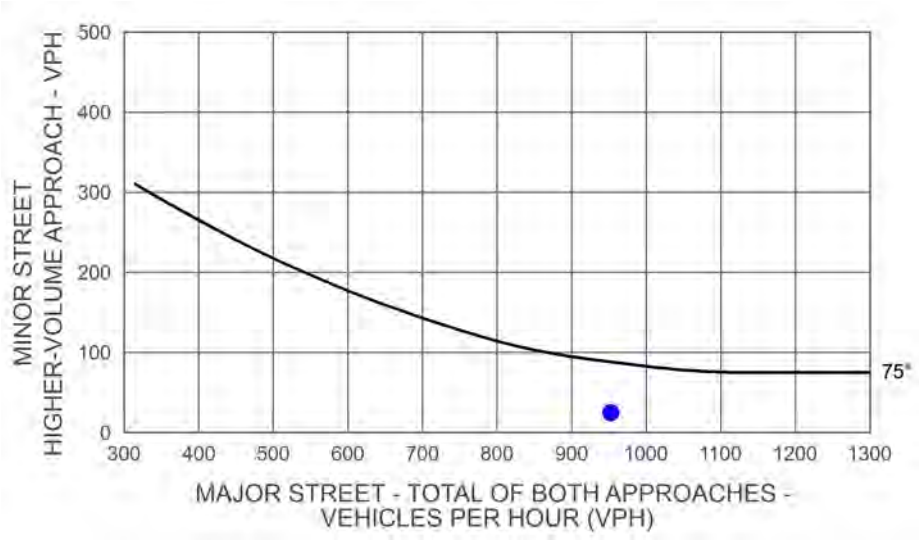


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 5

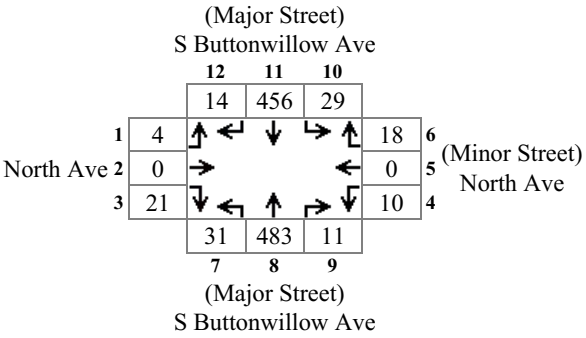


Major Total: 952
Minor High Volume: 25

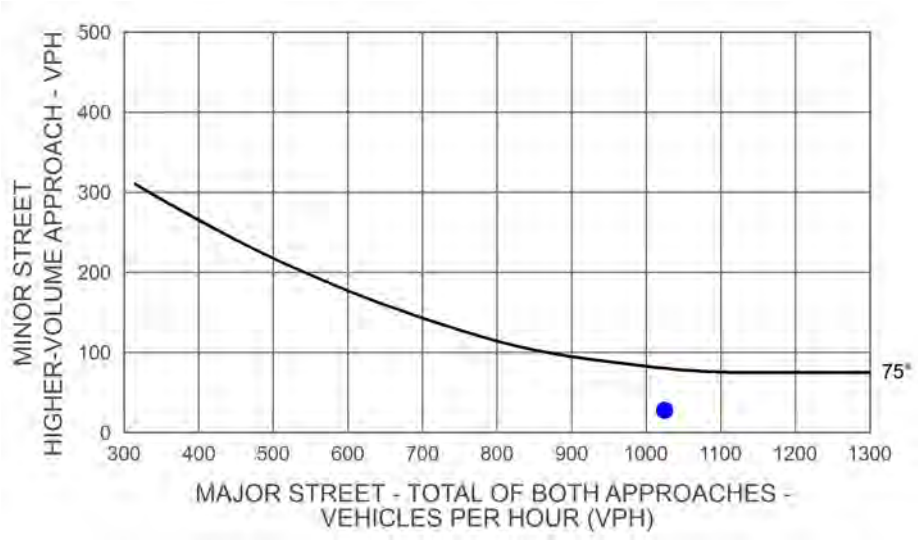


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 5

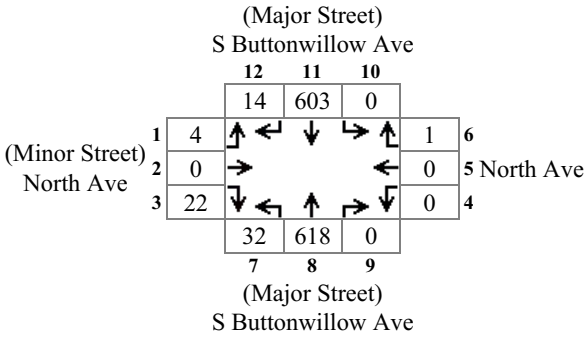


Major Total: 1024
Minor High Volume: 28

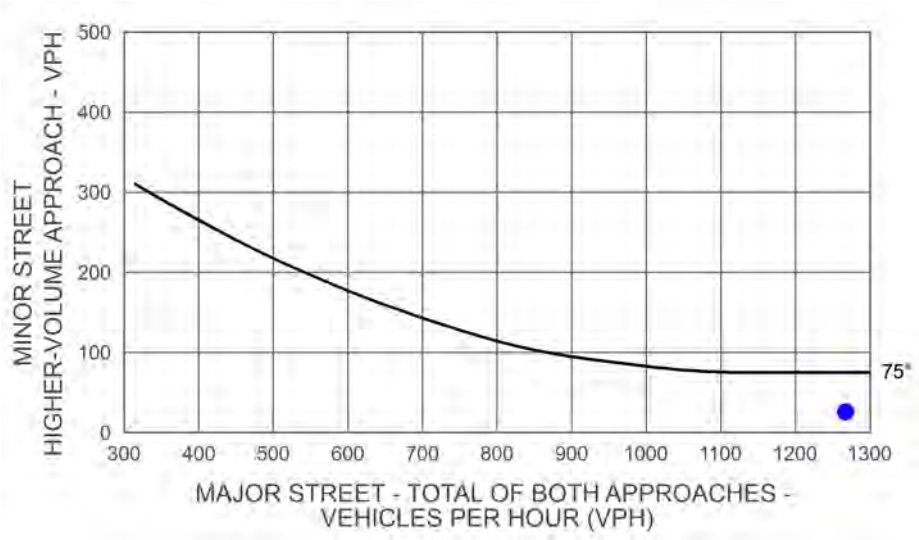


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 5

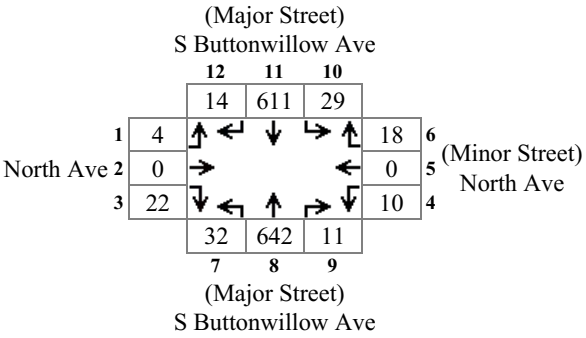


Major Total: 1267
Minor High Volume: 26

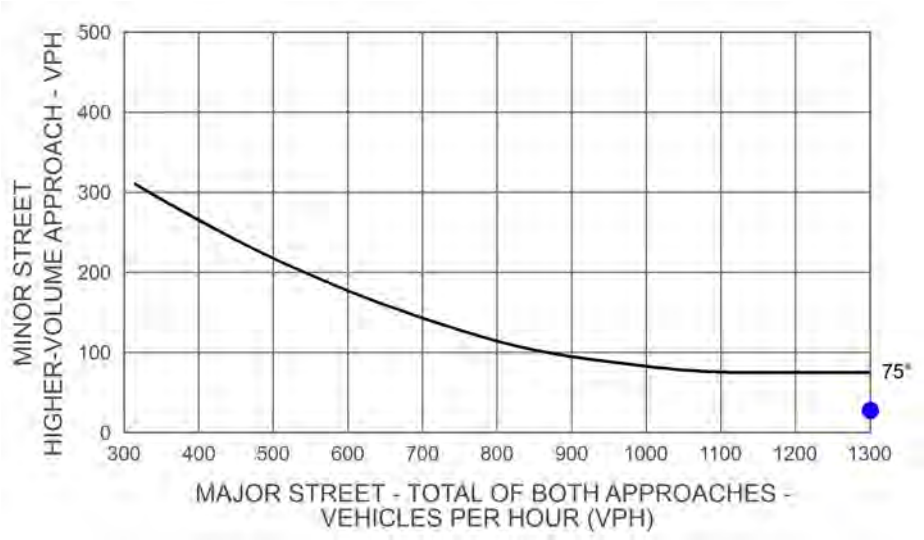


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 5

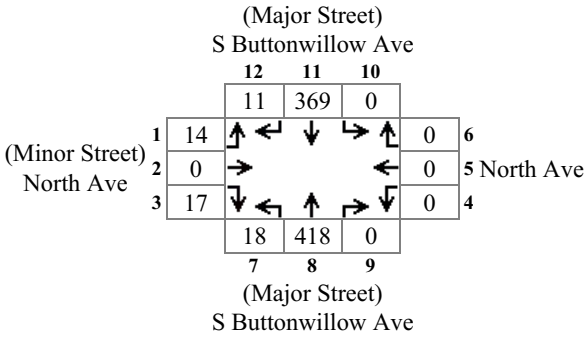


Major Total: 1339
Minor High Volume: 28

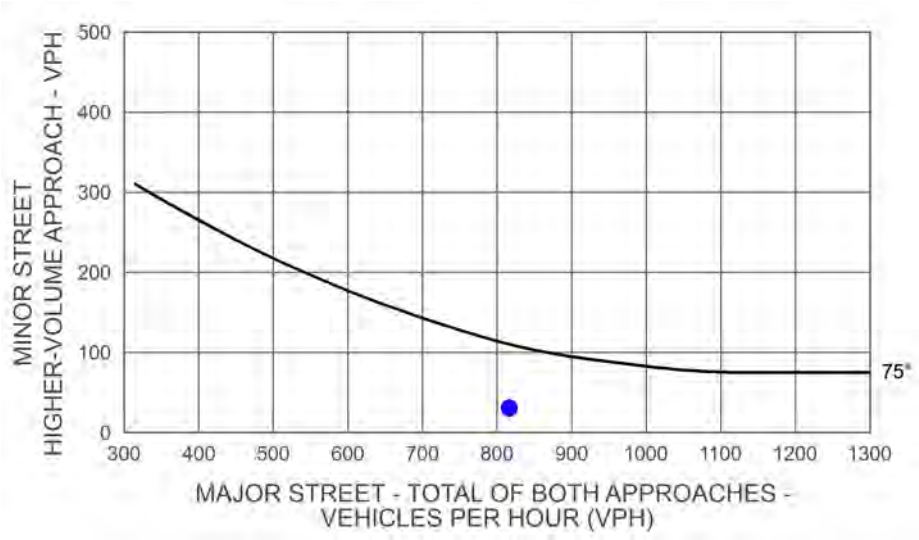


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 5

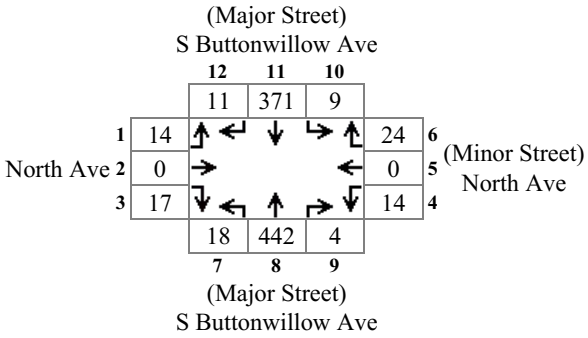


Major Total: 816
Minor High Volume: 31

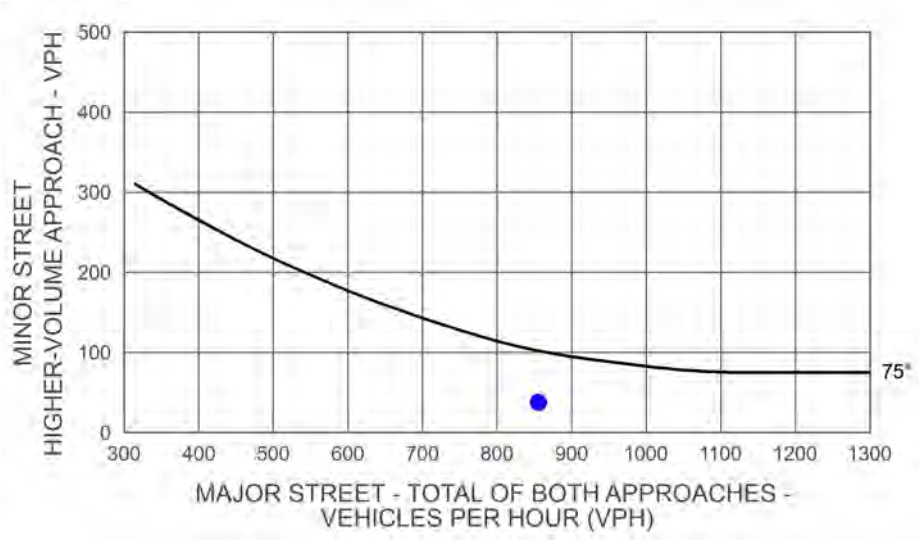


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 5

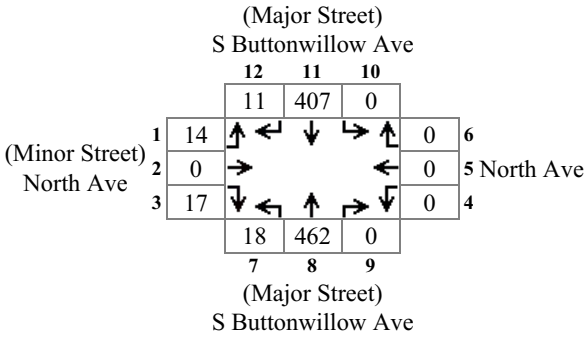


Major Total: 855
Minor High Volume: 38

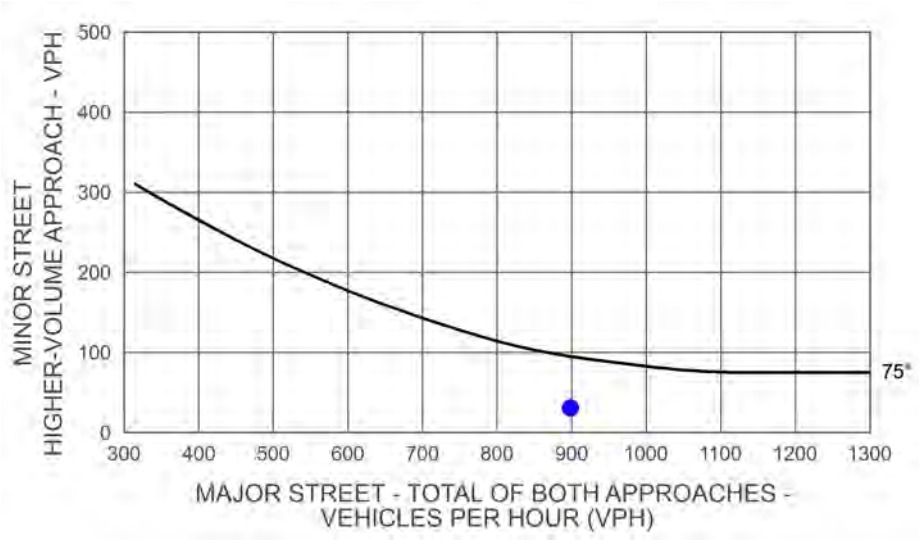


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 5

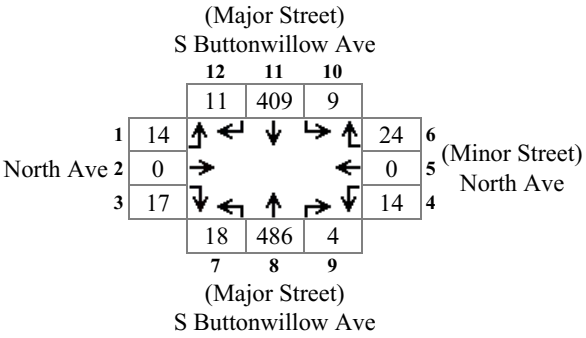


Major Total: 898
Minor High Volume: 31

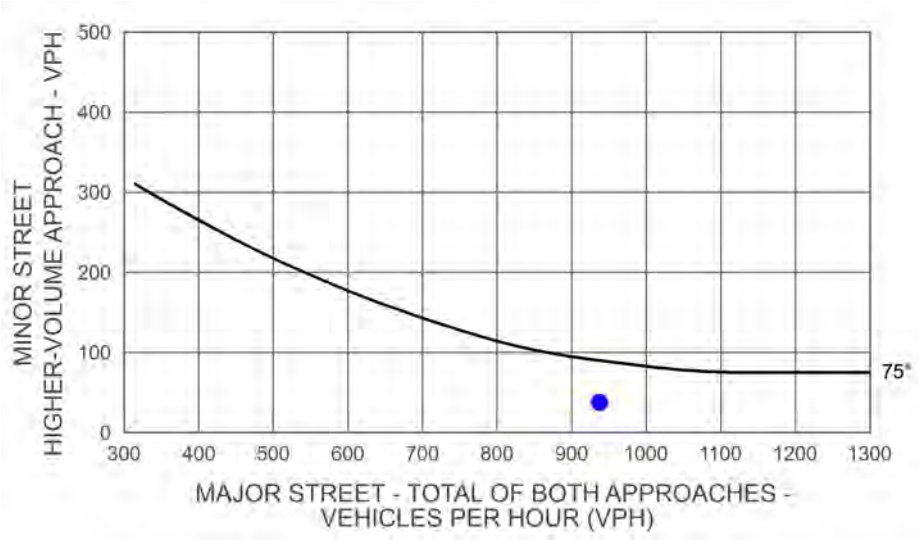


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 5

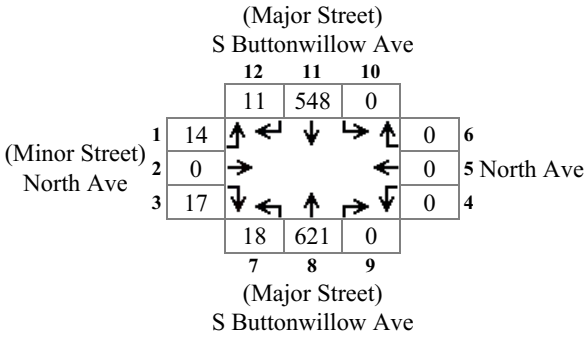


Major Total: 937
Minor High Volume: 38

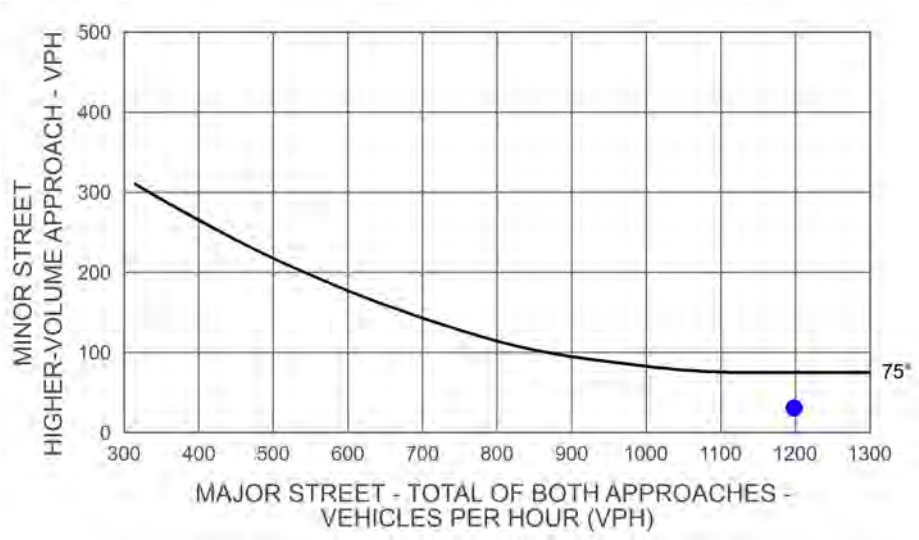


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 5

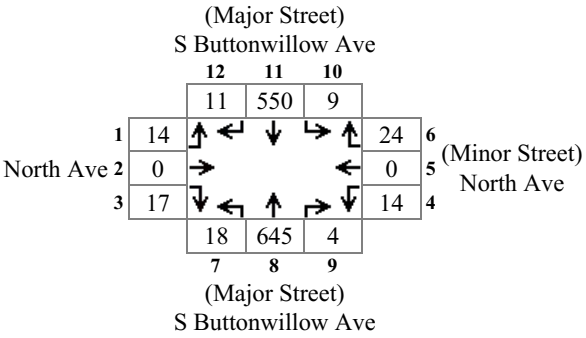


Major Total: 1198
Minor High Volume: 31

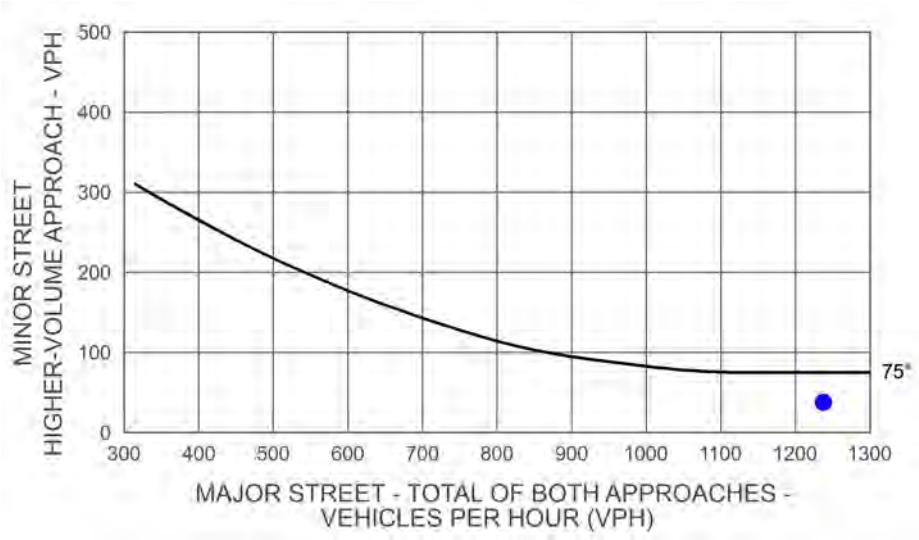


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 5

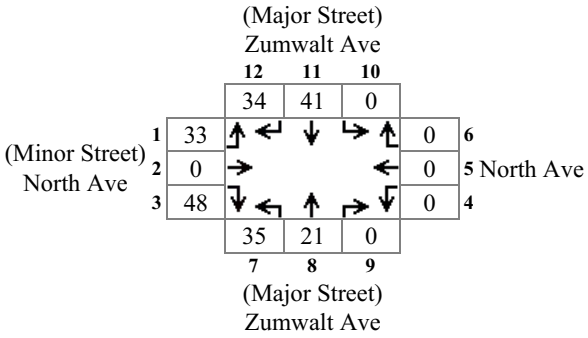


Major Total: 1237
Minor High Volume: 38

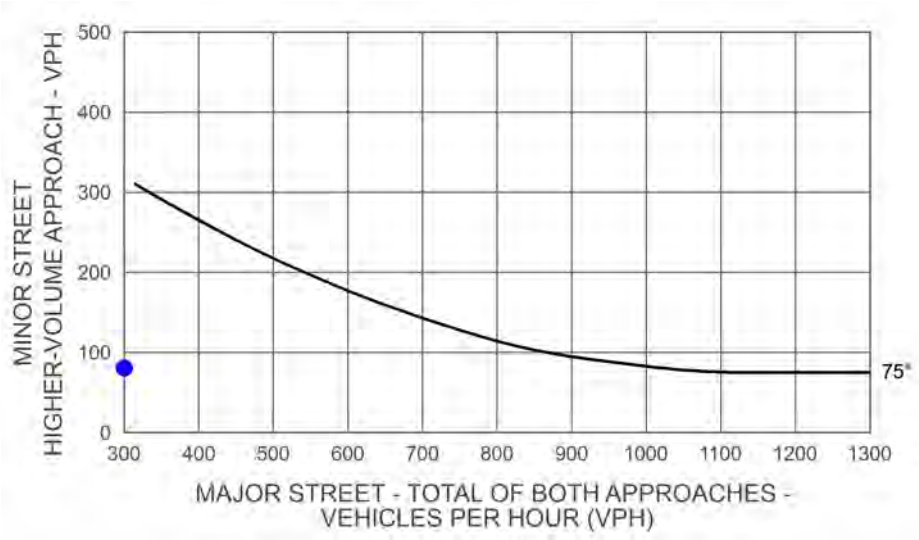


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 6

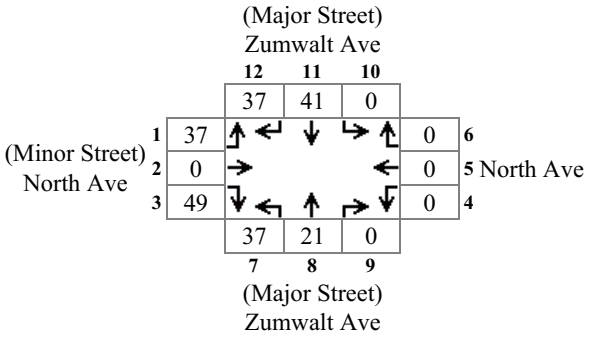


Major Total: 131
Minor High Volume: 81

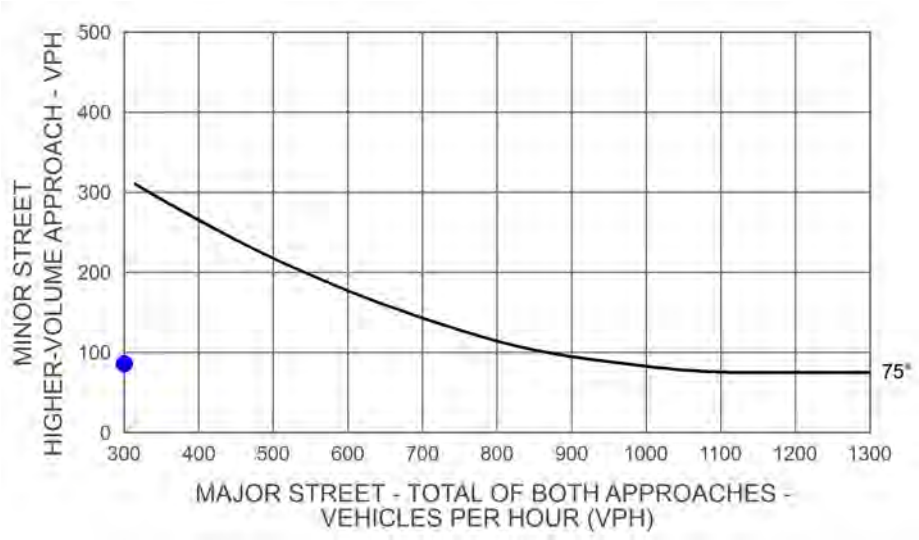


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 6

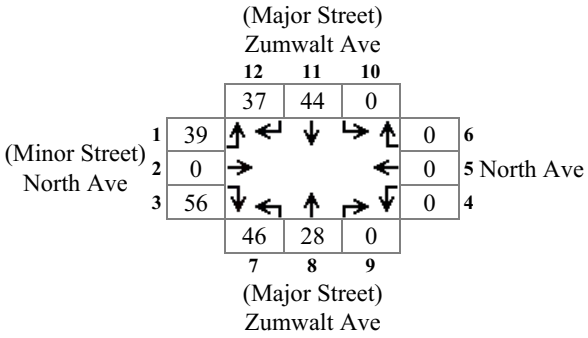


Major Total: 136
Minor High Volume: 86

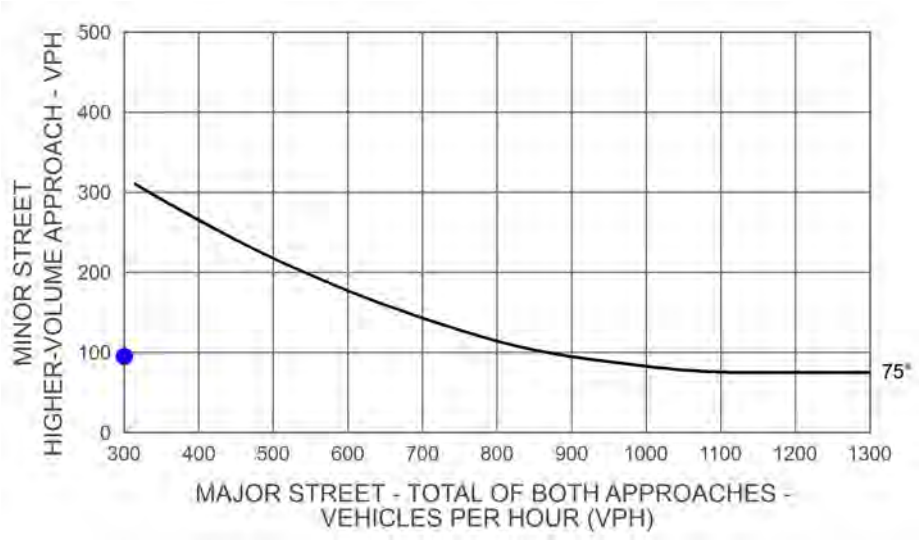


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 6

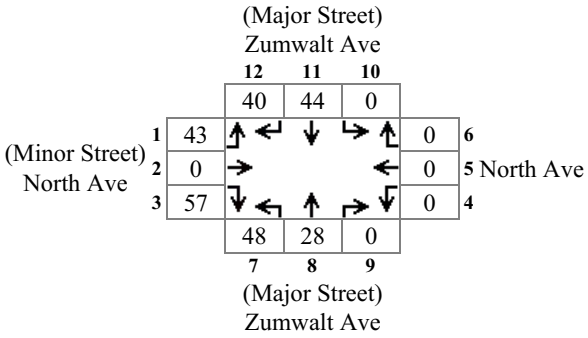


Major Total: 155
Minor High Volume: 95

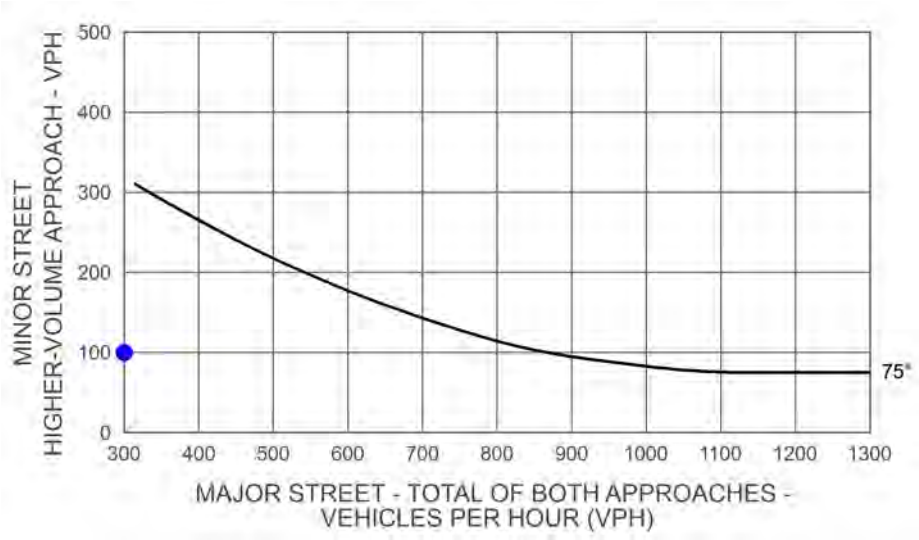


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 6

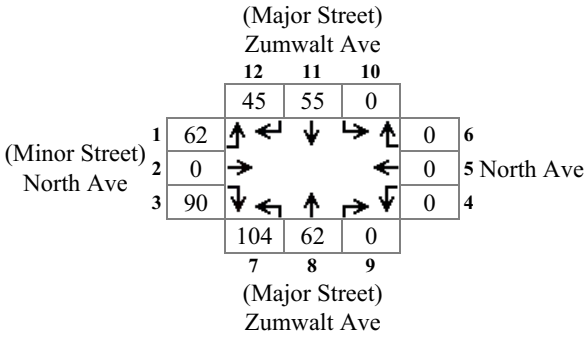


Major Total: 160
Minor High Volume: 100

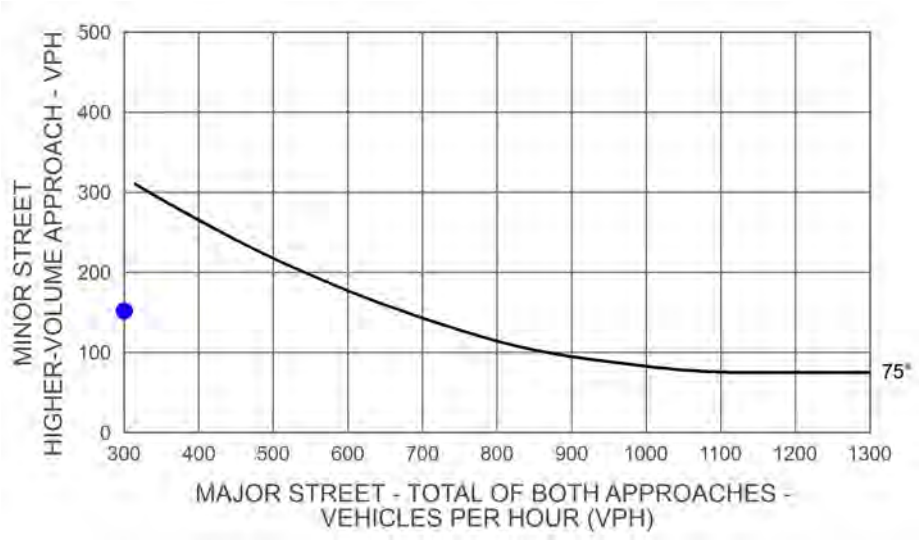


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 6

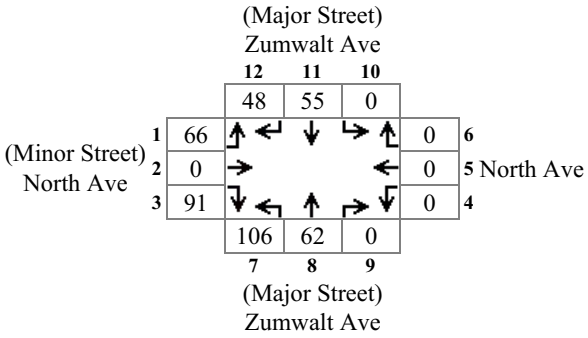


Major Total: 266
Minor High Volume: 152

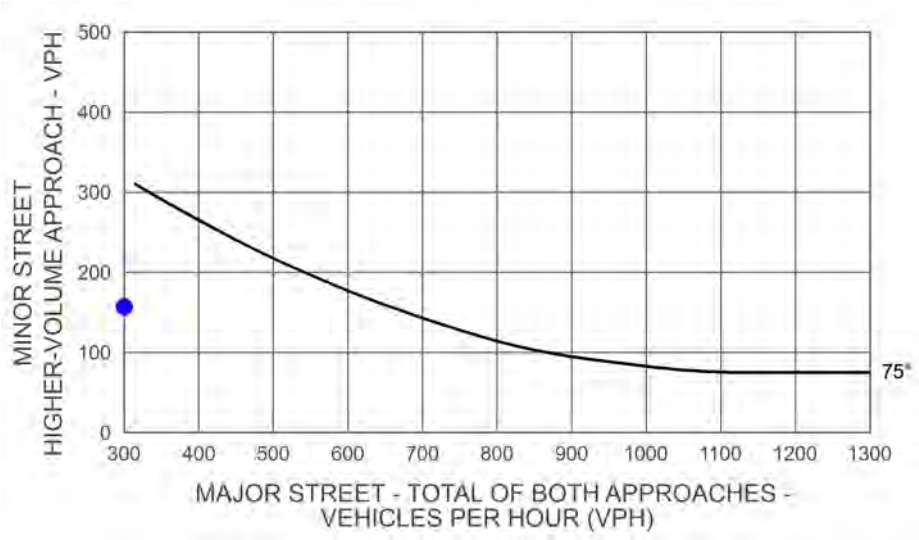


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 6

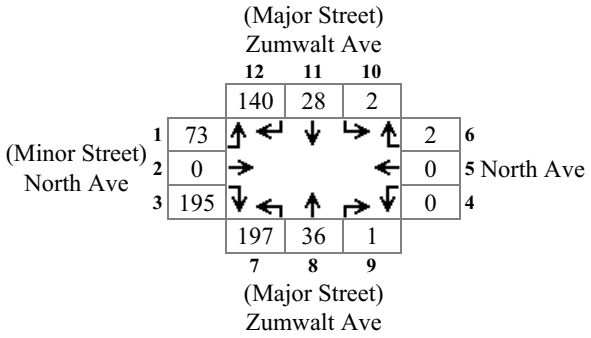


Major Total: 271
Minor High Volume: 157

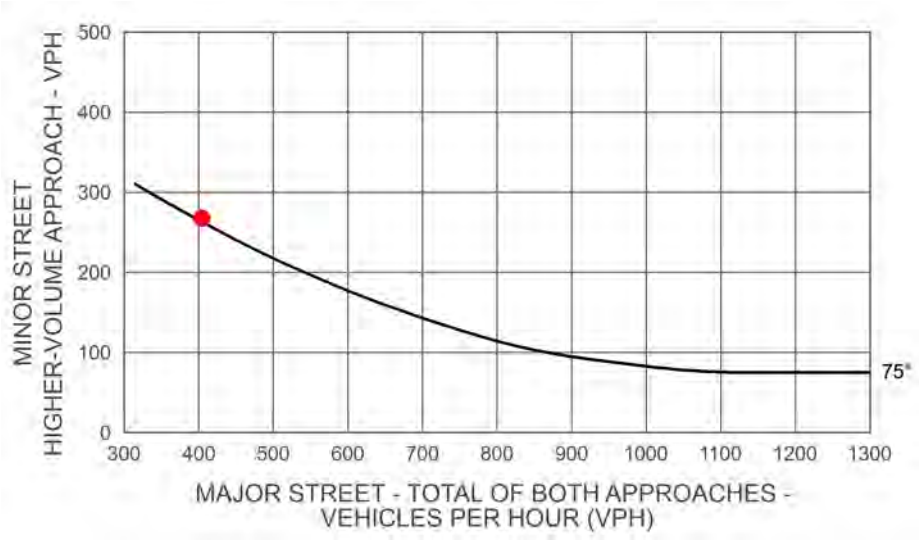


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing
Intersection #: 6

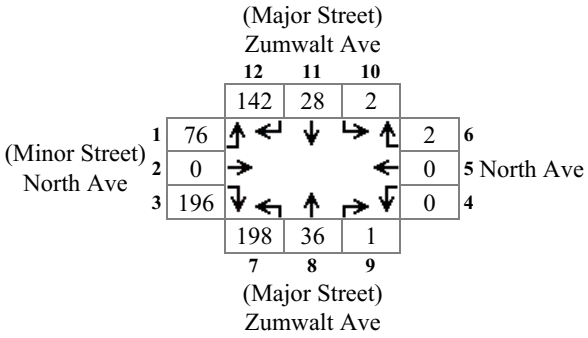


Major Total: 404
Minor High Volume: 268

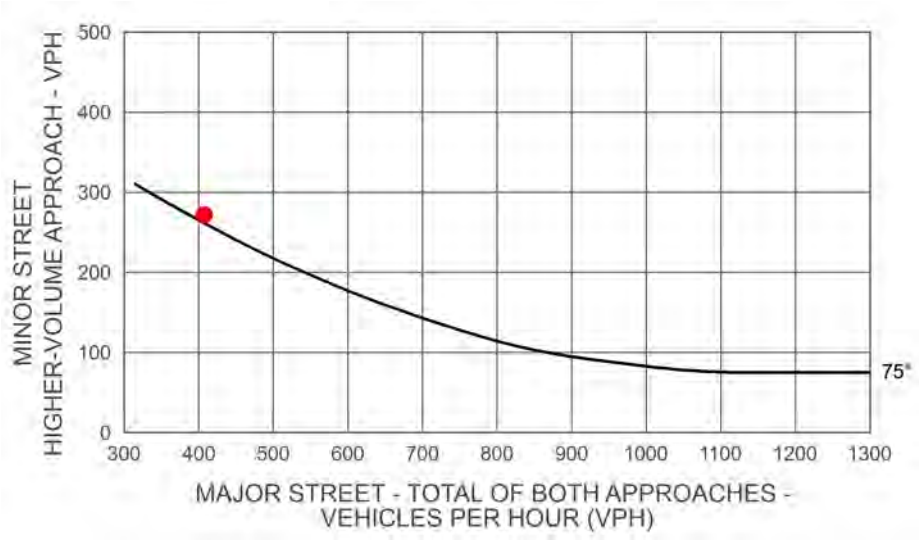


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 6

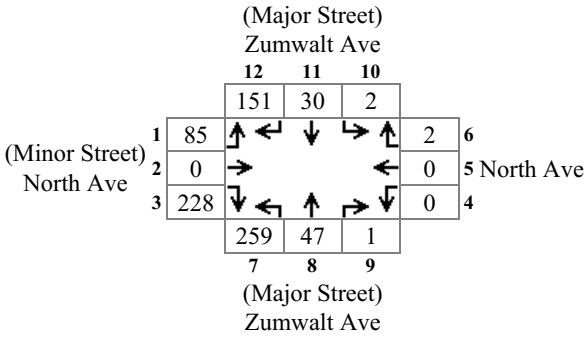


Major Total: 407
Minor High Volume: 272

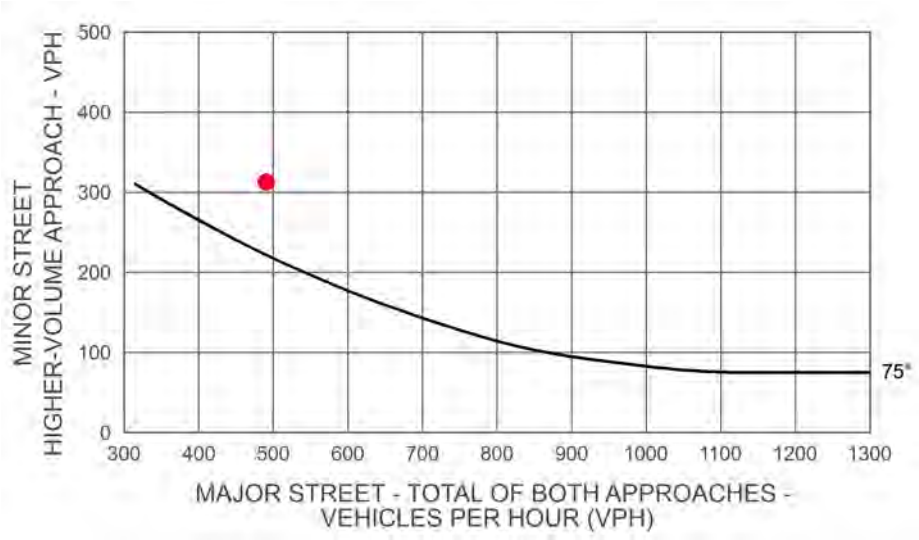


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 6

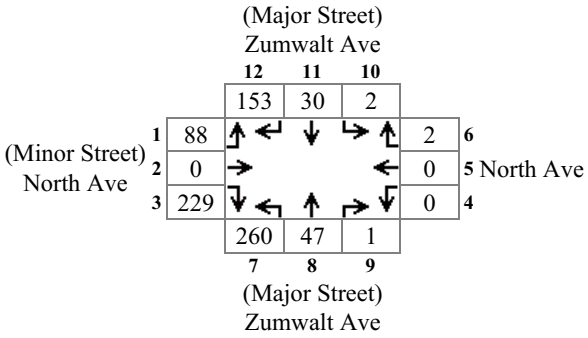


Major Total: 490
Minor High Volume: 313

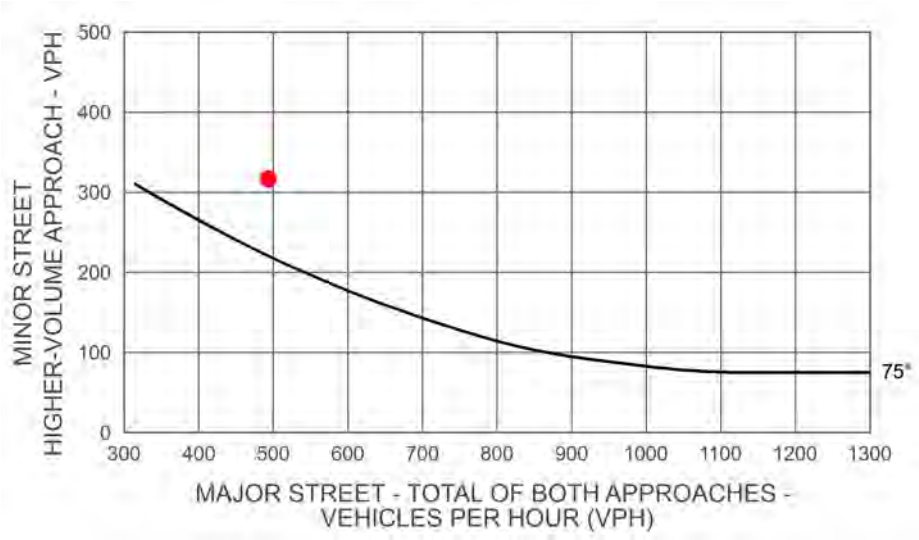


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 6

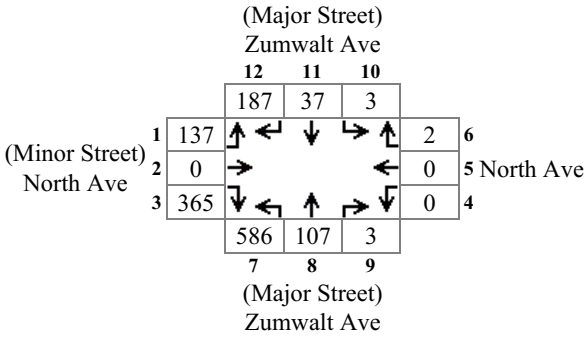


Major Total: 493
Minor High Volume: 317

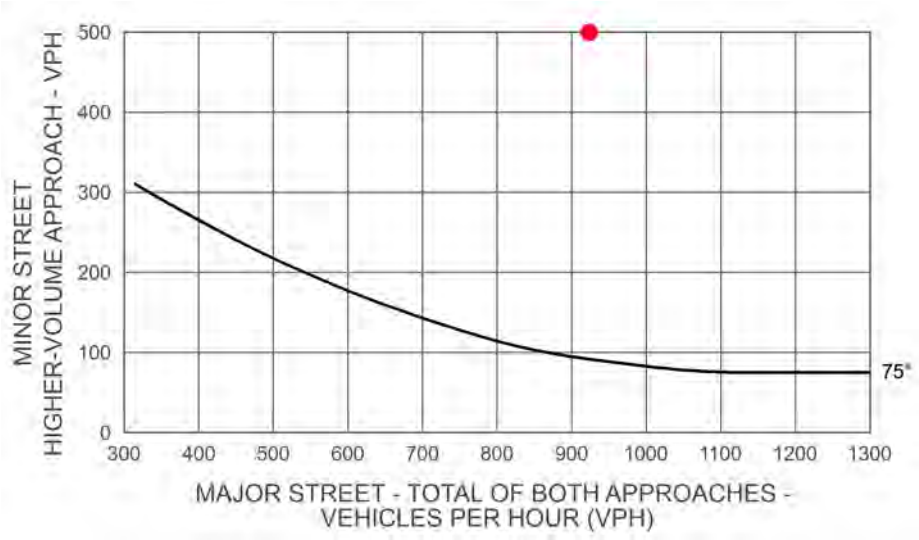


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 6

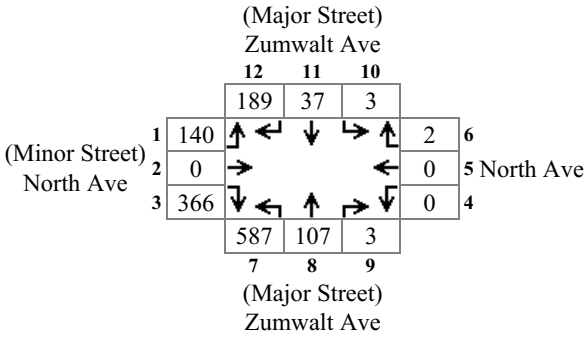


Major Total: 923
Minor High Volume: 502

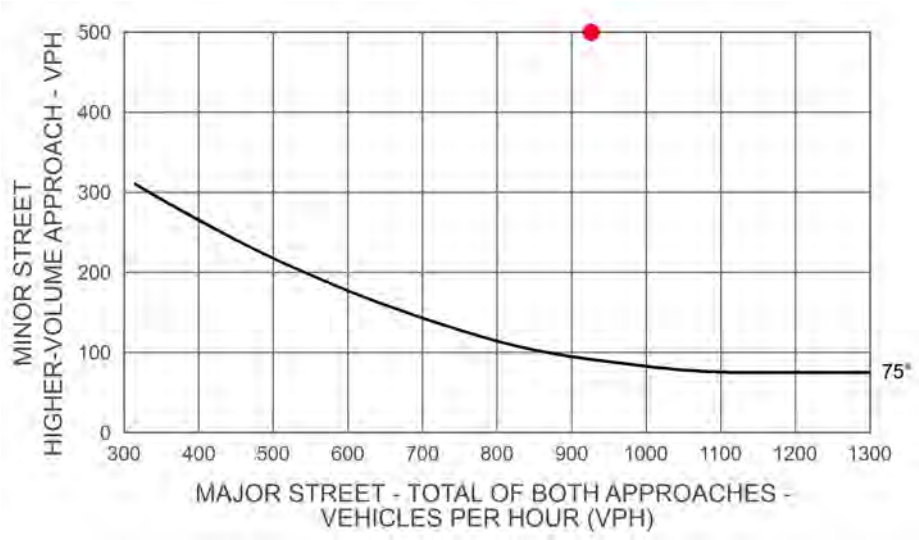


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 6

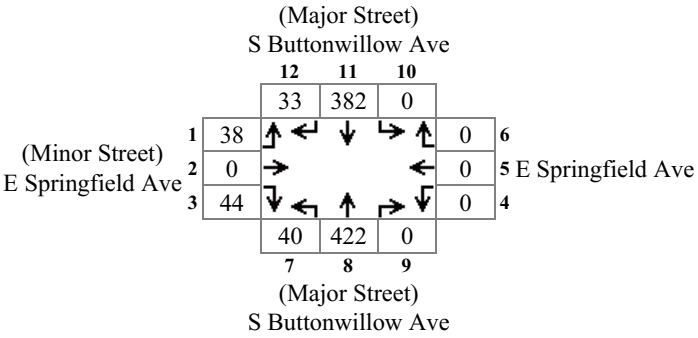


Major Total: 926
Minor High Volume: 506

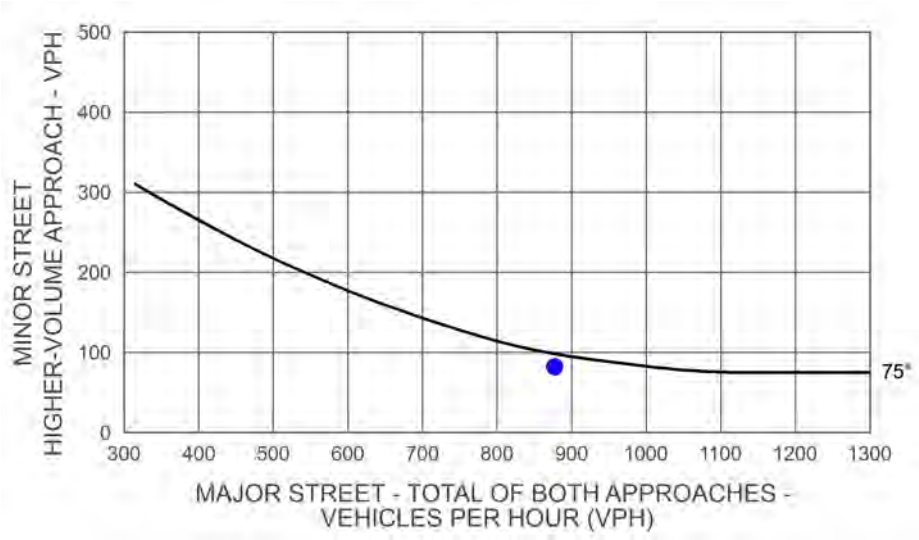


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 7

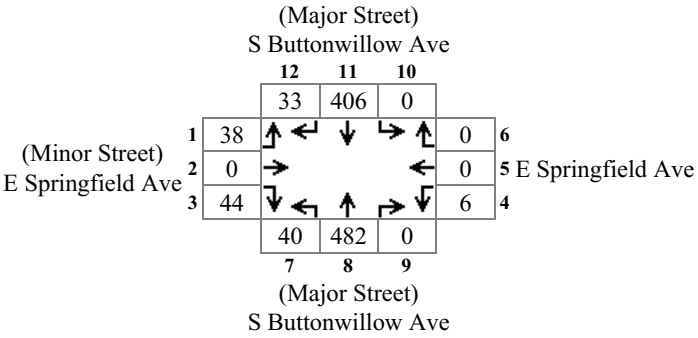


Major Total: 877
Minor High Volume: 82

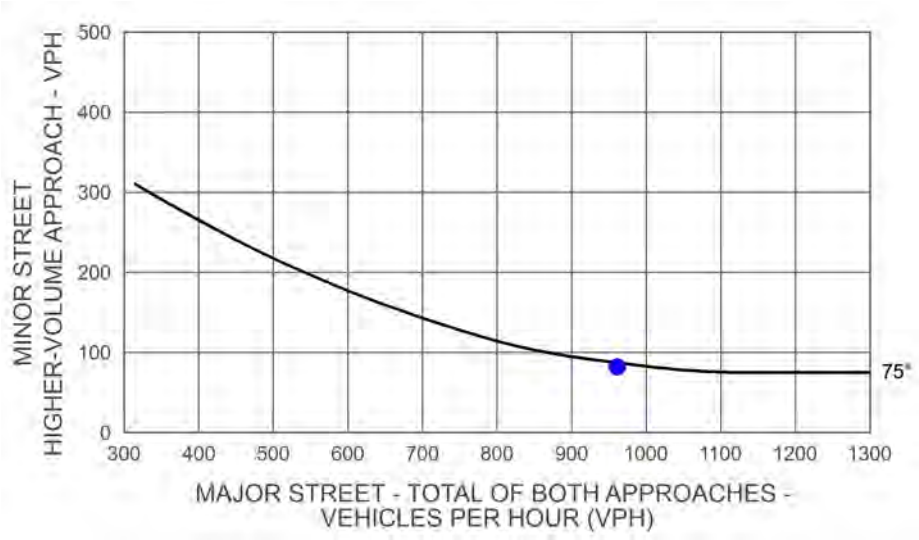


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 7

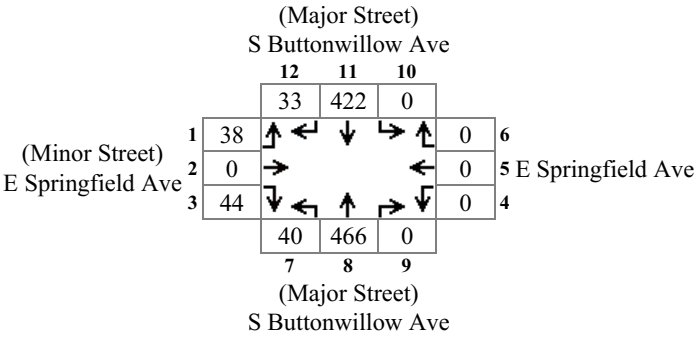


Major Total: 961
Minor High Volume: 82

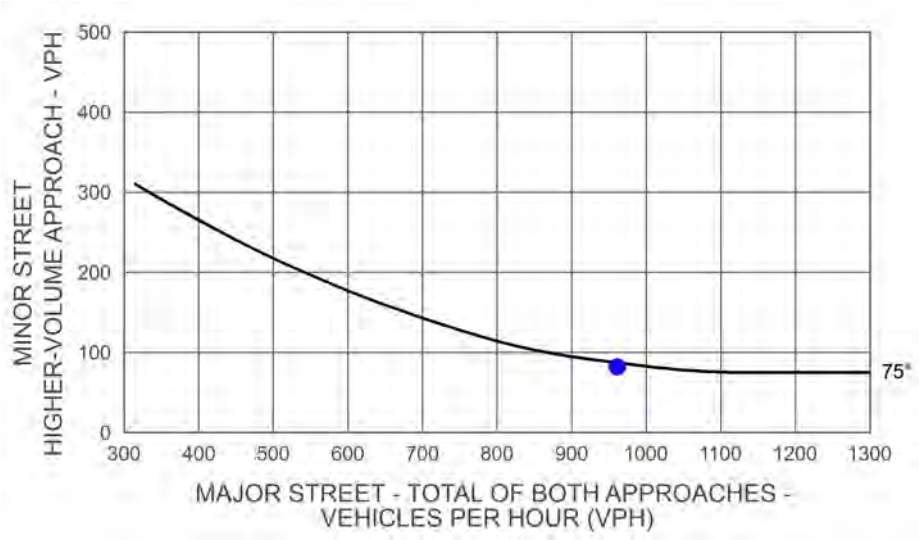


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 7

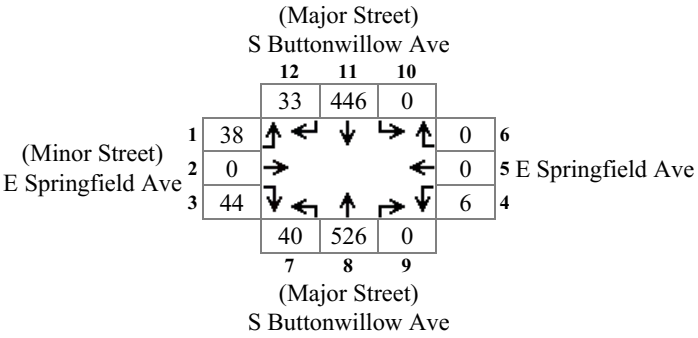


Major Total: 961
Minor High Volume: 82

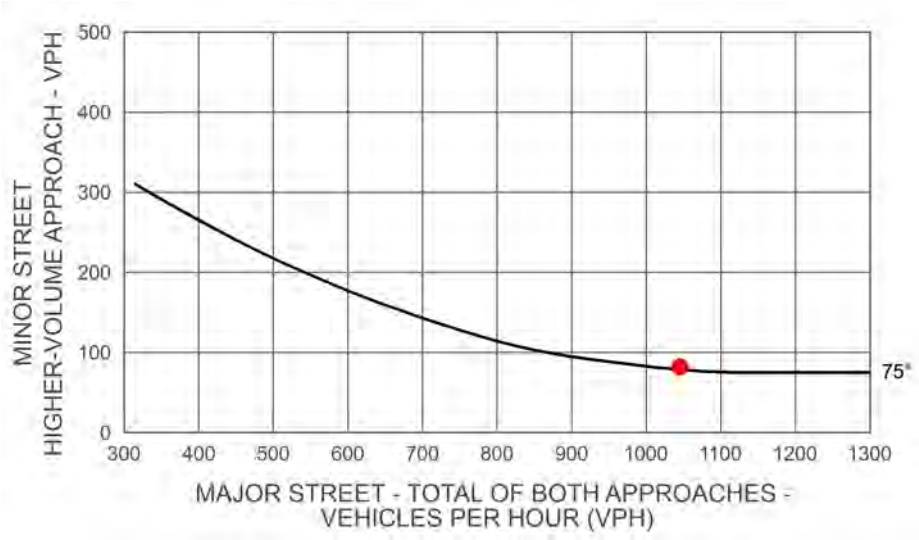


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 7

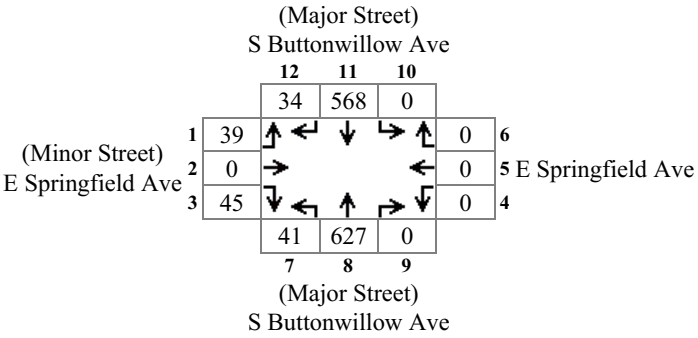


Major Total: 1045
Minor High Volume: 82

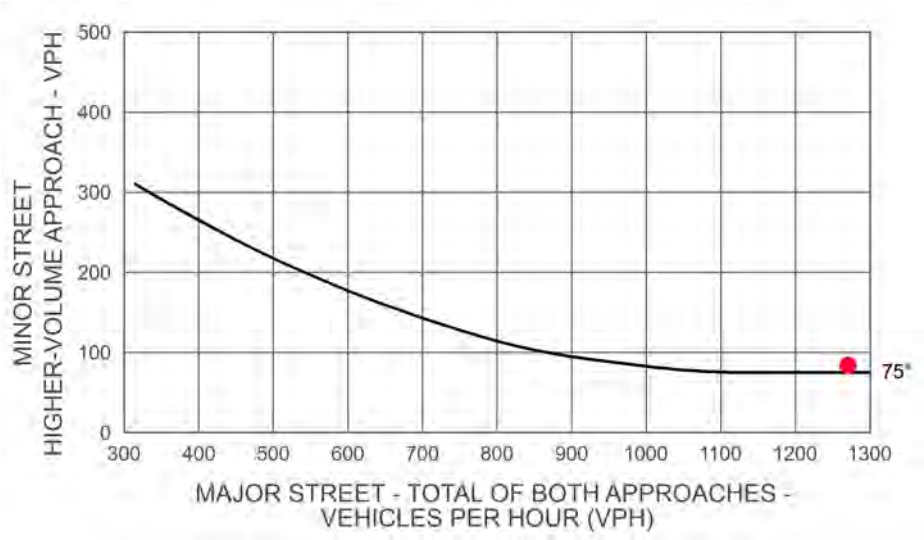


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 7

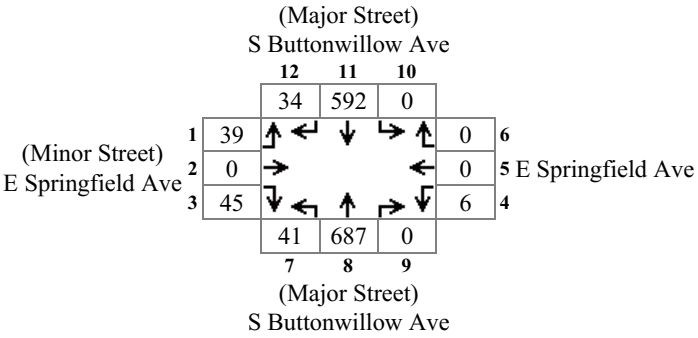


Major Total: 1270
Minor High Volume: 84

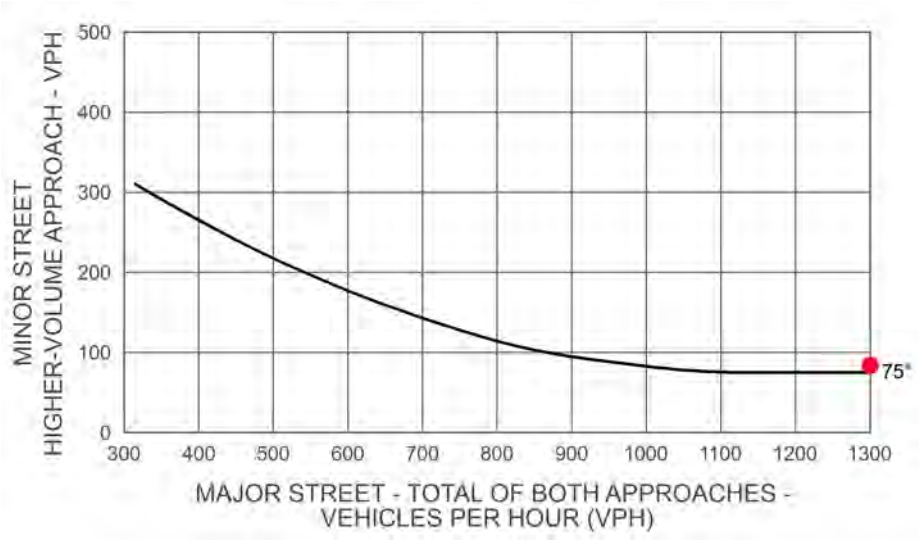


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 7

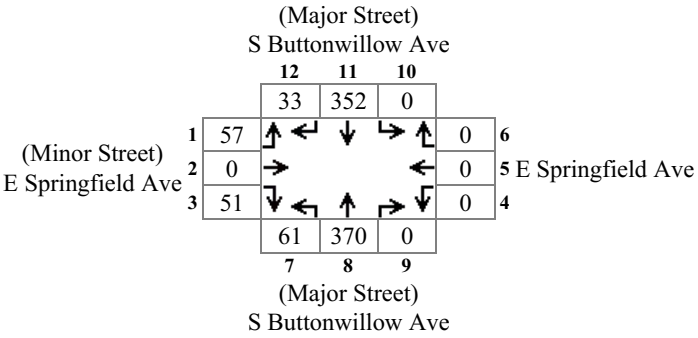


Major Total: 1354
Minor High Volume: 84

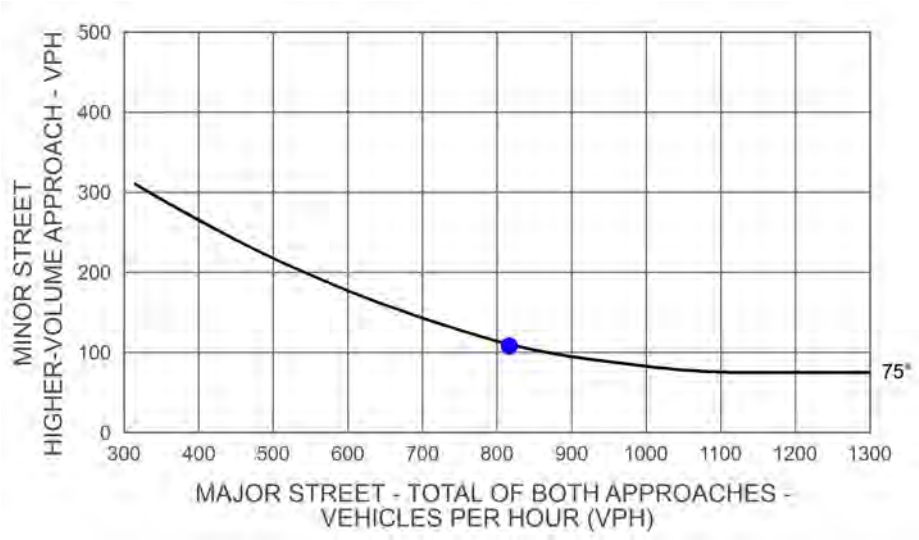


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 7

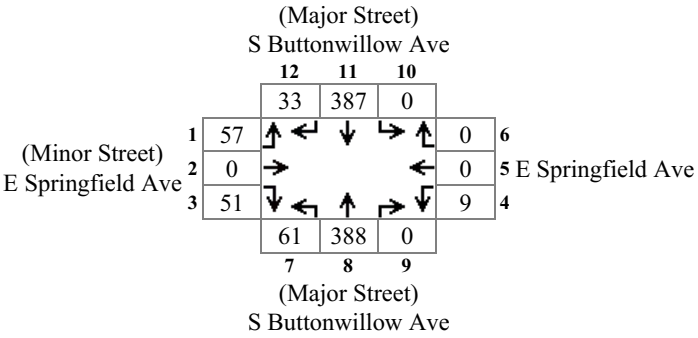


Major Total: 816
Minor High Volume: 108

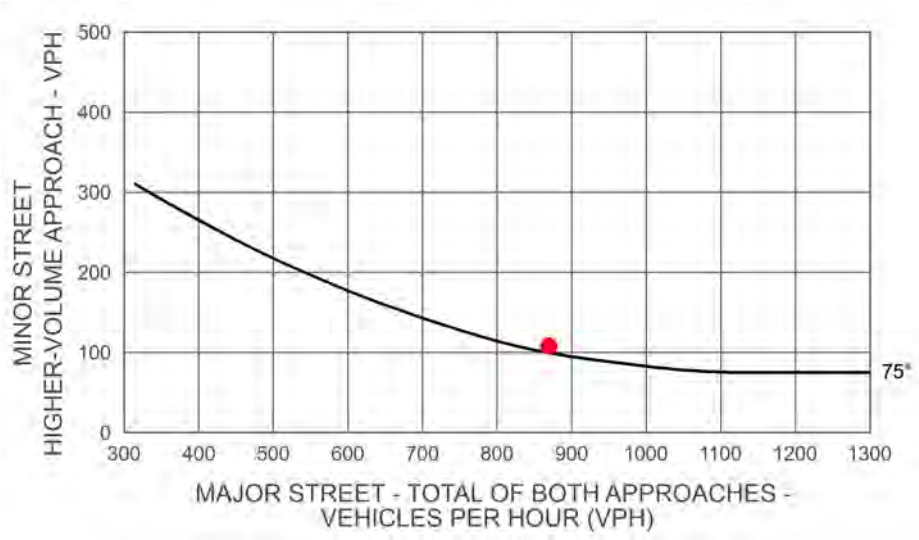


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 7

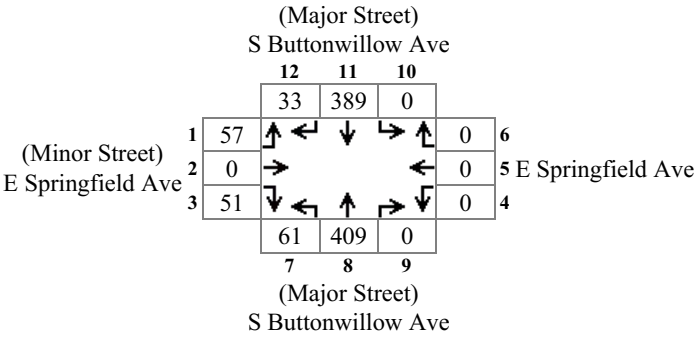


Major Total: 869
Minor High Volume: 108

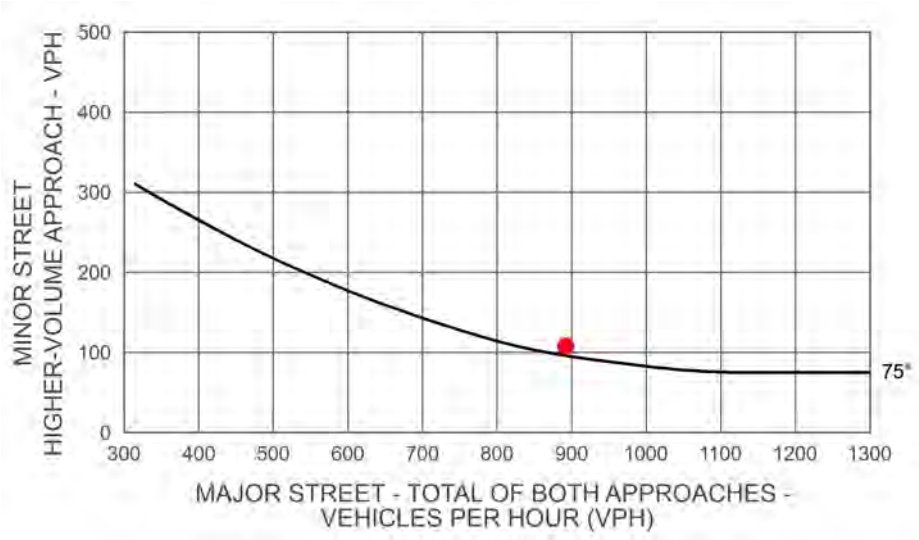


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 7

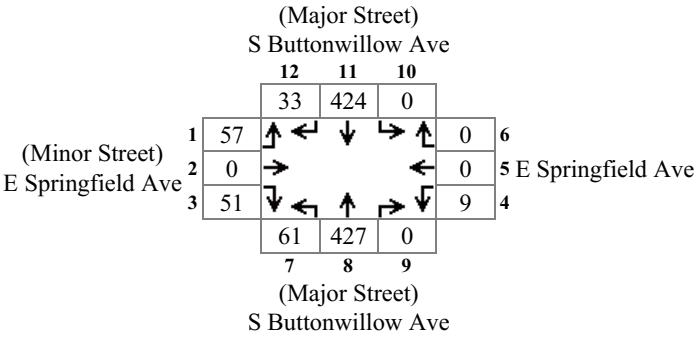


Major Total: 892
Minor High Volume: 108

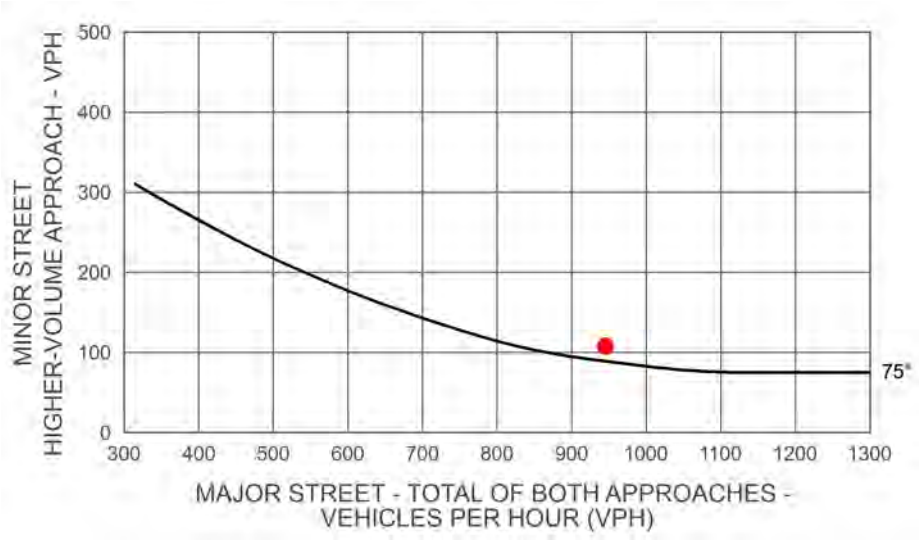


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 7

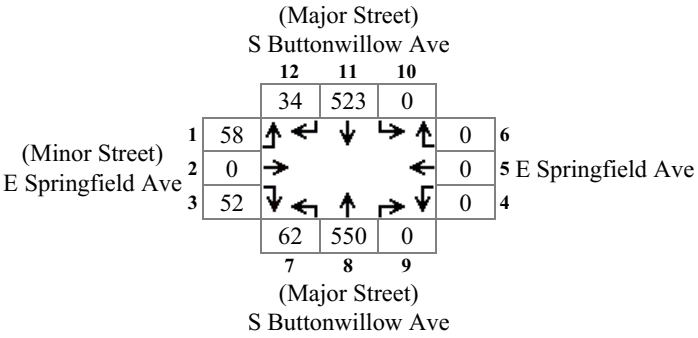


Major Total: 945
Minor High Volume: 108

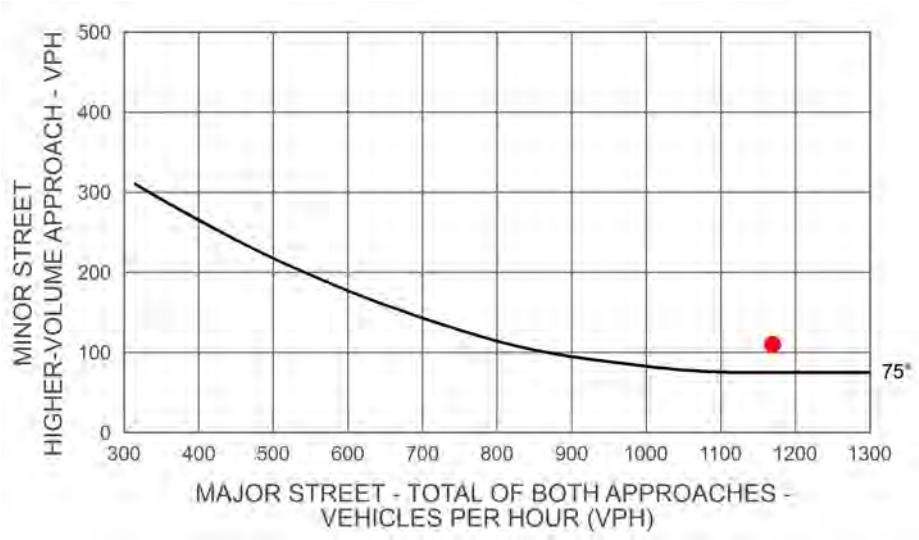


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 7

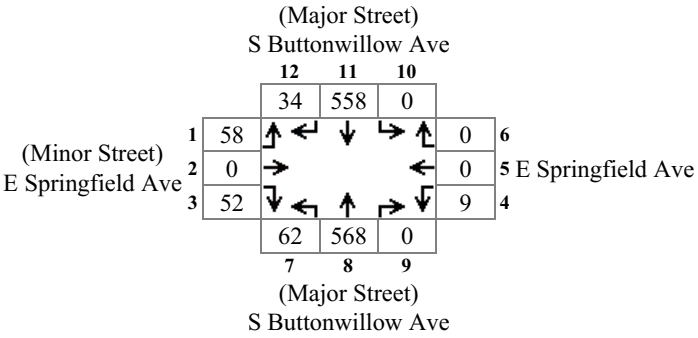


Major Total: 1169
Minor High Volume: 110

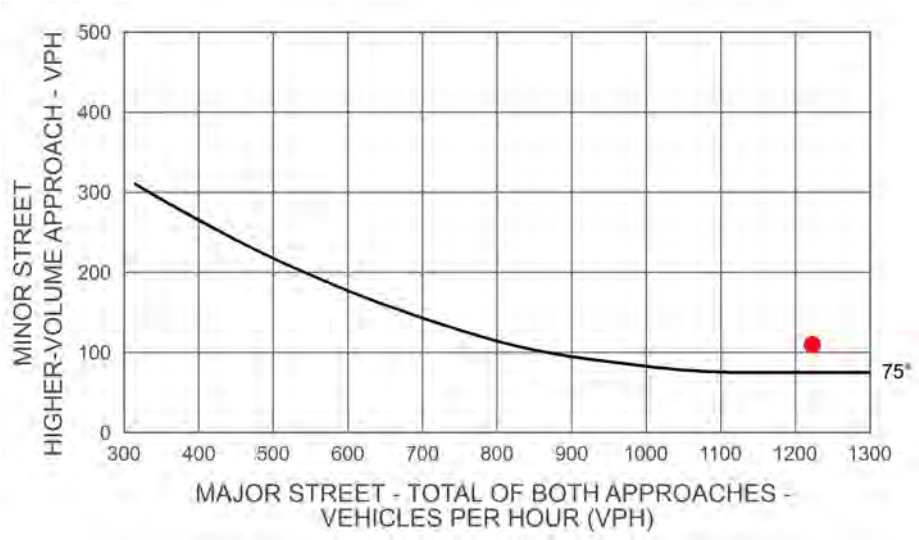


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 7

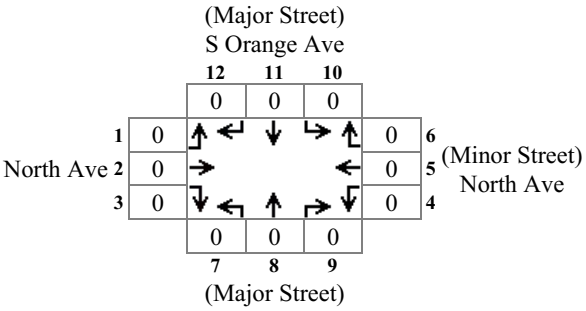


Major Total: 1222
Minor High Volume: 110

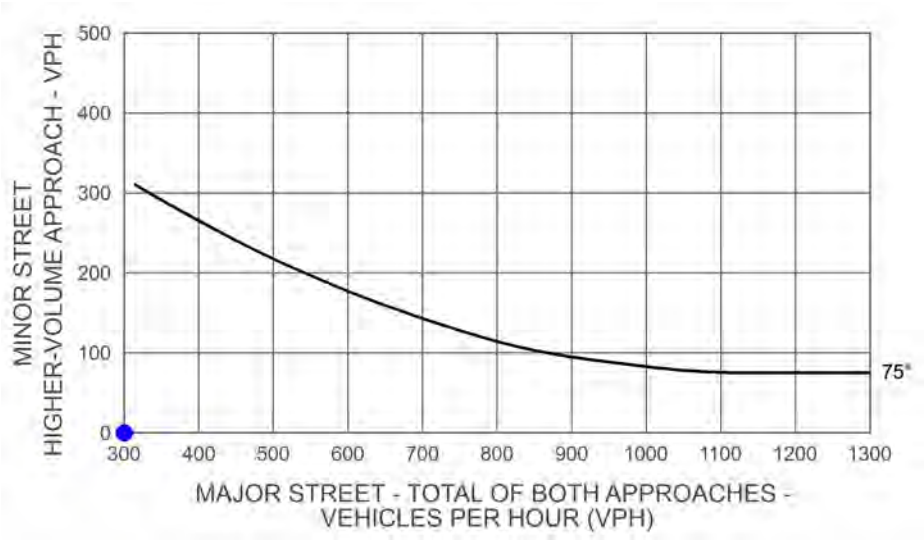


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 9

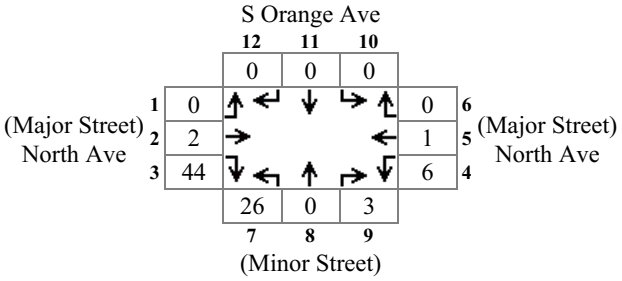


Major Total: 0
Minor High Volume: 0

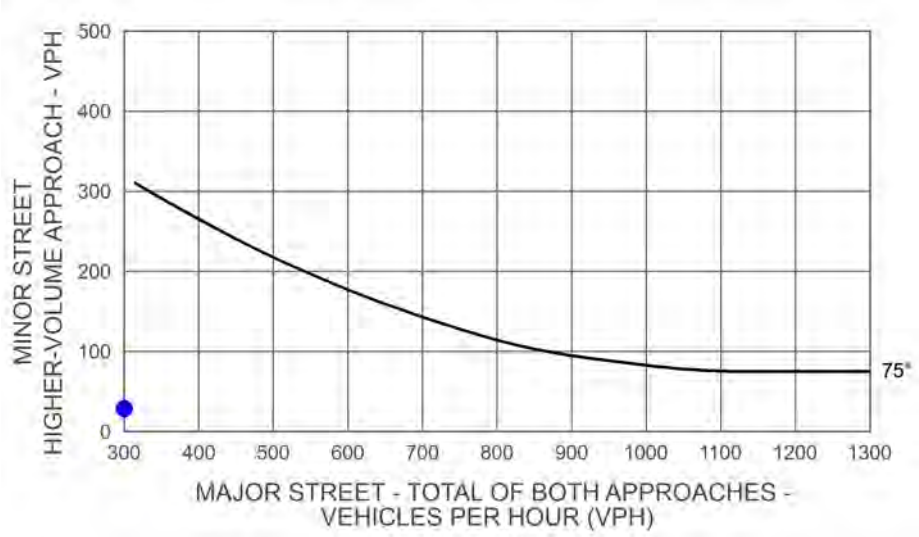


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 9

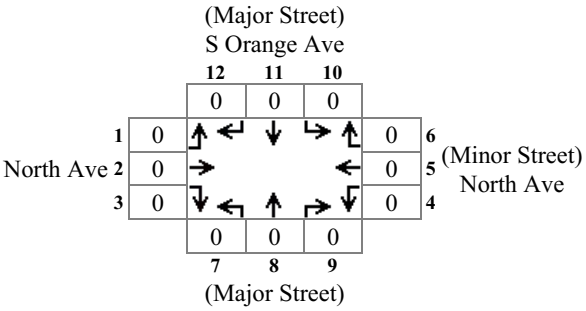


Major Total: 53
Minor High Volume: 29

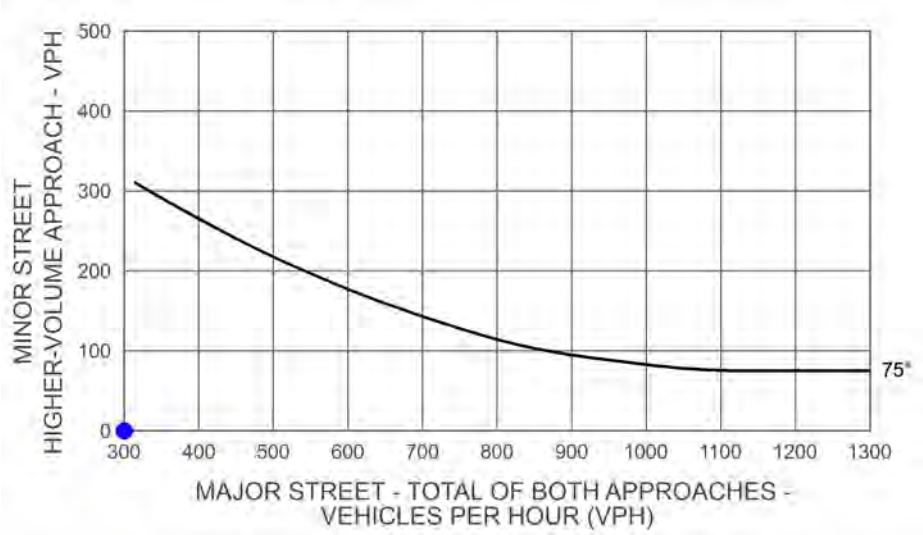


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 9

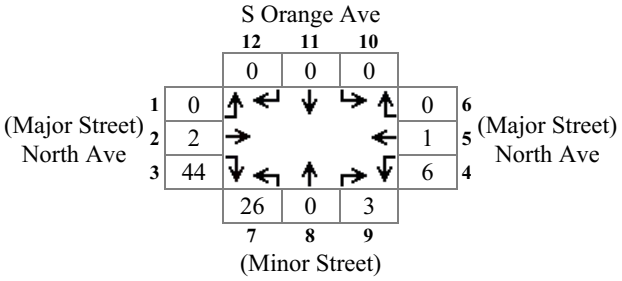


Major Total: 0
Minor High Volume: 0

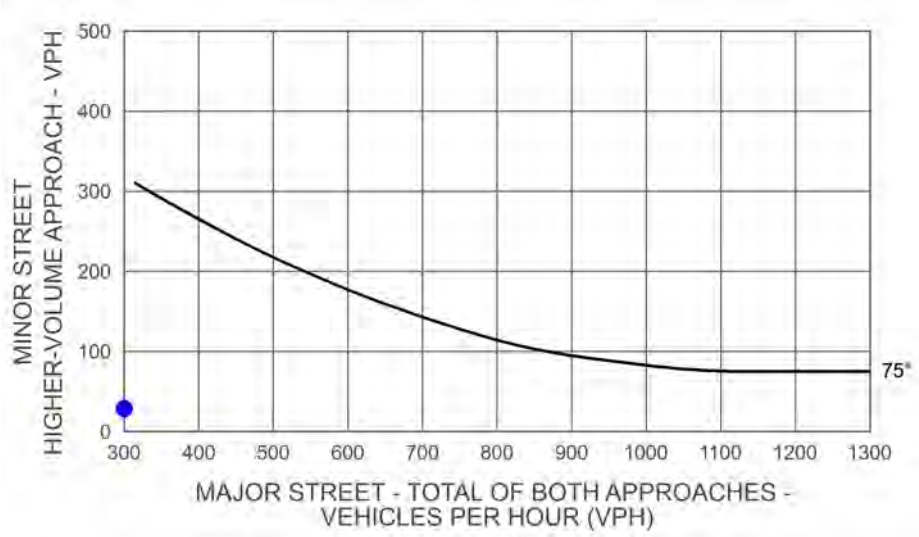


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 9

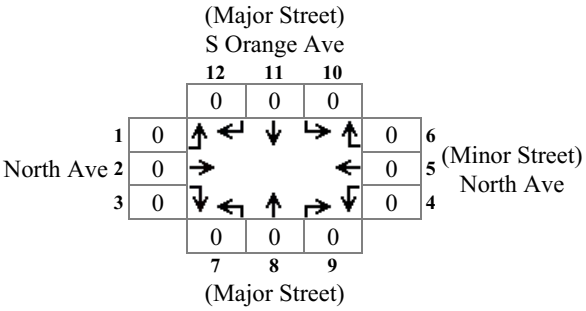


Major Total: 53
Minor High Volume: 29

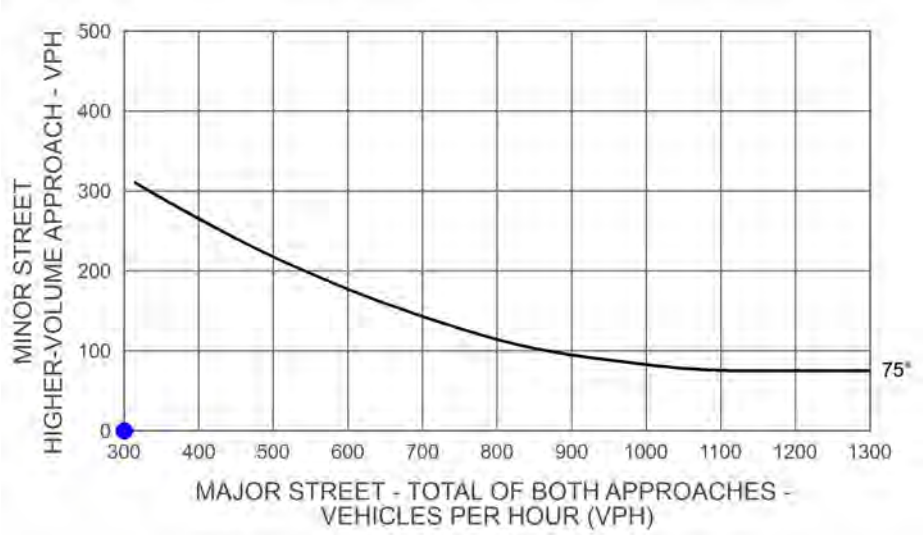


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 9

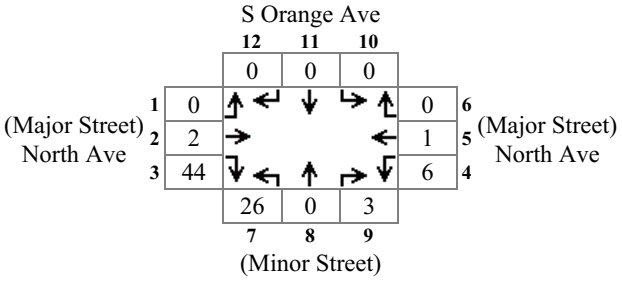


Major Total: 0
Minor High Volume: 0

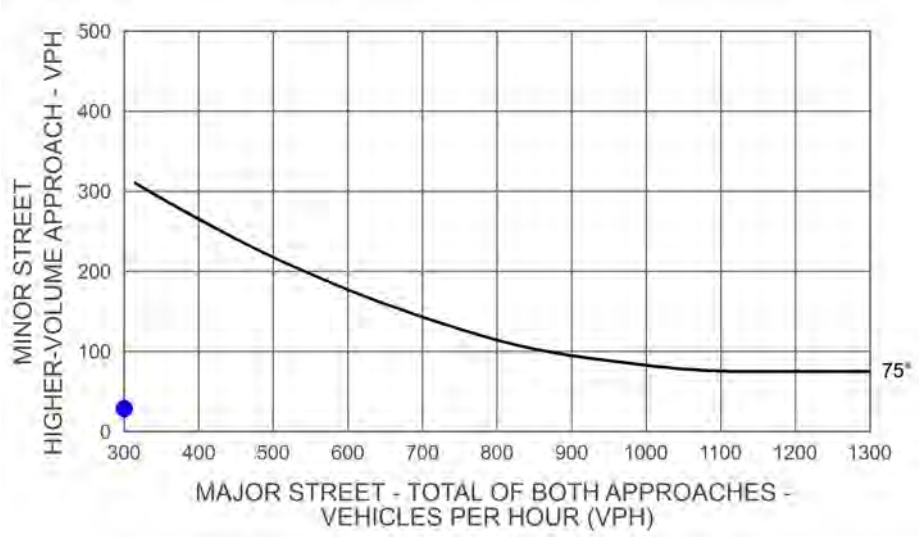


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 9

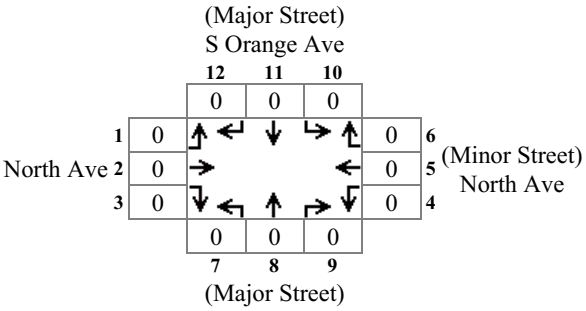


Major Total: 53
Minor High Volume: 29

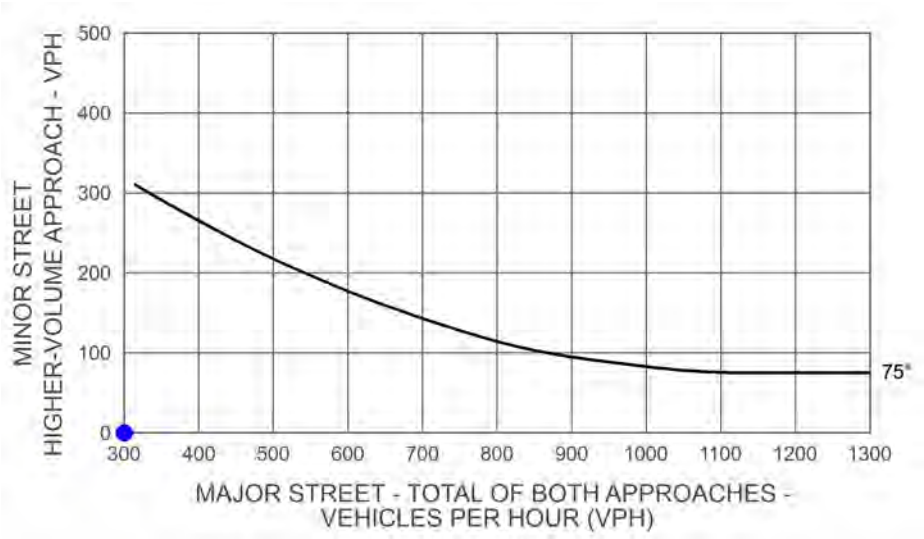


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 9

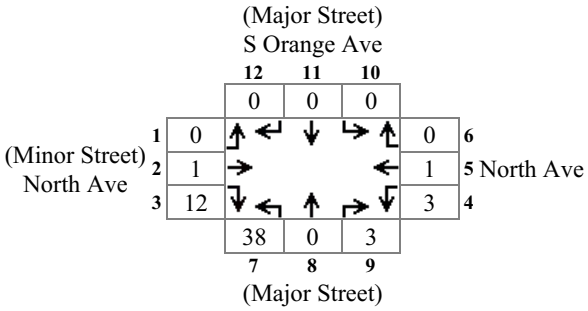


Major Total: 0
Minor High Volume: 0

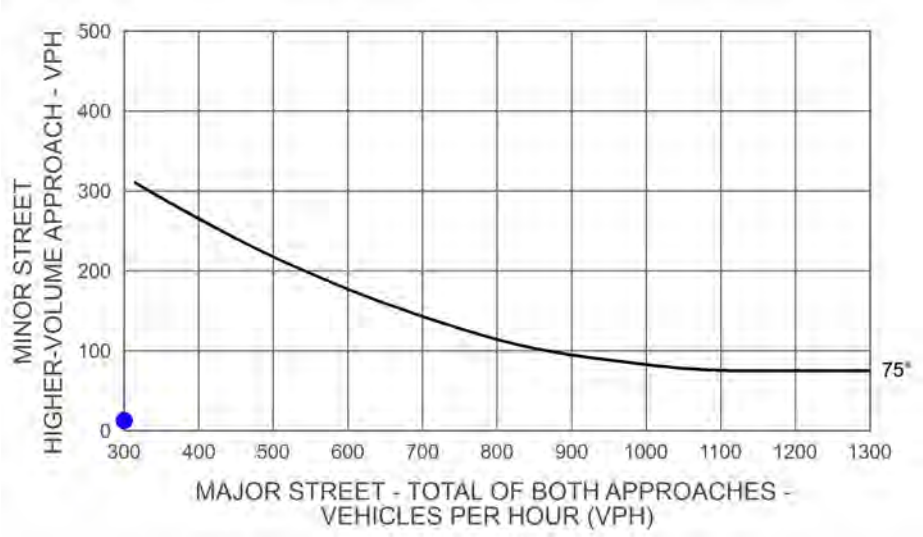


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 9

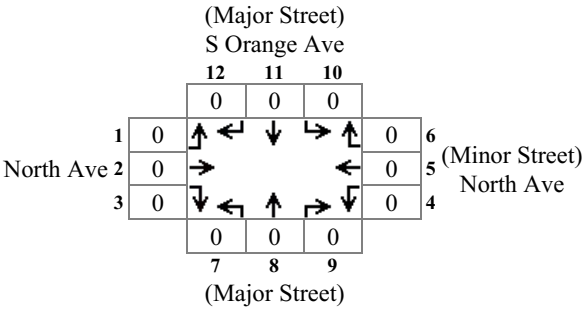


Major Total: 41
Minor High Volume: 13

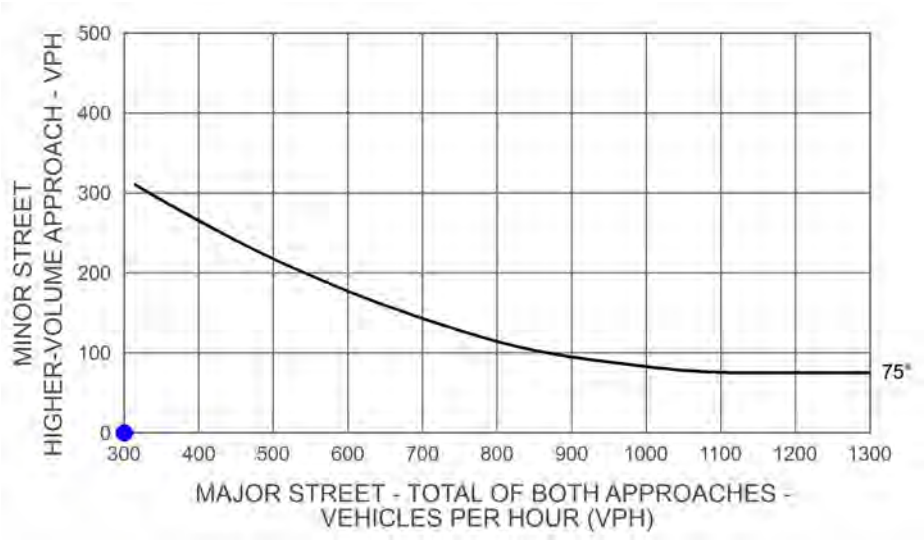


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 9

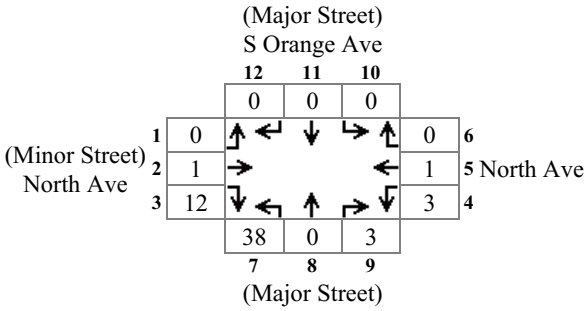


Major Total: 0
Minor High Volume: 0

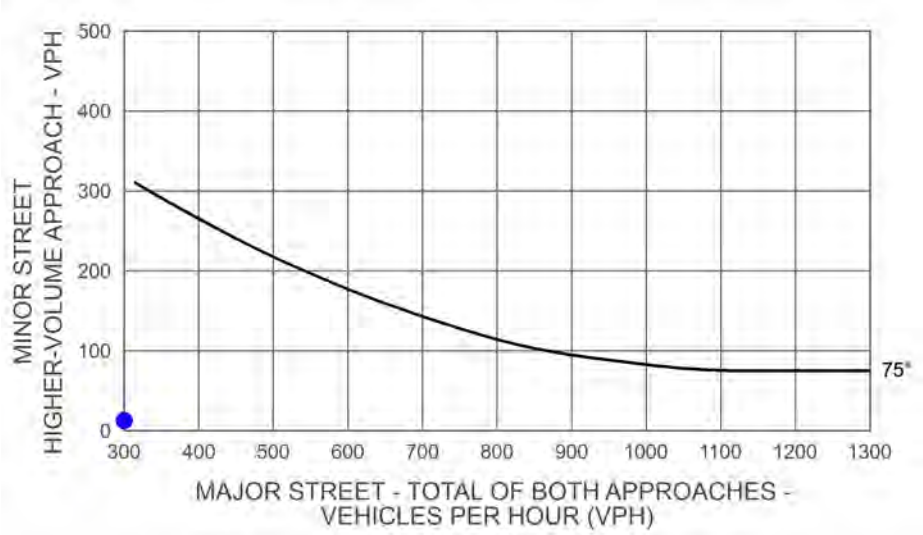


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 9

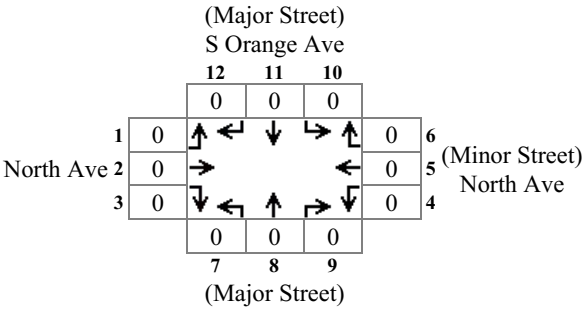


Major Total: 41
Minor High Volume: 13

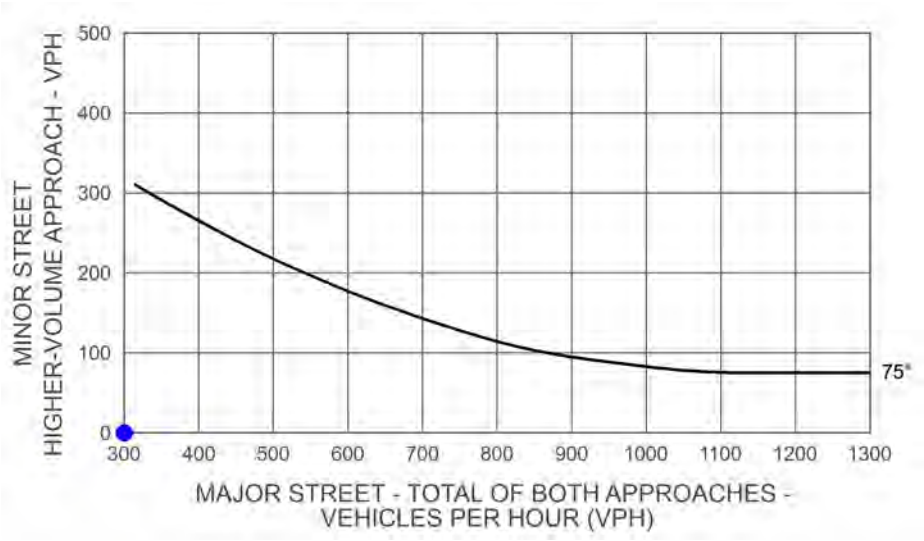


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 9

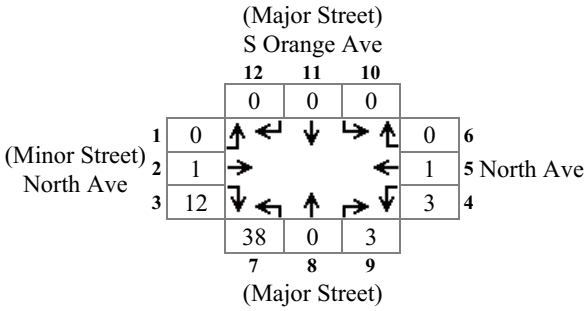


Major Total: 0
Minor High Volume: 0

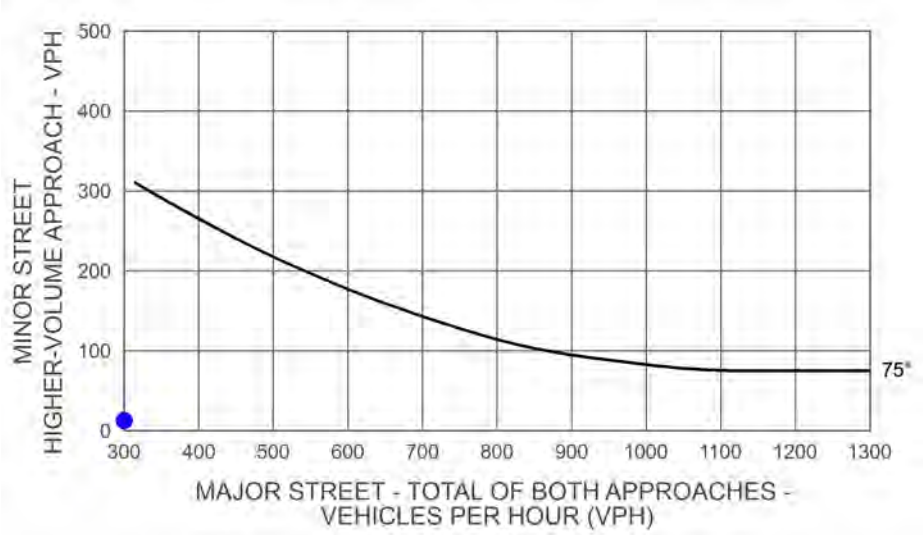


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 9



Major Total: 41
Minor High Volume: 13



BerkeleySafeTREC

Crash Details for: Case ID 9066561

Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	04/27/2020 20:11
Location (Intersection)	East Av & Manning Av
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.6041718, -119.444313

Type of Crash	B - Sideswipe
Motor Vehicle Involved With	G - Bicycle
Crash Severity	3 - Injury (Other Visible)
PCF Violation Category	10 - Pedestrian Right of Way
Weather	A - Clear
Alcohol Involved	Yes

Pedestrian Crash	No	**Bicycle Crash**	Yes
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	E - Making Left Turn
2	4 - Bicyclist	L - Bicycle	No	South	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	4 - Bicyclist	M - Male	56	6 - Suspected Minor Injury

BerkeleySafeTREC

Crash Details for: Case ID 9188464

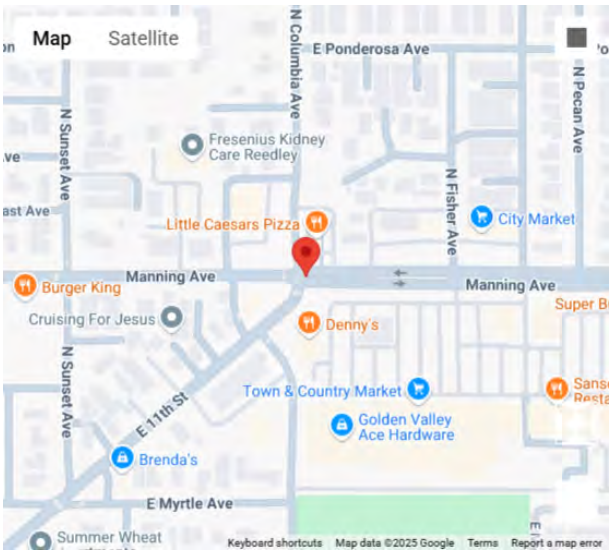
Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	10/16/2020 13:54
Location (Intersection)	Manning Av & N Columbia Av
Dist. & Dir. from Intersection	38.00 ft East
State Highway	No
Geocoded Location	36.6041489, -119.439682

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	22 - Other Improper Driving
Weather	A - Clear
Alcohol Involved	No

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	55	7 - Possible Injury

BerkeleySafeTREC

Crash Details for: Case ID 9363593

Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	10/27/2021 19:00
Location (Intersection)	Manning Av & Buttonwillow Av
Dist. & Dir. from Intersection	21.00 ft West
State Highway	No
Geocoded Location	36.6040993, -119.430954

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	North	H - Slowing/Stopping
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	North	H - Slowing/Stopping

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	49	7 - Possible Injury

BerkeleySafeTREC

Crash Details for: Case ID 9501106

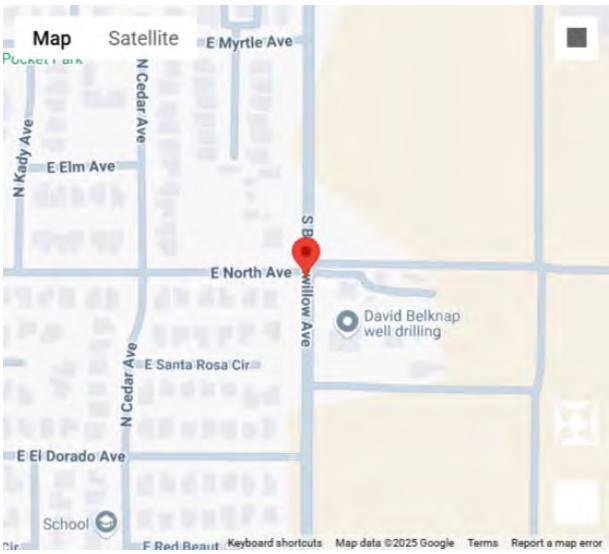
Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	07/30/2022 22:01
Location (Intersection)	Buttonwillow Av & North Av
Dist. & Dir. from Intersection	17.00 ft South
State Highway	No
Geocoded Location	36.6004524, -119.4309006

Type of Crash	A - Head-On
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	08 - Improper Turning
Weather	A - Clear
Alcohol Involved	Yes

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	North	E - Making Left Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 3

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	M - Male	20	0 - No Injury
2	1 - Driver	M - Male	35	7 - Possible Injury
2	2 - Passenger	M - Male	33	7 - Possible Injury

BerkeleySafeTREC

Crash Details for: Case ID 9573747

Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	02/17/2023 14:24
Location (Intersection)	Buttonwillow Av & Springfield Av
Dist. & Dir. from Intersection	115.00 ft North
State Highway	No
Geocoded Location	36.597187, -119.4309082

Type of Crash	B - Sideswipe
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	09 - Automobile Right of Way
Weather	A - Clear
Alcohol Involved	No

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	F - Making U-Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	F - Female	2	0 - No Injury
2	2 - Passenger	F - Female	18	7 - Possible Injury

BerkeleySafeTREC

Crash Details for: Case ID 9620630

Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	10/01/2023 12:03
Location (Intersection)	Buttonwillow Av & Manning Av
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.6040993, -119.4308853

Type of Crash	D - Broadside
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	12 - Traffic Signals and Signs
Weather	A - Clear
Alcohol Involved	No

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	North	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	42	7 - Possible Injury

BerkeleySafeTREC

Crash Details for: Case ID 9649168

Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	11/08/2023 11:43
Location (Intersection)	E Manning Av & S Buttonwillow Av
Dist. & Dir. from Intersection	19.00 ft East
State Highway	No
Geocoded Location	36.6040993, -119.4308167

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	A - Stopped

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	M - Male	20	7 - Possible Injury

BerkeleySafeTREC

Crash Details for: Case ID 9736380

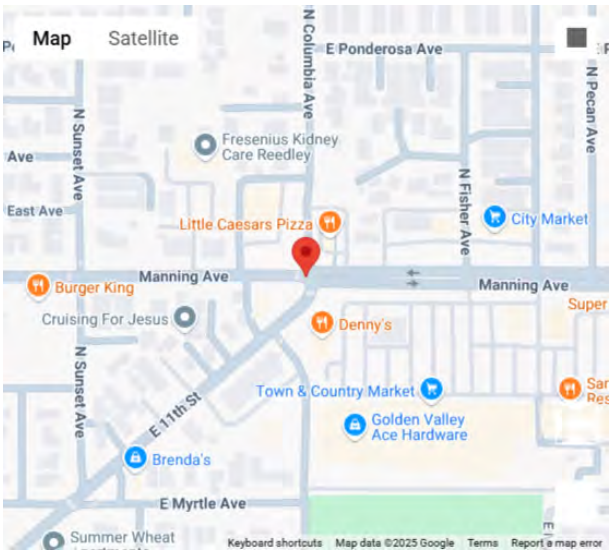
Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	08/11/2024 18:20
Location (Intersection)	Manning Av & Columbia Av
Dist. & Dir. from Intersection	2.00 ft East
State Highway	No
Geocoded Location	36.6041489, -119.4398041

Type of Crash	G - Vehicle/Pedestrian
Motor Vehicle Involved With	B - Pedestrian
Crash Severity	3 - Injury (Other Visible)
PCF Violation Category	10 - Pedestrian Right of Way
Weather	A - Clear
Alcohol Involved	No

Pedestrian Crash	Yes	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	2 - Pedestrian	N - Pedestrian	No	South	R - Other

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	3 - Pedestrian	M - Male	37	6 - Suspected Minor Injury

BerkeleySafeTREC

Crash Details for: Case ID 9767966

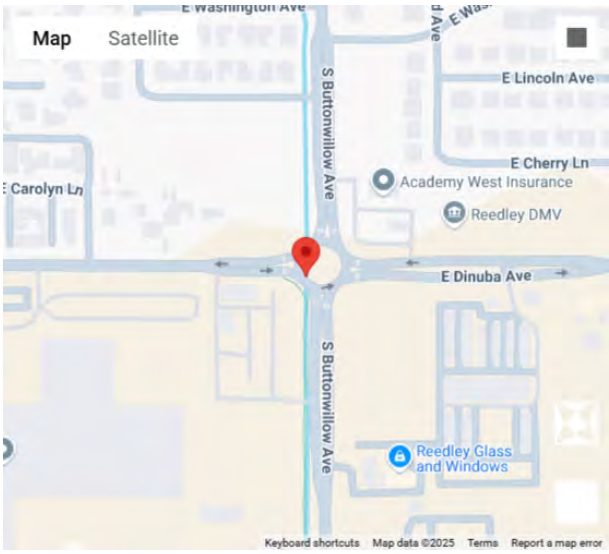
Crash Information

County	Fresno
City	Reedley
Date & Time (M/D/Y)	11/21/2024 19:25
Location (Intersection)	Dinuba Av & Buttonwillow Av
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.5895729, -119.4310608

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	2 - Injury (Severe)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	Yes

Pedestrian Crash	No	**Bicycle Crash**	No
Motorcycle Crash	No	**Truck Crash**	Yes

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	F - Truck or Truck Tractor	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	H - Slowing/Stopping
3	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	P - Merging

Victims: 3

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	48	5 - Suspected Serious Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
3	2 - Passenger	F - Female	45	0 - No Injury
3	2 - Passenger	F - Female	3	0 - No Injury

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City of Reedley
N/S: East Avenue
E/W: Manning Avenue
Weather: Clear

File Name : 01_RDY_East_Man AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

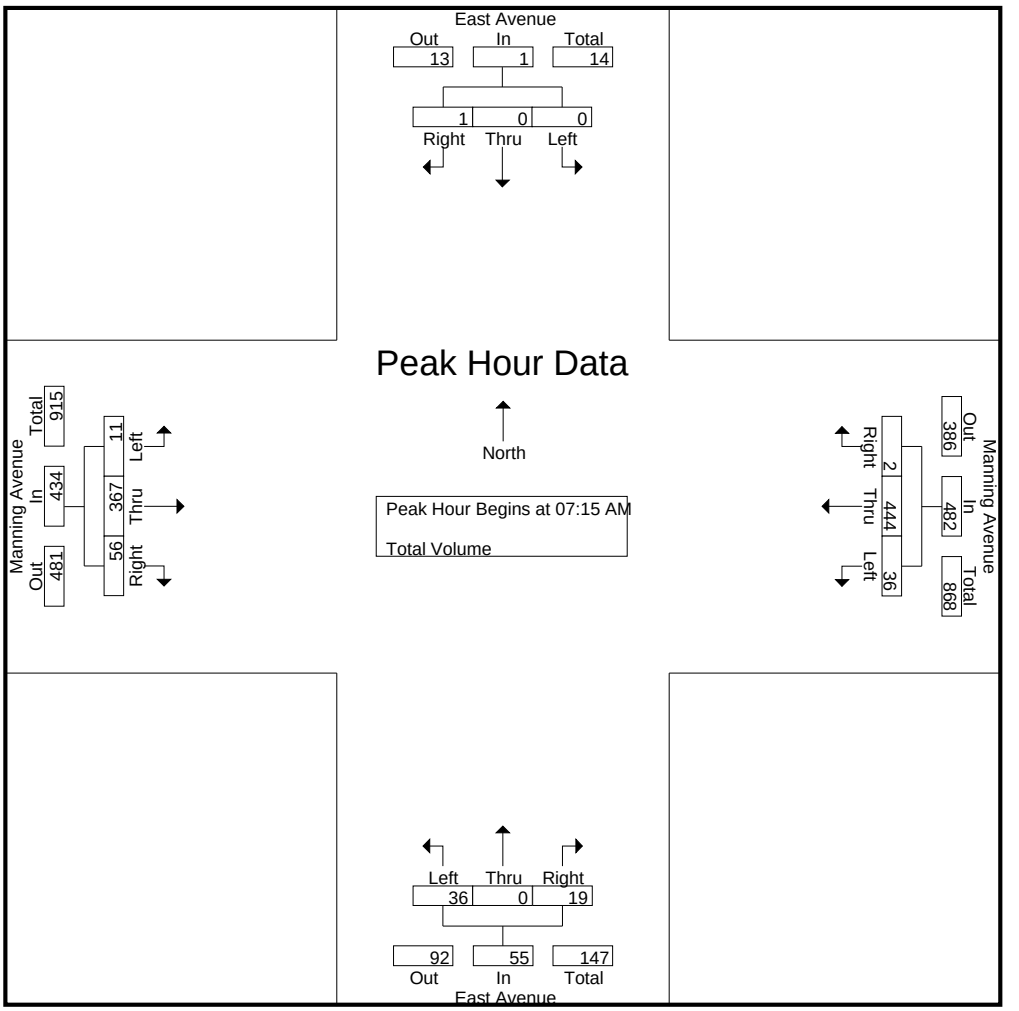
	East Avenue Southbound				Manning Avenue Westbound				East Avenue Northbound				Manning Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	3	3	4	64	0	68	8	0	3	11	0	33	5	38	120
07:15 AM	0	0	0	0	6	89	0	95	8	0	1	9	0	66	8	74	178
07:30 AM	0	0	1	1	9	129	0	138	10	0	7	17	3	92	10	105	261
07:45 AM	0	0	0	0	16	157	2	175	11	0	9	20	6	112	26	144	339
Total	0	0	4	4	35	439	2	476	37	0	20	57	9	303	49	361	898
08:00 AM	0	0	0	0	5	69	0	74	7	0	2	9	2	97	12	111	194
08:15 AM	0	0	0	0	3	69	0	72	5	0	2	7	1	55	11	67	146
08:30 AM	1	0	0	1	3	66	0	69	5	0	4	9	2	63	9	74	153
08:45 AM	0	0	0	0	3	67	0	70	6	0	0	6	1	59	4	64	140
Total	1	0	0	1	14	271	0	285	23	0	8	31	6	274	36	316	633
Grand Total	1	0	4	5	49	710	2	761	60	0	28	88	15	577	85	677	1531
Apprch %	20	0	80		6.4	93.3	0.3		68.2	0	31.8		2.2	85.2	12.6		
Total %	0.1	0	0.3	0.3	3.2	46.4	0.1	49.7	3.9	0	1.8	5.7	1	37.7	5.6	44.2	

	East Avenue Southbound				Manning Avenue Westbound				East Avenue Northbound				Manning 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	6	89	0	95	8	0	1	9	0	66	8	74	178
07:30 AM	0	0	**1**	**1**	9	129	0	138	10	0	7	17	3	92	10	105	261
07:45 AM	0	0	0	0	**16**	**157**	**2**	**175**	**11**	0	**9**	**20**	**6**	**112**	**26**	**144**	**339**
08:00 AM	0	0	0	0	5	69	0	74	7	0	2	9	2	97	12	111	194
Total Volume	0	0	1	1	36	444	2	482	36	0	19	55	11	367	56	434	972
% App. Total	0	0	100		7.5	92.1	0.4		65.5	0	34.5		2.5	84.6	12.9		
PHF	.000	.000	.250	.250	.563	.707	.250	.689	.818	.000	.528	.688	.458	.819	.538	.753	.717

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City of Reedley
N/S: East Avenue
E/W: Manning Avenue
Weather: Clear

File Name : 01_RDY_East_Man AM
Site Code : 99925624
Start Date : 6/4/2025
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:

	07:00 AM				07:15 AM				07:00 AM				07:15 AM			
+0 mins.	0	0	**3**	**3**	6	89	0	95	8	0	3	11	0	66	8	74
+15 mins.	0	0	0	0	9	129	0	138	8	0	1	9	3	92	10	105
+30 mins.	0	0	1	1	**16**	**157**	**2**	**175**	10	0	7	17	**6**	**112**	**26**	**144**
+45 mins.	0	0	0	0	5	69	0	74	**11**	0	**9**	**20**	2	97	12	111
Total Volume	0	0	4	4	36	444	2	482	37	0	20	57	11	367	56	434
% App. Total	0	0	100		7.5	92.1	0.4		64.9	0	35.1		2.5	84.6	12.9	
PHF	.000	.000	.333	.333	.563	.707	.250	.689	.841	.000	.556	.713	.458	.819	.538	.753

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City of Reedley
N/S: East Avenue
E/W: Manning Avenue
Weather: Clear

File Name : 01_RDY_East_Man PM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

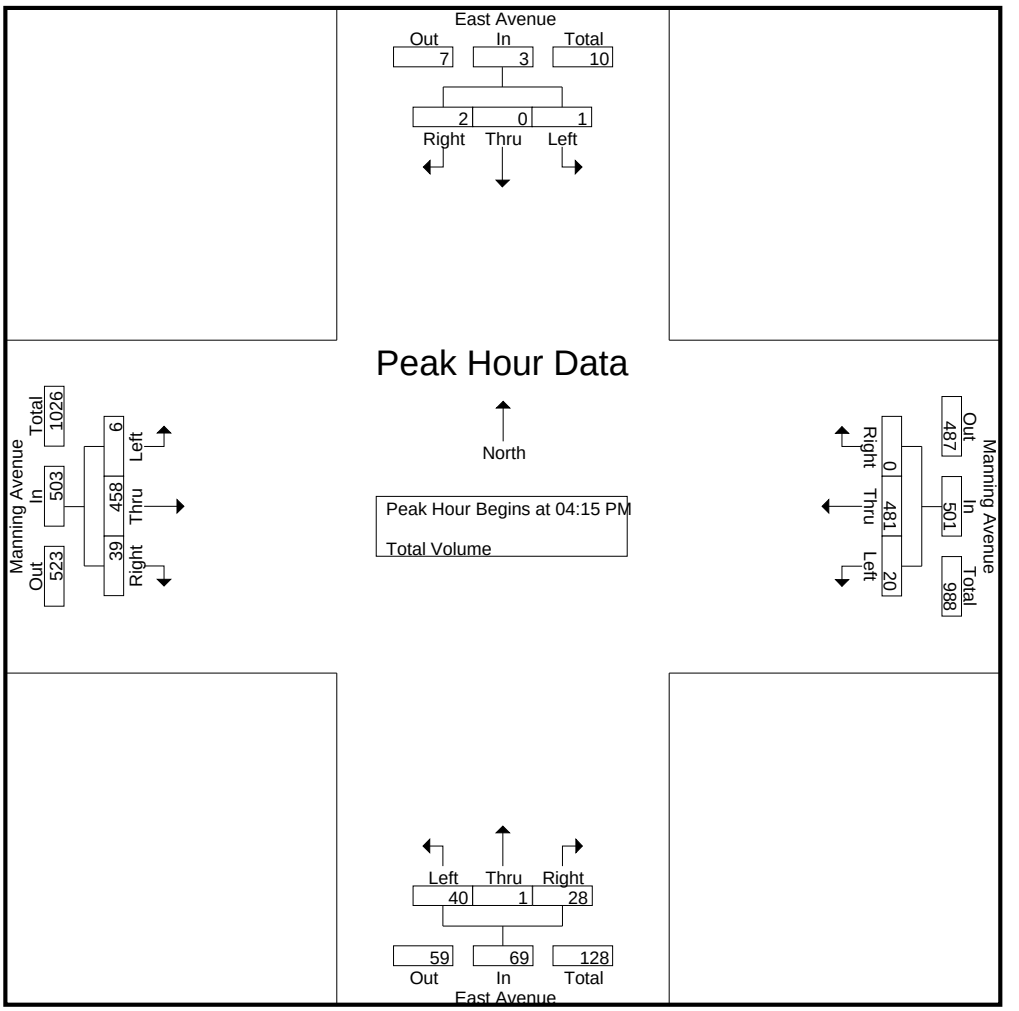
	East Avenue Southbound				Manning Avenue Westbound				East Avenue Northbound				Manning Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	8	99	0	107	6	0	4	10	1	130	13	144	261
04:15 PM	0	0	0	0	2	115	0	117	17	1	5	23	3	115	10	128	268
04:30 PM	1	0	1	2	7	126	0	133	9	0	5	14	3	122	7	132	281
04:45 PM	0	0	0	0	8	99	0	107	8	0	8	16	0	112	7	119	242
Total	1	0	1	2	25	439	0	464	40	1	22	63	7	479	37	523	1052
05:00 PM	0	0	1	1	3	141	0	144	6	0	10	16	0	109	15	124	285
05:15 PM	0	0	0	0	7	101	0	108	11	0	7	18	3	129	9	141	267
05:30 PM	0	0	0	0	6	99	0	105	9	0	2	11	2	102	13	117	233
05:45 PM	0	0	0	0	10	104	1	115	16	0	2	18	1	98	9	108	241
Total	0	0	1	1	26	445	1	472	42	0	21	63	6	438	46	490	1026
Grand Total	1	0	2	3	51	884	1	936	82	1	43	126	13	917	83	1013	2078
Apprch %	33.3	0	66.7		5.4	94.4	0.1		65.1	0.8	34.1		1.3	90.5	8.2		
Total %	0	0	0.1	0.1	2.5	42.5	0	45	3.9	0	2.1	6.1	0.6	44.1	4	48.7	

	East Avenue Southbound				Manning Avenue Westbound				East Avenue Northbound				Manning 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	2	115	0	117	**17**	**1**	5	**23**	**3**	115	10	128	268
04:30 PM	**1**	0	**1**	**2**	7	126	0	133	9	0	5	14	3	**122**	7	**132**	281
04:45 PM	0	0	0	0	**8**	99	0	107	8	0	8	16	0	112	7	119	242
05:00 PM	0	0	1	1	3	**141**	0	**144**	6	0	**10**	16	0	109	**15**	124	**285**
Total Volume	1	0	2	3	20	481	0	501	40	1	28	69	6	458	39	503	1076
% App. Total	33.3	0	66.7		4	96	0		58	1.4	40.6		1.2	91.1	7.8		
PHF	.250	.000	.500	.375	.625	.853	.000	.870	.588	.250	.700	.750	.500	.939	.650	.953	.944

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City of Reedley
N/S: East Avenue
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File Name : 01_RDY_East_Man PM
Site Code : 99925624
Start Date : 6/4/2025
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:

	04:15 PM				04:15 PM				04:15 PM				04:00 PM			
+0 mins.	0	0	0	0	2	115	0	117	**17**	**1**	5	**23**	1	**130**	**13**	**144**
+15 mins.	**1**	0	**1**	**2**	7	126	0	133	9	0	5	14	**3**	115	10	128
+30 mins.	0	0	0	0	**8**	99	0	107	8	0	8	16	3	122	7	132
+45 mins.	0	0	1	1	3	**141**	0	**144**	6	0	**10**	16	0	112	7	119
Total Volume	1	0	2	3	20	481	0	501	40	1	28	69	7	479	37	523
% App. Total	33.3	0	66.7		4	96	0		58	1.4	40.6		1.3	91.6	7.1	
PHF	.250	.000	.500	.375	.625	.853	.000	.870	.588	.250	.700	.750	.583	.921	.712	.908

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City of Reedley
N/S: Columbia Avenue/E 11th Street
E/W: Manning Avenue
Weather: Clear

File Name : 02_RDY_11th_Man AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

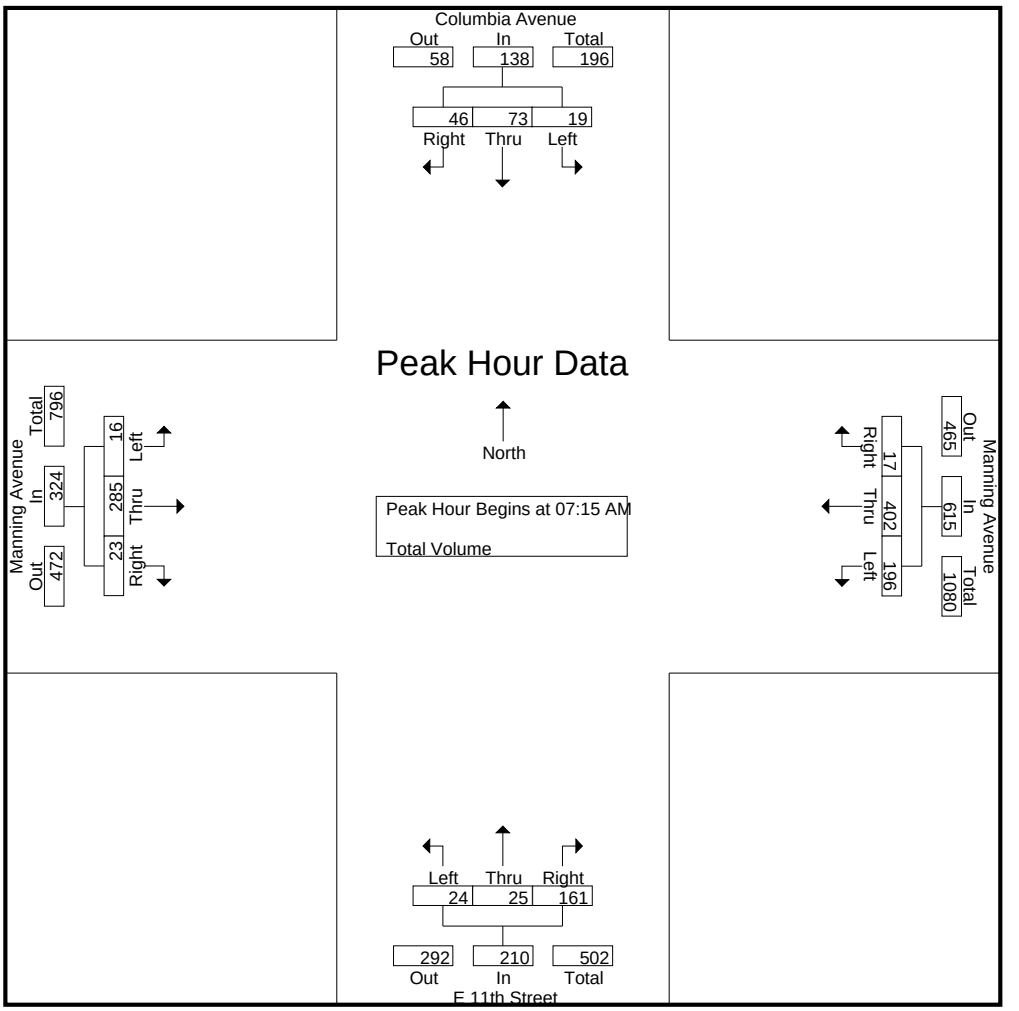
	Columbia Avenue Southbound				Manning Avenue Westbound				E 11th Street Northbound				Manning Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	10	8	20	13	50	5	68	3	4	17	24	0	35	1	36	148
07:15 AM	9	10	11	30	31	75	4	110	4	1	26	31	3	59	4	66	237
07:30 AM	4	21	9	34	49	124	3	176	7	6	40	53	2	81	5	88	351
07:45 AM	4	31	24	59	66	140	4	210	8	7	50	65	4	106	6	116	450
Total	19	72	52	143	159	389	16	564	22	18	133	173	9	281	16	306	1186
08:00 AM	2	11	2	15	50	63	6	119	5	11	45	61	7	39	8	54	249
08:15 AM	3	8	1	12	37	65	3	105	7	7	37	51	4	48	10	62	230
08:30 AM	3	18	3	24	29	59	2	90	6	6	32	44	2	58	9	69	227
08:45 AM	3	16	1	20	39	62	2	103	6	2	33	41	2	56	4	62	226
Total	11	53	7	71	155	249	13	417	24	26	147	197	15	201	31	247	932
Grand Total	30	125	59	214	314	638	29	981	46	44	280	370	24	482	47	553	2118
Apprch %	14	58.4	27.6		32	65	3		12.4	11.9	75.7		4.3	87.2	8.5		
Total %	1.4	5.9	2.8	10.1	14.8	30.1	1.4	46.3	2.2	2.1	13.2	17.5	1.1	22.8	2.2	26.1	

	Columbia Avenue Southbound				Manning Avenue Westbound				E 11th Street Northbound				Manning 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**9**	10	11	30	31	75	4	110	4	1	26	31	3	59	4	66	237
07:30 AM	4	21	9	34	49	124	3	176	7	6	40	53	2	81	5	88	351
07:45 AM	4	**31**	**24**	**59**	**66**	**140**	4	**210**	**8**	7	**50**	**65**	4	**106**	6	**116**	**450**
08:00 AM	2	11	2	15	50	63	**6**	119	5	**11**	45	61	**7**	39	**8**	54	249
Total Volume	19	73	46	138	196	402	17	615	24	25	161	210	16	285	23	324	1287
% App. Total	13.8	52.9	33.3		31.9	65.4	2.8		11.4	11.9	76.7		4.9	88	7.1		
PHF	.528	.589	.479	.585	.742	.718	.708	.732	.750	.568	.805	.808	.571	.672	.719	.698	.715

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City of Reedley
N/S: Columbia Avenue/E 11th Street
E/W: Manning Avenue
Weather: Clear

File Name : 02_RDY_11th_Man AM
Site Code : 99925624
Start Date : 6/4/2025
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:

	07:00 AM				07:15 AM				07:30 AM				07:15 AM			
+0 mins.	2	10	8	20	31	75	4	110	7	6	40	53	3	59	4	66
+15 mins.	**9**	10	11	30	49	124	3	176	**8**	7	**50**	**65**	2	81	5	88
+30 mins.	4	21	9	34	**66**	**140**	4	**210**	5	**11**	45	61	4	**106**	6	**116**
+45 mins.	4	**31**	**24**	**59**	50	63	**6**	119	7	7	37	51	**7**	39	**8**	54
Total Volume	19	72	52	143	196	402	17	615	27	31	172	230	16	285	23	324
% App. Total	13.3	50.3	36.4		31.9	65.4	2.8		11.7	13.5	74.8		4.9	88	7.1	
PHF	.528	.581	.542	.606	.742	.718	.708	.732	.844	.705	.860	.885	.571	.672	.719	.698

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City of Reedley
N/S: Columbia Avenue/E 11th Street
E/W: Manning Avenue
Weather: Clear

File Name : 02_RDY_11th_Man PM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

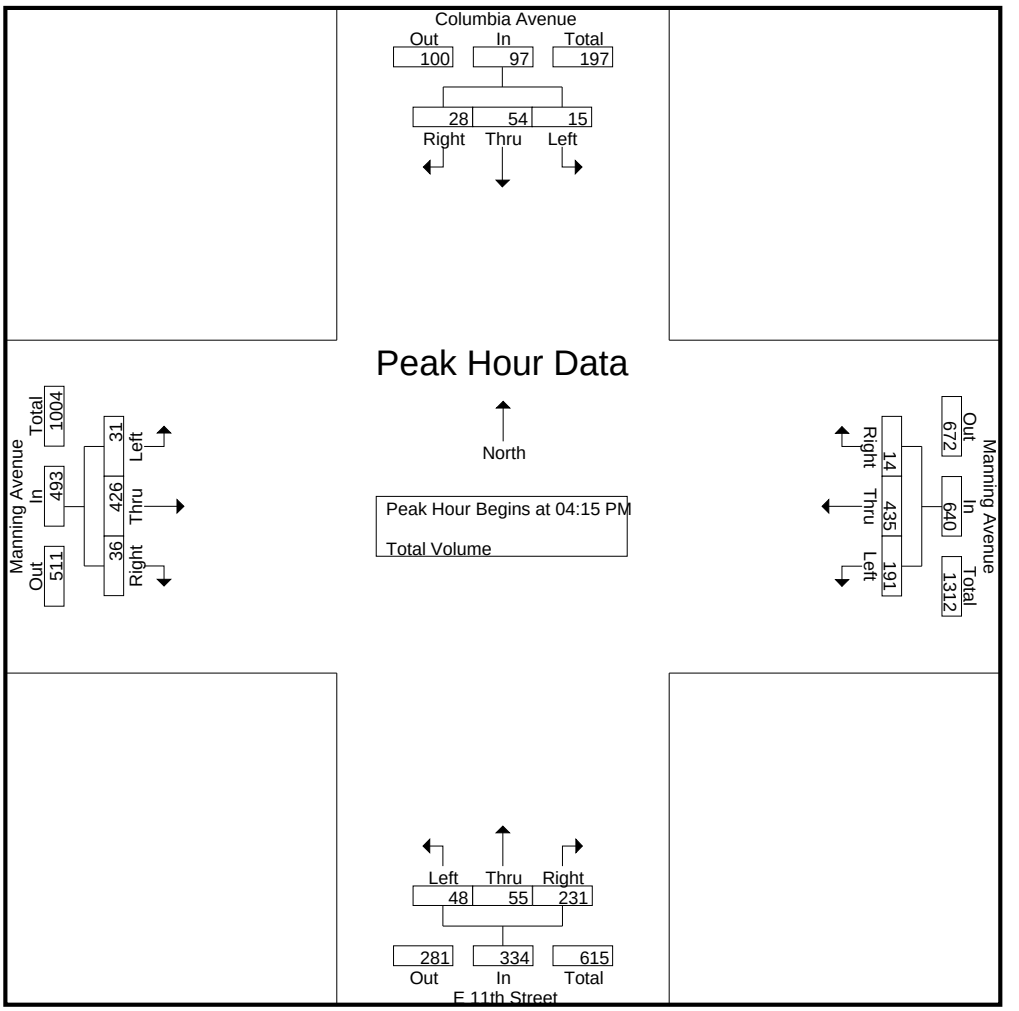
	Columbia Avenue Southbound				Manning Avenue Westbound				E 11th Street Northbound				Manning Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	6	17	5	28	54	91	5	150	10	20	70	100	9	107	8	124	402
04:15 PM	3	13	5	21	58	100	1	159	14	10	61	85	8	104	8	120	385
04:30 PM	2	11	4	17	46	120	3	169	6	19	65	90	6	105	12	123	399
04:45 PM	6	14	8	28	47	95	2	144	10	14	49	73	10	101	7	118	363
Total	17	55	22	94	205	406	11	622	40	63	245	348	33	417	35	485	1549
05:00 PM	4	16	11	31	40	120	8	168	18	12	56	86	7	116	9	132	417
05:15 PM	8	18	5	31	43	85	1	129	17	14	53	84	12	107	12	131	375
05:30 PM	8	23	6	37	53	86	6	145	13	16	55	84	8	92	7	107	373
05:45 PM	4	17	11	32	44	91	5	140	5	20	63	88	10	86	6	102	362
Total	24	74	33	131	180	382	20	582	53	62	227	342	37	401	34	472	1527
Grand Total	41	129	55	225	385	788	31	1204	93	125	472	690	70	818	69	957	3076
Apprch %	18.2	57.3	24.4		32	65.4	2.6		13.5	18.1	68.4		7.3	85.5	7.2		
Total %	1.3	4.2	1.8	7.3	12.5	25.6	1	39.1	3	4.1	15.3	22.4	2.3	26.6	2.2	31.1	

	Columbia Avenue Southbound				Manning Avenue Westbound				E 11th Street Northbound				Manning 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	3	13	5	21	**58**	100	1	159	14	10	61	85	8	104	8	120	385
04:30 PM	2	11	4	17	46	**120**	3	**169**	6	**19**	**65**	**90**	6	105	**12**	123	399
04:45 PM	**6**	14	8	28	47	95	2	144	10	14	49	73	**10**	101	7	118	363
05:00 PM	4	**16**	**11**	**31**	40	120	**8**	168	**18**	12	56	86	7	**116**	9	**132**	**417**
Total Volume	15	54	28	97	191	435	14	640	48	55	231	334	31	426	36	493	1564
% App. Total	15.5	55.7	28.9		29.8	68	2.2		14.4	16.5	69.2		6.3	86.4	7.3		
PHF	.625	.844	.636	.782	.823	.906	.438	.947	.667	.724	.888	.928	.775	.918	.750	.934	.938

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City of Reedley
N/S: Columbia Avenue/E 11th Street
E/W: Manning Avenue
Weather: Clear

File Name : 02_RDY_11th_Man PM
Site Code : 99925624
Start Date : 6/4/2025
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:

	05:00 PM				04:15 PM				04:00 PM				04:30 PM			
+0 mins.	4	16	**11**	31	**58**	100	1	159	10	**20**	**70**	**100**	6	105	**12**	123
+15 mins.	**8**	18	5	31	46	**120**	3	**169**	**14**	10	61	85	10	101	7	118
+30 mins.	8	**23**	6	**37**	47	95	2	144	6	19	65	90	7	**116**	9	**132**
+45 mins.	4	17	11	32	40	120	**8**	168	10	14	49	73	**12**	107	12	131
Total Volume	24	74	33	131	191	435	14	640	40	63	245	348	35	429	40	504
% App. Total	18.3	56.5	25.2		29.8	68	2.2		11.5	18.1	70.4		6.9	85.1	7.9	
PHF	.750	.804	.750	.885	.823	.906	.438	.947	.714	.788	.875	.870	.729	.925	.833	.955

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Manning Avenue
Weather: Clear

File Name : 03_RDY_Bw_Man AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

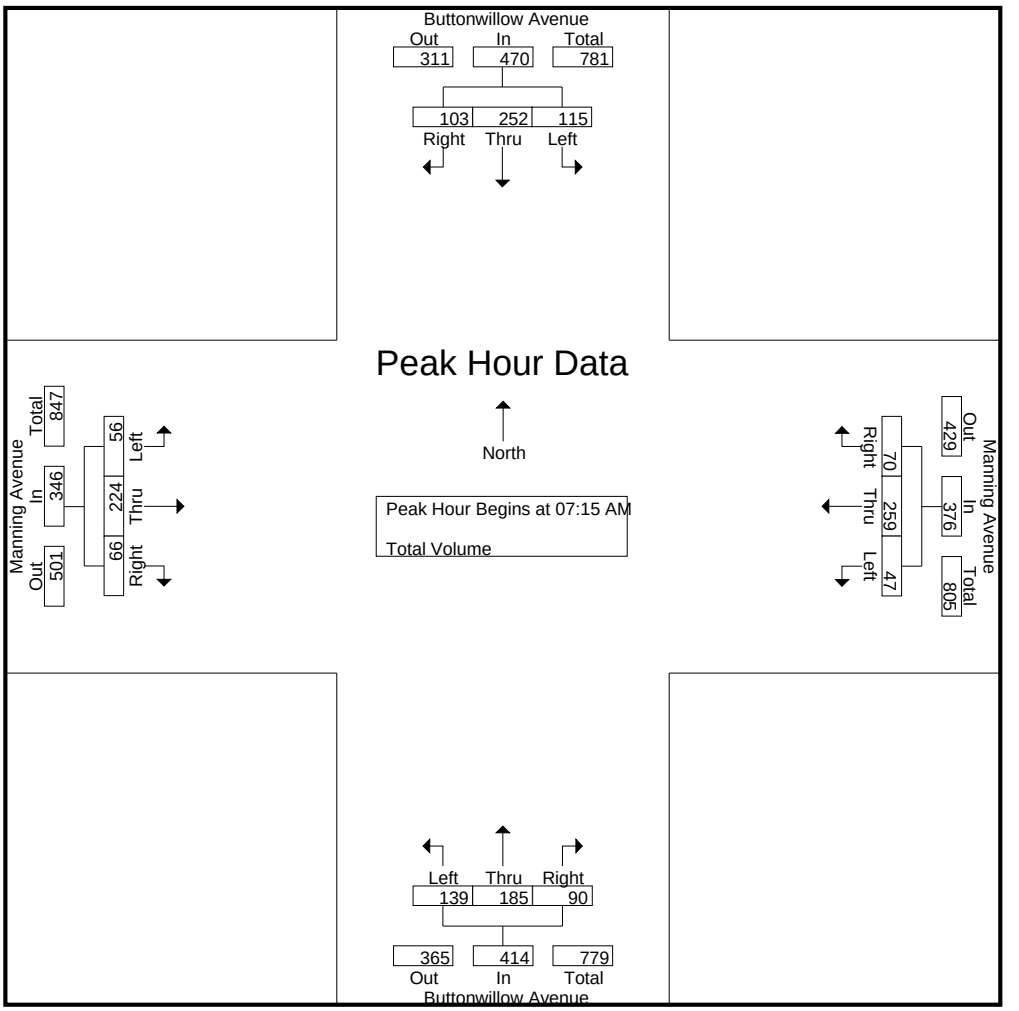
	Buttonwillow Avenue Southbound				Manning Avenue Westbound				Buttonwillow Avenue Northbound				Manning Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	13	27	5	45	2	31	6	39	15	32	9	56	3	28	4	35	175
07:15 AM	29	42	16	87	4	49	14	67	26	37	13	76	10	52	7	69	299
07:30 AM	39	61	28	128	14	72	21	107	38	54	31	123	14	69	11	94	452
07:45 AM	30	84	36	150	16	77	20	113	45	46	36	127	7	55	26	88	478
Total	111	214	85	410	36	229	61	326	124	169	89	382	34	204	48	286	1404
08:00 AM	17	65	23	105	13	61	15	89	30	48	10	88	25	48	22	95	377
08:15 AM	18	48	8	74	9	50	4	63	19	35	7	61	9	30	13	52	250
08:30 AM	5	46	13	64	11	46	6	63	20	37	4	61	5	47	17	69	257
08:45 AM	10	49	11	70	6	49	14	69	22	32	7	61	10	42	13	65	265
Total	50	208	55	313	39	206	39	284	91	152	28	271	49	167	65	281	1149
Grand Total	161	422	140	723	75	435	100	610	215	321	117	653	83	371	113	567	2553
Apprch %	22.3	58.4	19.4		12.3	71.3	16.4		32.9	49.2	17.9		14.6	65.4	19.9		
Total %	6.3	16.5	5.5	28.3	2.9	17	3.9	23.9	8.4	12.6	4.6	25.6	3.3	14.5	4.4	22.2	

	Buttonwillow Avenue Southbound				Manning Avenue Westbound				Buttonwillow Avenue Northbound				Manning 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	29	42	16	87	4	49	14	67	26	37	13	76	10	52	7	69	299
07:30 AM	**39**	61	28	128	14	72	**21**	107	38	**54**	31	123	14	**69**	11	94	452
07:45 AM	30	**84**	**36**	**150**	**16**	**77**	20	**113**	**45**	46	**36**	**127**	7	55	**26**	88	**478**
08:00 AM	17	65	23	105	13	61	15	89	30	48	10	88	**25**	48	22	**95**	377
Total Volume	115	252	103	470	47	259	70	376	139	185	90	414	56	224	66	346	1606
% App. Total	24.5	53.6	21.9		12.5	68.9	18.6		33.6	44.7	21.7		16.2	64.7	19.1		
PHF	.737	.750	.715	.783	.734	.841	.833	.832	.772	.856	.625	.815	.560	.812	.635	.911	.840

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Manning Avenue
Weather: Clear

File Name : 03_RDY_Bw_Man AM
Site Code : 99925624
Start Date : 6/4/2025
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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:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	29	42	16	87	4	49	14	67	26	37	13	76	10	52	7	69
+15 mins.	**39**	61	28	128	14	72	**21**	107	38	**54**	31	123	14	**69**	11	94
+30 mins.	30	**84**	**36**	**150**	**16**	**77**	20	**113**	**45**	46	**36**	**127**	7	55	**26**	88
+45 mins.	17	65	23	105	13	61	15	89	30	48	10	88	**25**	48	22	**95**
Total Volume	115	252	103	470	47	259	70	376	139	185	90	414	56	224	66	346
% App. Total	24.5	53.6	21.9		12.5	68.9	18.6		33.6	44.7	21.7		16.2	64.7	19.1	
PHF	.737	.750	.715	.783	.734	.841	.833	.832	.772	.856	.625	.815	.560	.812	.635	.911

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Manning Avenue
Weather: Clear

File Name : 03_RDY_Bw_Man PM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

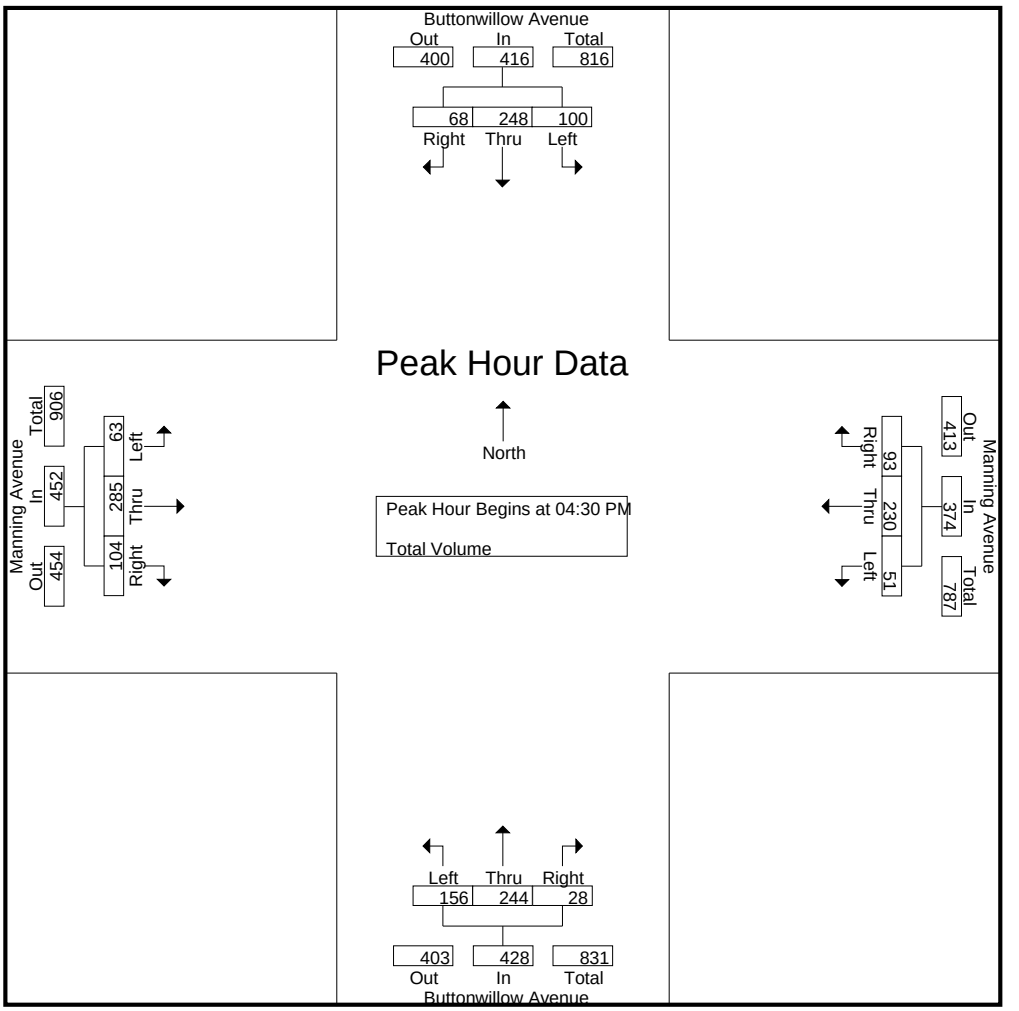
	Buttonwillow Avenue Southbound				Manning Avenue Westbound				Buttonwillow Avenue Northbound				Manning Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	21	56	24	101	8	65	17	90	25	53	4	82	31	61	35	127	400
04:15 PM	14	55	19	88	13	63	18	94	29	48	9	86	17	47	29	93	361
04:30 PM	32	65	21	118	10	61	22	93	39	61	3	103	17	64	21	102	416
04:45 PM	27	63	17	107	10	63	33	106	46	69	11	126	12	72	29	113	452
Total	94	239	81	414	41	252	90	383	139	231	27	397	77	244	114	435	1629
05:00 PM	20	65	11	96	18	53	20	91	34	64	5	103	24	78	27	129	419
05:15 PM	21	55	19	95	13	53	18	84	37	50	9	96	10	71	27	108	383
05:30 PM	17	54	21	92	19	45	10	74	36	57	11	104	24	46	30	100	370
05:45 PM	18	61	13	92	6	55	14	75	33	49	9	91	11	57	36	104	362
Total	76	235	64	375	56	206	62	324	140	220	34	394	69	252	120	441	1534
Grand Total	170	474	145	789	97	458	152	707	279	451	61	791	146	496	234	876	3163
Apprch %	21.5	60.1	18.4		13.7	64.8	21.5		35.3	57	7.7		16.7	56.6	26.7		
Total %	5.4	15	4.6	24.9	3.1	14.5	4.8	22.4	8.8	14.3	1.9	25	4.6	15.7	7.4	27.7	

	Buttonwillow Avenue Southbound				Manning Avenue Westbound				Buttonwillow Avenue Northbound				Manning 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**32**	**65**	**21**	**118**	10	61	22	93	39	61	3	103	17	64	21	102	416
04:45 PM	27	63	17	107	10	**63**	**33**	**106**	**46**	**69**	**11**	**126**	12	72	**29**	113	**452**
05:00 PM	20	65	11	96	**18**	53	20	91	34	64	5	103	**24**	**78**	27	**129**	419
05:15 PM	21	55	19	95	13	53	18	84	37	50	9	96	10	71	27	108	383
Total Volume	100	248	68	416	51	230	93	374	156	244	28	428	63	285	104	452	1670
% App. Total	24	59.6	16.3		13.6	61.5	24.9		36.4	57	6.5		13.9	63.1	23		
PHF	.781	.954	.810	.881	.708	.913	.705	.882	.848	.884	.636	.849	.656	.913	.897	.876	.924

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City of Reedley
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Weather: Clear

File Name : 03_RDY_Bw_Man PM
Site Code : 99925624
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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				04:15 PM				04:45 PM				04:30 PM			
+0 mins.	**32**	**65**	**21**	**118**	13	**63**	18	94	**46**	**69**	**11**	**126**	17	64	21	102
+15 mins.	27	63	17	107	10	61	22	93	34	64	5	103	12	72	**29**	113
+30 mins.	20	65	11	96	10	63	**33**	**106**	37	50	9	96	**24**	**78**	27	**129**
+45 mins.	21	55	19	95	**18**	53	20	91	36	57	11	104	10	71	27	108
Total Volume	100	248	68	416	51	240	93	384	153	240	36	429	63	285	104	452
% App. Total	24	59.6	16.3		13.3	62.5	24.2		35.7	55.9	8.4		13.9	63.1	23	
PHF	.781	.954	.810	.881	.708	.952	.705	.906	.832	.870	.818	.851	.656	.913	.897	.876

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City of Reedley
N/S: Buttonwillow Avenue
E/W: North Avenue
Weather: Clear

File Name : 05_RDY_Bw_North AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

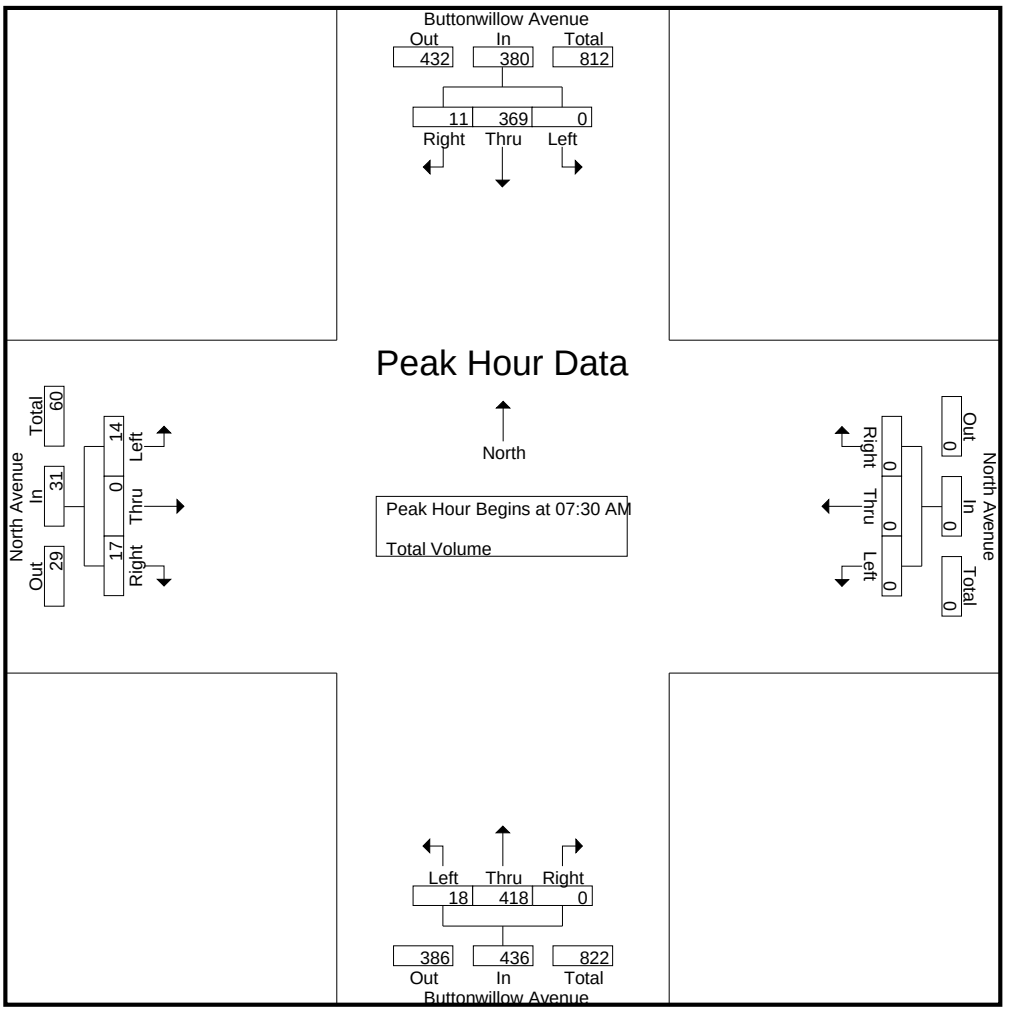
	Buttonwillow Avenue Southbound				North Avenue Westbound				Buttonwillow Avenue Northbound				North Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	30	1	31	0	0	0	0	1	52	0	53	1	0	6	7	91
07:15 AM	0	50	1	51	0	0	0	0	2	76	0	78	1	0	3	4	133
07:30 AM	0	81	4	85	0	0	0	0	3	121	0	124	3	0	3	6	215
07:45 AM	0	126	3	129	0	0	0	0	5	142	0	147	6	0	8	14	290
Total	0	287	9	296	0	0	0	0	11	391	0	402	11	0	20	31	729
08:00 AM	0	95	2	97	0	0	0	0	6	89	0	95	4	0	4	8	200
08:15 AM	0	67	2	69	0	0	0	0	4	66	0	70	1	0	2	3	142
08:30 AM	0	72	2	74	0	0	0	0	2	56	0	58	5	0	8	13	145
08:45 AM	0	62	1	63	0	0	0	0	4	58	0	62	1	0	5	6	131
Total	0	296	7	303	0	0	0	0	16	269	0	285	11	0	19	30	618
Grand Total	0	583	16	599	0	0	0	0	27	660	0	687	22	0	39	61	1347
Apprch %	0	97.3	2.7		0	0	0		3.9	96.1	0		36.1	0	63.9		
Total %	0	43.3	1.2	44.5	0	0	0	0	2	49	0	51	1.6	0	2.9	4.5	

	Buttonwillow Avenue Southbound				North Avenue Westbound				Buttonwillow Avenue Northbound				North 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	81	**4**	85	0	0	0	0	3	121	0	124	3	0	3	6	215
07:45 AM	0	**126**	3	**129**	0	0	0	0	5	**142**	0	**147**	**6**	0	**8**	**14**	**290**
08:00 AM	0	95	2	97	0	0	0	0	**6**	89	0	95	4	0	4	8	200
08:15 AM	0	67	2	69	0	0	0	0	4	66	0	70	1	0	2	3	142
Total Volume	0	369	11	380	0	0	0	0	18	418	0	436	14	0	17	31	847
% App. Total	0	97.1	2.9		0	0	0		4.1	95.9	0		45.2	0	54.8		
PHF	.000	.732	.688	.736	.000	.000	.000	.000	.750	.736	.000	.741	.583	.000	.531	.554	.730

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City of Reedley
N/S: Buttonwillow Avenue
E/W: North Avenue
Weather: Clear

File Name : 05_RDY_Bw_North AM
Site Code : 99925624
Start Date : 6/4/2025
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				07:15 AM				07:45 AM			
+0 mins.	0	81	**4**	85	0	0	0	0	2	76	0	78	**6**	0	**8**	**14**
+15 mins.	0	**126**	3	**129**	0	0	0	0	3	121	0	124	4	0	4	8
+30 mins.	0	95	2	97	0	0	0	0	5	**142**	0	**147**	1	0	2	3
+45 mins.	0	67	2	69	0	0	0	0	**6**	89	0	95	5	0	8	13
Total Volume	0	369	11	380	0	0	0	0	16	428	0	444	16	0	22	38
% App. Total	0	97.1	2.9		0	0	0		3.6	96.4	0		42.1	0	57.9	
PHF	.000	.732	.688	.736	.000	.000	.000	.000	.667	.754	.000	.755	.667	.000	.688	.679

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City of Reedley
N/S: Buttonwillow Avenue
E/W: North Avenue
Weather: Clear

File Name : 05_RDY_Bw_North PM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

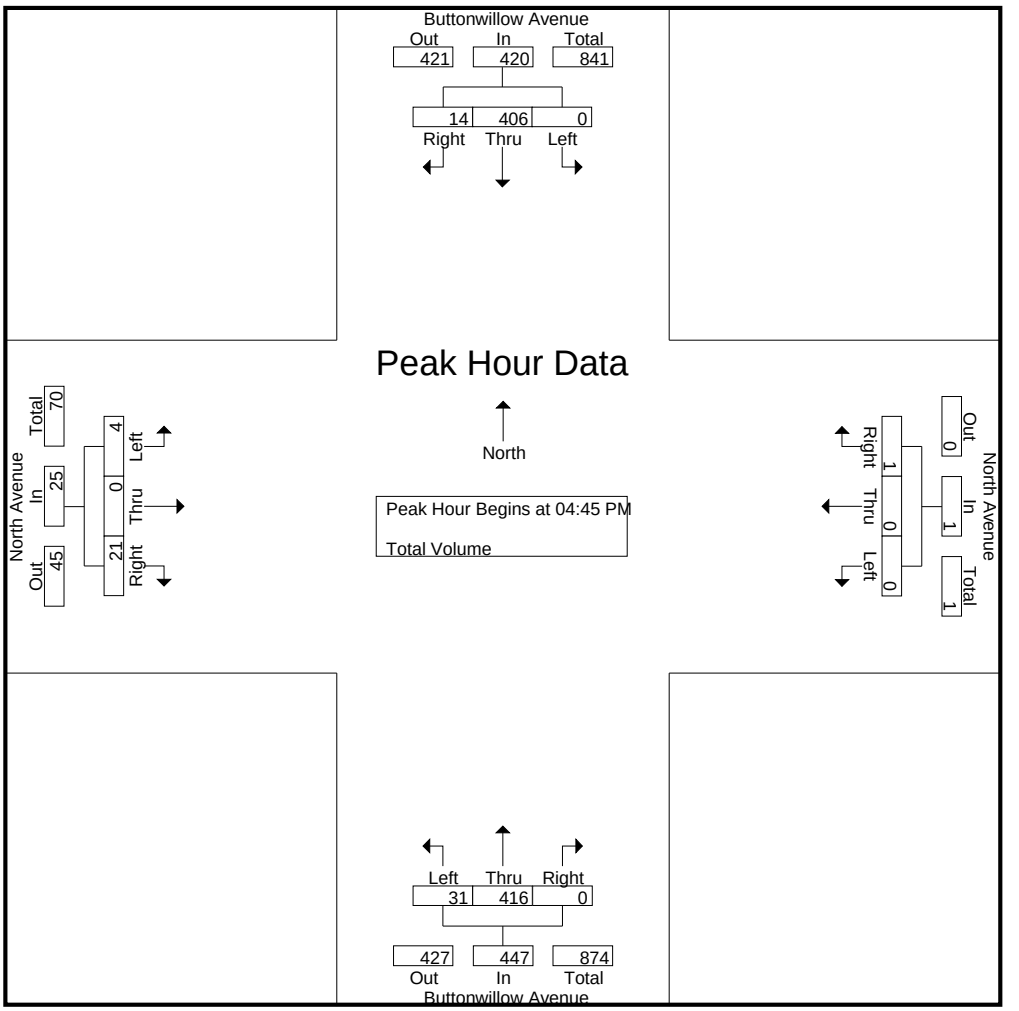
	Buttonwillow Avenue Southbound				North Avenue Westbound				Buttonwillow Avenue Northbound				North Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	98	1	99	0	0	0	0	6	86	0	92	1	0	8	9	200
04:15 PM	0	92	2	94	0	0	0	0	2	100	0	102	2	0	6	8	204
04:30 PM	0	89	3	92	0	0	0	0	5	98	0	103	1	0	8	9	204
04:45 PM	0	101	1	102	0	0	0	0	6	130	0	136	0	0	3	3	241
Total	0	380	7	387	0	0	0	0	19	414	0	433	4	0	25	29	849
05:00 PM	0	114	3	117	0	0	1	1	9	102	0	111	1	0	7	8	237
05:15 PM	0	89	4	93	0	0	0	0	10	94	0	104	1	0	3	4	201
05:30 PM	0	102	6	108	0	0	0	0	6	90	0	96	2	0	8	10	214
05:45 PM	0	96	2	98	0	0	0	0	10	92	0	102	4	0	9	13	213
Total	0	401	15	416	0	0	1	1	35	378	0	413	8	0	27	35	865
Grand Total	0	781	22	803	0	0	1	1	54	792	0	846	12	0	52	64	1714
Apprch %	0	97.3	2.7		0	0	100		6.4	93.6	0		18.8	0	81.2		
Total %	0	45.6	1.3	46.8	0	0	0.1	0.1	3.2	46.2	0	49.4	0.7	0	3	3.7	

	Buttonwillow Avenue Southbound				North Avenue Westbound				Buttonwillow Avenue Northbound				North 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	101	1	102	0	0	0	0	6	**130**	0	**136**	0	0	3	3	**241**
05:00 PM	0	**114**	3	**117**	0	0	**1**	**1**	9	102	0	111	1	0	7	8	237
05:15 PM	0	89	4	93	0	0	0	0	**10**	94	0	104	1	0	3	4	201
05:30 PM	0	102	**6**	108	0	0	0	0	6	90	0	96	**2**	0	**8**	**10**	214
Total Volume	0	406	14	420	0	0	1	1	31	416	0	447	4	0	21	25	893
% App. Total	0	96.7	3.3		0	0	100		6.9	93.1	0		16	0	84		
PHF	.000	.890	.583	.897	.000	.000	.250	.250	.775	.800	.000	.822	.500	.000	.656	.625	.926

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City of Reedley
N/S: Buttonwillow Avenue
E/W: North Avenue
Weather: Clear

File Name : 05_RDY_Bw_North PM
Site Code : 99925624
Start Date : 6/4/2025
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:

	04:45 PM				04:15 PM				04:30 PM				05:00 PM			
+0 mins.	0	101	1	102	0	0	0	0	5	98	0	103	1	0	7	8
+15 mins.	0	**114**	3	**117**	0	0	0	0	6	**130**	0	**136**	1	0	3	4
+30 mins.	0	89	4	93	0	0	0	0	9	102	0	111	2	0	8	10
+45 mins.	0	102	**6**	108	0	0	**1**	**1**	**10**	94	0	104	**4**	0	**9**	**13**
Total Volume	0	406	14	420	0	0	1	1	30	424	0	454	8	0	27	35
% App. Total	0	96.7	3.3		0	0	100		6.6	93.4	0		22.9	0	77.1	
PHF	.000	.890	.583	.897	.000	.000	.250	.250	.750	.815	.000	.835	.500	.000	.750	.673

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City of Reedley
N/S: Zumwalt Avenue
E/W: North Avenue
Weather: Clear

File Name : 06_RDY_Zum_North AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

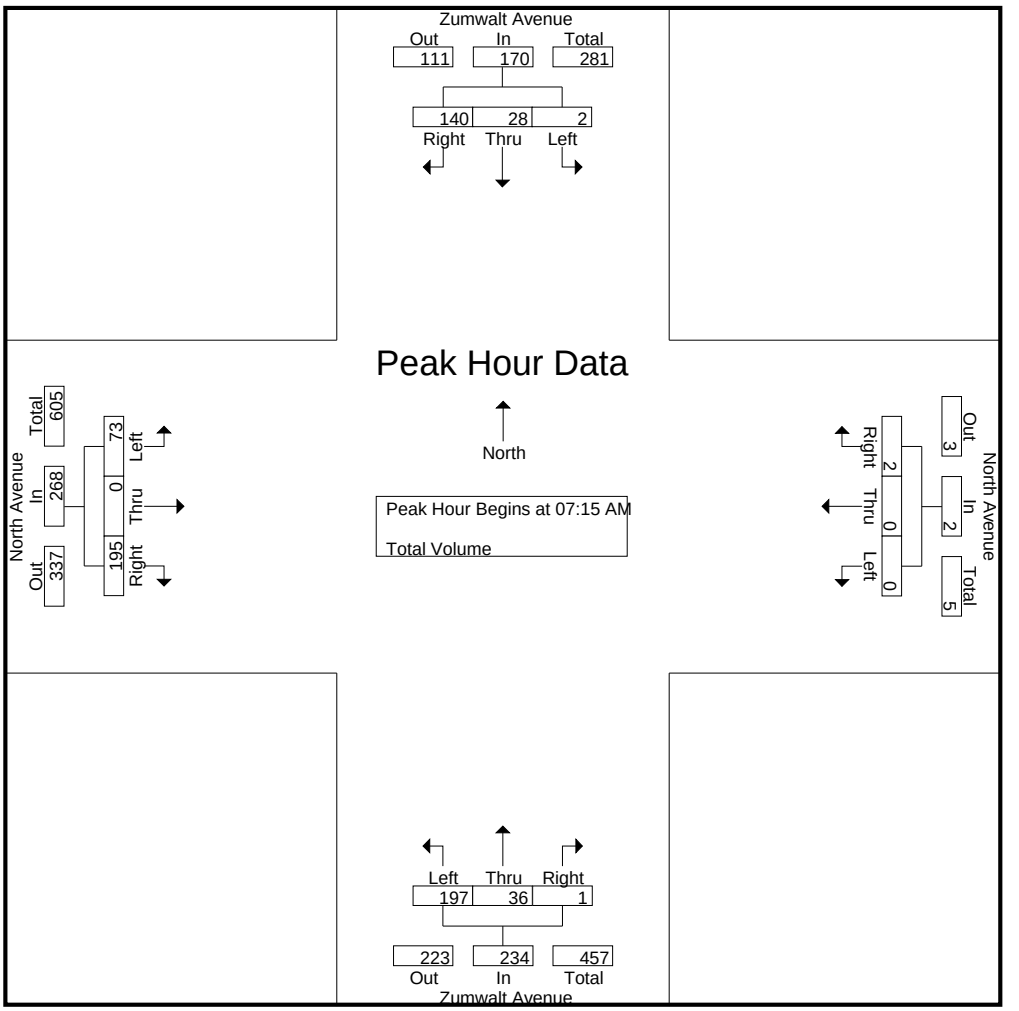
	Zumwalt Avenue Southbound				North Avenue Westbound				Zumwalt Avenue Northbound				North Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	3	3	0	0	0	0	8	2	0	10	1	0	3	4	17
07:15 AM	0	4	21	25	0	0	1	1	13	11	0	24	6	0	8	14	64
07:30 AM	0	2	49	51	0	0	1	1	77	12	1	90	29	0	49	78	220
07:45 AM	1	15	53	69	0	0	0	0	91	6	0	97	21	0	105	126	292
Total	1	21	126	148	0	0	2	2	189	31	1	221	57	0	165	222	593
08:00 AM	1	7	17	25	0	0	0	0	16	7	0	23	17	0	33	50	98
08:15 AM	0	5	6	11	1	0	1	2	6	3	0	9	4	0	6	10	32
08:30 AM	1	1	5	7	0	0	0	0	3	9	0	12	5	0	6	11	30
08:45 AM	0	9	2	11	0	0	1	1	3	7	0	10	1	0	2	3	25
Total	2	22	30	54	1	0	2	3	28	26	0	54	27	0	47	74	185
Grand Total	3	43	156	202	1	0	4	5	217	57	1	275	84	0	212	296	778
Apprch %	1.5	21.3	77.2		20	0	80		78.9	20.7	0.4		28.4	0	71.6		
Total %	0.4	5.5	20.1	26	0.1	0	0.5	0.6	27.9	7.3	0.1	35.3	10.8	0	27.2	38	

	Zumwalt Avenue Southbound				North Avenue Westbound				Zumwalt Avenue Northbound				North 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	4	21	25	0	0	**1**	**1**	13	11	0	24	6	0	8	14	64
07:30 AM	0	2	49	51	0	0	1	1	77	**12**	**1**	90	**29**	0	49	78	220
07:45 AM	**1**	**15**	**53**	**69**	0	0	0	0	**91**	6	0	**97**	21	0	**105**	**126**	**292**
08:00 AM	1	7	17	25	0	0	0	0	16	7	0	23	17	0	33	50	98
Total Volume	2	28	140	170	0	0	2	2	197	36	1	234	73	0	195	268	674
% App. Total	1.2	16.5	82.4		0	0	100		84.2	15.4	0.4		27.2	0	72.8		
PHF	.500	.467	.660	.616	.000	.000	.500	.500	.541	.750	.250	.603	.629	.000	.464	.532	.577

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City of Reedley
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E/W: North Avenue
Weather: Clear

File Name : 06_RDY_Zum_North AM
Site Code : 99925624
Start Date : 6/4/2025
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:

	07:15 AM				07:30 AM				07:15 AM				07:15 AM			
+0 mins.	0	4	21	25	0	0	**1**	1	13	11	0	24	6	0	8	14
+15 mins.	0	2	49	51	0	0	0	0	77	**12**	**1**	90	**29**	0	49	78
+30 mins.	**1**	**15**	**53**	**69**	0	0	0	0	**91**	6	0	**97**	21	0	**105**	**126**
+45 mins.	1	7	17	25	**1**	0	1	**2**	16	7	0	23	17	0	33	50
Total Volume	2	28	140	170	1	0	2	3	197	36	1	234	73	0	195	268
% App. Total	1.2	16.5	82.4		33.3	0	66.7		84.2	15.4	0.4		27.2	0	72.8	
PHF	.500	.467	.660	.616	.250	.000	.500	.375	.541	.750	.250	.603	.629	.000	.464	.532

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City of Reedley
N/S: Zumwalt Avenue
E/W: North Avenue
Weather: Clear

File Name : 06_RDY_Zum_North PM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

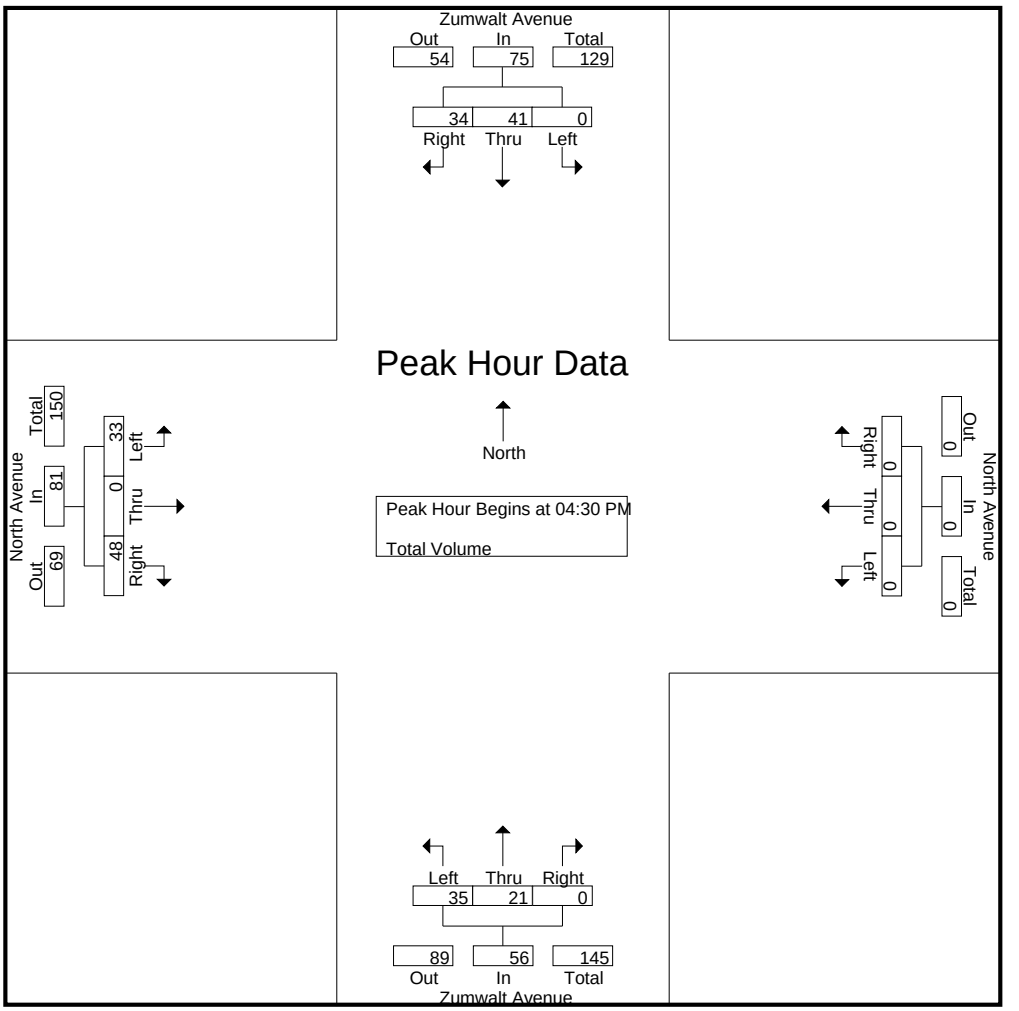
	Zumwalt Avenue Southbound				North Avenue Westbound				Zumwalt Avenue Northbound				North Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	6	1	7	0	0	0	0	2	9	1	12	5	0	9	14	33
04:15 PM	0	5	5	10	0	0	0	0	5	7	0	12	8	0	11	19	41
04:30 PM	0	15	8	23	0	0	0	0	7	7	0	14	10	0	11	21	58
04:45 PM	0	8	14	22	0	0	0	0	10	4	0	14	7	0	9	16	52
Total	0	34	28	62	0	0	0	0	24	27	1	52	30	0	40	70	184
05:00 PM	0	6	7	13	0	0	0	0	10	4	0	14	11	0	19	30	57
05:15 PM	0	12	5	17	0	0	0	0	8	6	0	14	5	0	9	14	45
05:30 PM	0	6	6	12	0	0	0	0	3	7	0	10	9	0	9	18	40
05:45 PM	0	11	1	12	0	0	0	0	3	3	0	6	2	0	2	4	22
Total	0	35	19	54	0	0	0	0	24	20	0	44	27	0	39	66	164
Grand Total	0	69	47	116	0	0	0	0	48	47	1	96	57	0	79	136	348
Apprch %	0	59.5	40.5		0	0	0		50	49	1		41.9	0	58.1		
Total %	0	19.8	13.5	33.3	0	0	0	0	13.8	13.5	0.3	27.6	16.4	0	22.7	39.1	

	Zumwalt Avenue Southbound				North Avenue Westbound				Zumwalt Avenue Northbound				North 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**15**	8	**23**	0	0	0	0	7	**7**	0	**14**	10	0	11	21	**58**
04:45 PM	0	8	**14**	22	0	0	0	0	**10**	4	0	14	7	0	9	16	52
05:00 PM	0	6	7	13	0	0	0	0	10	4	0	14	**11**	0	**19**	**30**	57
05:15 PM	0	12	5	17	0	0	0	0	8	6	0	14	5	0	9	14	45
Total Volume	0	41	34	75	0	0	0	0	35	21	0	56	33	0	48	81	212
% App. Total	0	54.7	45.3		0	0	0		62.5	37.5	0		40.7	0	59.3		
PHF	.000	.683	.607	.815	.000	.000	.000	.000	.875	.750	.000	1.00	.750	.000	.632	.675	.914

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City of Reedley
N/S: Zumwalt Avenue
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Weather: Clear

File Name : 06_RDY_Zum_North PM
Site Code : 99925624
Start Date : 6/4/2025
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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				04:15 PM			
+0 mins.	0	**15**	8	**23**	0	0	0	0	7	**7**	0	**14**	8	0	11	19
+15 mins.	0	8	**14**	22	0	0	0	0	**10**	4	0	14	10	0	11	21
+30 mins.	0	6	7	13	0	0	0	0	10	4	0	14	7	0	9	16
+45 mins.	0	12	5	17	0	0	0	0	8	6	0	14	**11**	0	**19**	**30**
Total Volume	0	41	34	75	0	0	0	0	35	21	0	56	36	0	50	86
% App. Total	0	54.7	45.3		0	0	0		62.5	37.5	0		41.9	0	58.1	
PHF	.000	.683	.607	.815	.000	.000	.000	.000	.875	.750	.000	1.000	.818	.000	.658	.717

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Springfield Avenue
Weather: Clear

File Name : 07_RDY_Bw_Spf AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

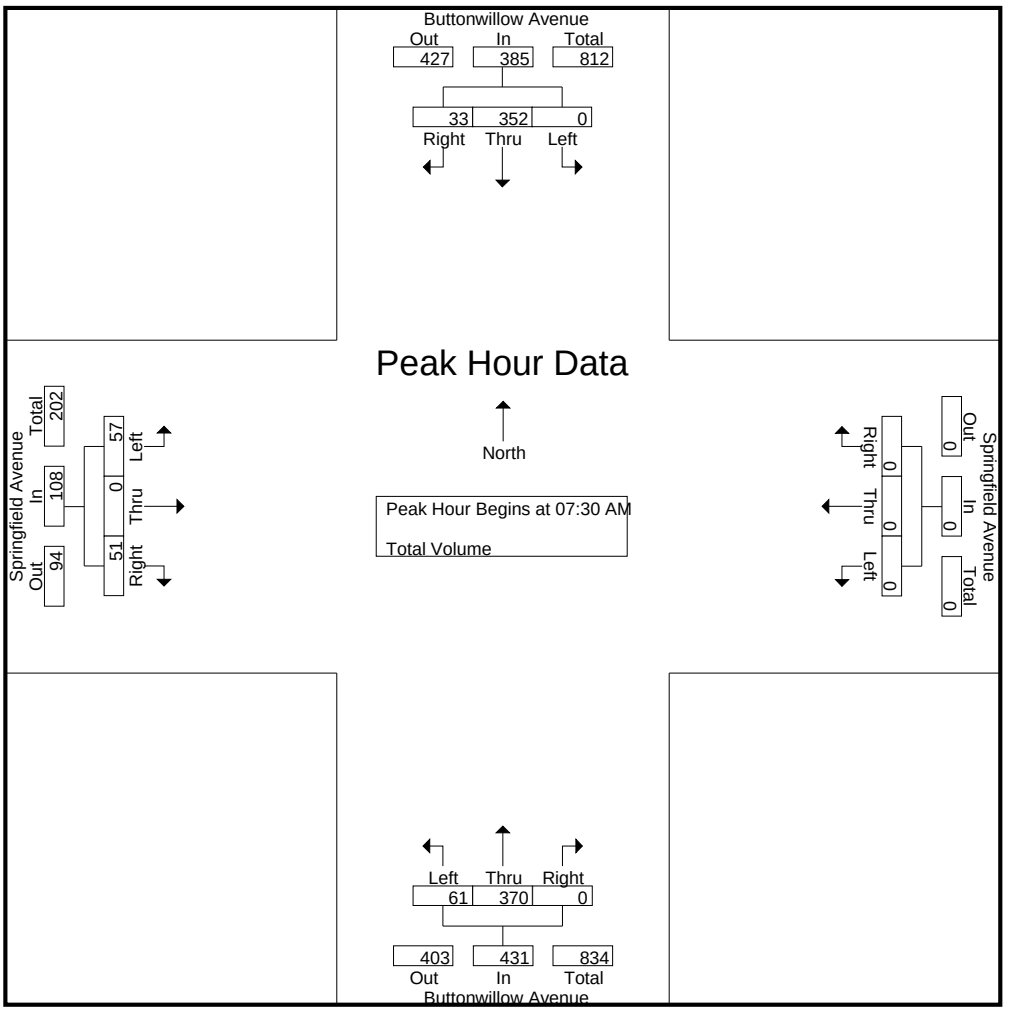
	Buttonwillow Avenue Southbound				Springfield Avenue Westbound				Buttonwillow Avenue Northbound				Springfield Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	35	4	39	0	0	0	0	3	48	0	51	5	0	6	11	101
07:15 AM	0	50	4	54	0	0	0	0	7	77	0	84	6	0	5	11	149
07:30 AM	0	80	10	90	0	0	0	0	11	99	0	110	19	0	16	35	235
07:45 AM	0	114	11	125	0	0	0	0	29	120	0	149	23	0	13	36	310
Total	0	279	29	308	0	0	0	0	50	344	0	394	53	0	40	93	795
08:00 AM	0	95	6	101	0	0	0	0	12	85	0	97	6	0	15	21	219
08:15 AM	0	63	6	69	0	0	0	0	9	66	0	75	9	0	7	16	160
08:30 AM	0	83	5	88	0	0	0	0	10	53	0	63	6	0	5	11	162
08:45 AM	0	65	2	67	0	0	0	0	3	54	0	57	3	0	9	12	136
Total	0	306	19	325	0	0	0	0	34	258	0	292	24	0	36	60	677
Grand Total	0	585	48	633	0	0	0	0	84	602	0	686	77	0	76	153	1472
Apprch %	0	92.4	7.6		0	0	0		12.2	87.8	0		50.3	0	49.7		
Total %	0	39.7	3.3	43	0	0	0	0	5.7	40.9	0	46.6	5.2	0	5.2	10.4	

	Buttonwillow Avenue Southbound				Springfield Avenue Westbound				Buttonwillow Avenue Northbound				Springfield 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	80	10	90	0	0	0	0	11	99	0	110	19	0	**16**	35	235
07:45 AM	0	**114**	**11**	**125**	0	0	0	0	**29**	**120**	0	**149**	**23**	0	13	**36**	**310**
08:00 AM	0	95	6	101	0	0	0	0	12	85	0	97	6	0	15	21	219
08:15 AM	0	63	6	69	0	0	0	0	9	66	0	75	9	0	7	16	160
Total Volume	0	352	33	385	0	0	0	0	61	370	0	431	57	0	51	108	924
% App. Total	0	91.4	8.6		0	0	0		14.2	85.8	0		52.8	0	47.2		
PHF	.000	.772	.750	.770	.000	.000	.000	.000	.526	.771	.000	.723	.620	.000	.797	.750	.745

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Springfield Avenue
Weather: Clear

File Name : 07_RDY_Bw_Spf AM
Site Code : 99925624
Start Date : 6/4/2025
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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				07:15 AM				07:30 AM			
+0 mins.	0	80	10	90	0	0	0	0	7	77	0	84	19	0	**16**	35
+15 mins.	0	**114**	**11**	**125**	0	0	0	0	11	99	0	110	**23**	0	13	**36**
+30 mins.	0	95	6	101	0	0	0	0	**29**	**120**	0	**149**	6	0	15	21
+45 mins.	0	63	6	69	0	0	0	0	12	85	0	97	9	0	7	16
Total Volume	0	352	33	385	0	0	0	0	59	381	0	440	57	0	51	108
% App. Total	0	91.4	8.6		0	0	0		13.4	86.6	0		52.8	0	47.2	
PHF	.000	.772	.750	.770	.000	.000	.000	.000	.509	.794	.000	.738	.620	.000	.797	.750

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Springfield Avenue
Weather: Clear

File Name : 07_RDY_Bw_Spf PM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

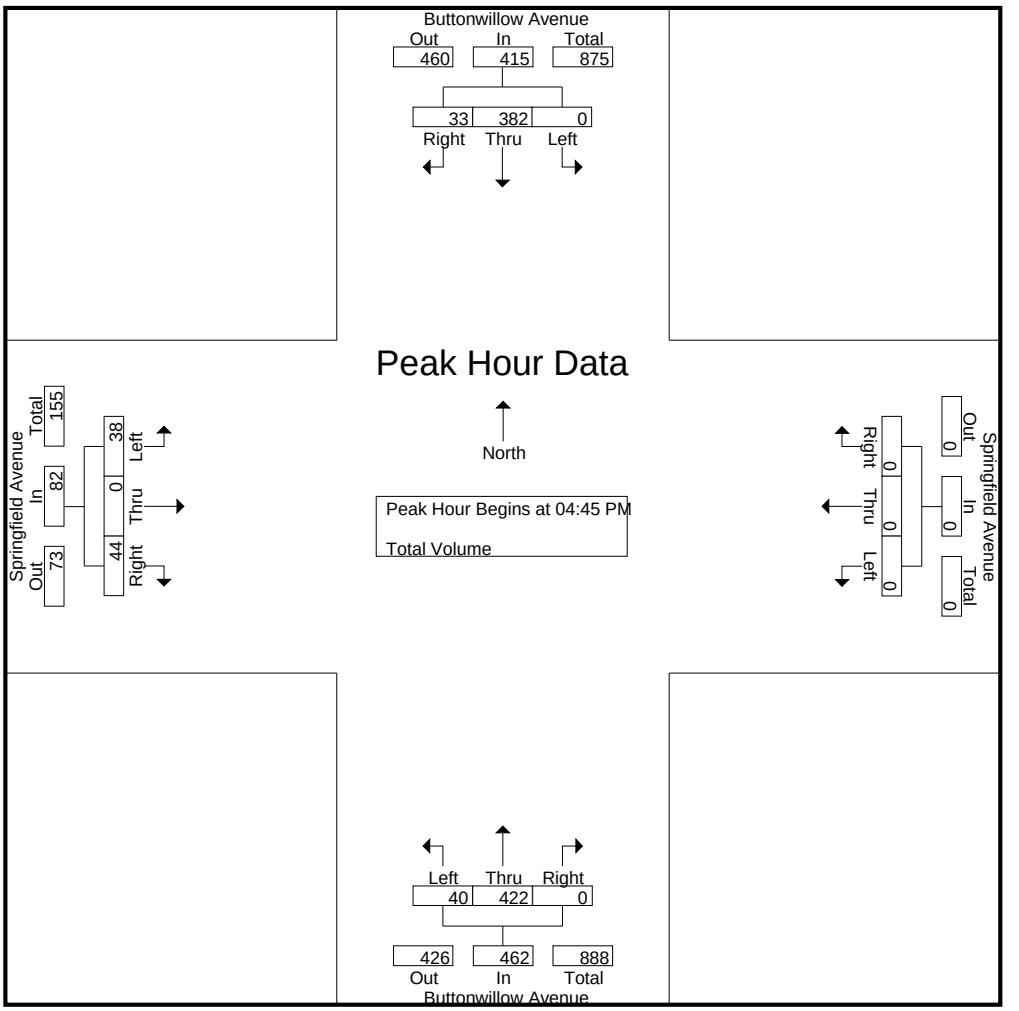
	Buttonwillow Avenue Southbound				Springfield Avenue Westbound				Buttonwillow Avenue Northbound				Springfield Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	102	5	107	0	0	0	0	11	84	0	95	8	0	9	17	219
04:15 PM	0	85	10	95	0	0	0	0	14	97	0	111	10	0	15	25	231
04:30 PM	0	94	5	99	0	0	0	0	15	98	0	113	4	0	7	11	223
04:45 PM	0	98	11	109	0	0	0	0	11	128	0	139	7	0	8	15	263
Total	0	379	31	410	0	0	0	0	51	407	0	458	29	0	39	68	936
05:00 PM	0	106	7	113	0	0	0	0	4	100	0	104	11	0	10	21	238
05:15 PM	0	80	10	90	0	0	0	0	11	96	0	107	10	0	13	23	220
05:30 PM	0	98	5	103	0	0	0	0	14	98	0	112	10	0	13	23	238
05:45 PM	0	95	6	101	0	0	0	0	11	88	0	99	10	0	12	22	222
Total	0	379	28	407	0	0	0	0	40	382	0	422	41	0	48	89	918
Grand Total	0	758	59	817	0	0	0	0	91	789	0	880	70	0	87	157	1854
Apprch %	0	92.8	7.2		0	0	0		10.3	89.7	0		44.6	0	55.4		
Total %	0	40.9	3.2	44.1	0	0	0	0	4.9	42.6	0	47.5	3.8	0	4.7	8.5	

	Buttonwillow Avenue Southbound				Springfield Avenue Westbound				Buttonwillow Avenue Northbound				Springfield 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	98	**11**	109	0	0	0	0	11	**128**	0	**139**	7	0	8	15	**263**
05:00 PM	0	**106**	7	**113**	0	0	0	0	4	100	0	104	**11**	0	10	21	238
05:15 PM	0	80	10	90	0	0	0	0	11	96	0	107	10	0	**13**	**23**	220
05:30 PM	0	98	5	103	0	0	0	0	**14**	98	0	112	10	0	13	23	238
Total Volume	0	382	33	415	0	0	0	0	40	422	0	462	38	0	44	82	959
% App. Total	0	92	8		0	0	0		8.7	91.3	0		46.3	0	53.7		
PHF	.000	.901	.750	.918	.000	.000	.000	.000	.714	.824	.000	.831	.864	.000	.846	.891	.912

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City of Reedley
N/S: Buttonwillow Avenue
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File Name : 07_RDY_Bw_Spf PM
Site Code : 99925624
Start Date : 6/4/2025
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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:

	04:15 PM				04:00 PM				04:15 PM				05:00 PM			
+0 mins.	0	85	10	95	0	0	0	0	14	97	0	111	**11**	0	10	21
+15 mins.	0	94	5	99	0	0	0	0	**15**	98	0	113	10	0	**13**	**23**
+30 mins.	0	98	**11**	109	0	0	0	0	11	**128**	0	**139**	10	0	13	23
+45 mins.	0	**106**	7	**113**	0	0	0	0	4	100	0	104	10	0	12	22
Total Volume	0	383	33	416	0	0	0	0	44	423	0	467	41	0	48	89
% App. Total	0	92.1	7.9		0	0	0		9.4	90.6	0		46.1	0	53.9	
PHF	.000	.903	.750	.920	.000	.000	.000	.000	.733	.826	.000	.840	.932	.000	.923	.967

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Dinuba Avenue
Weather: Clear

File Name : 08_RDY_Bw_Din AM
Site Code : 99925624
Start Date : 6/4/2025
Page No : 1

Groups Printed- Total Volume

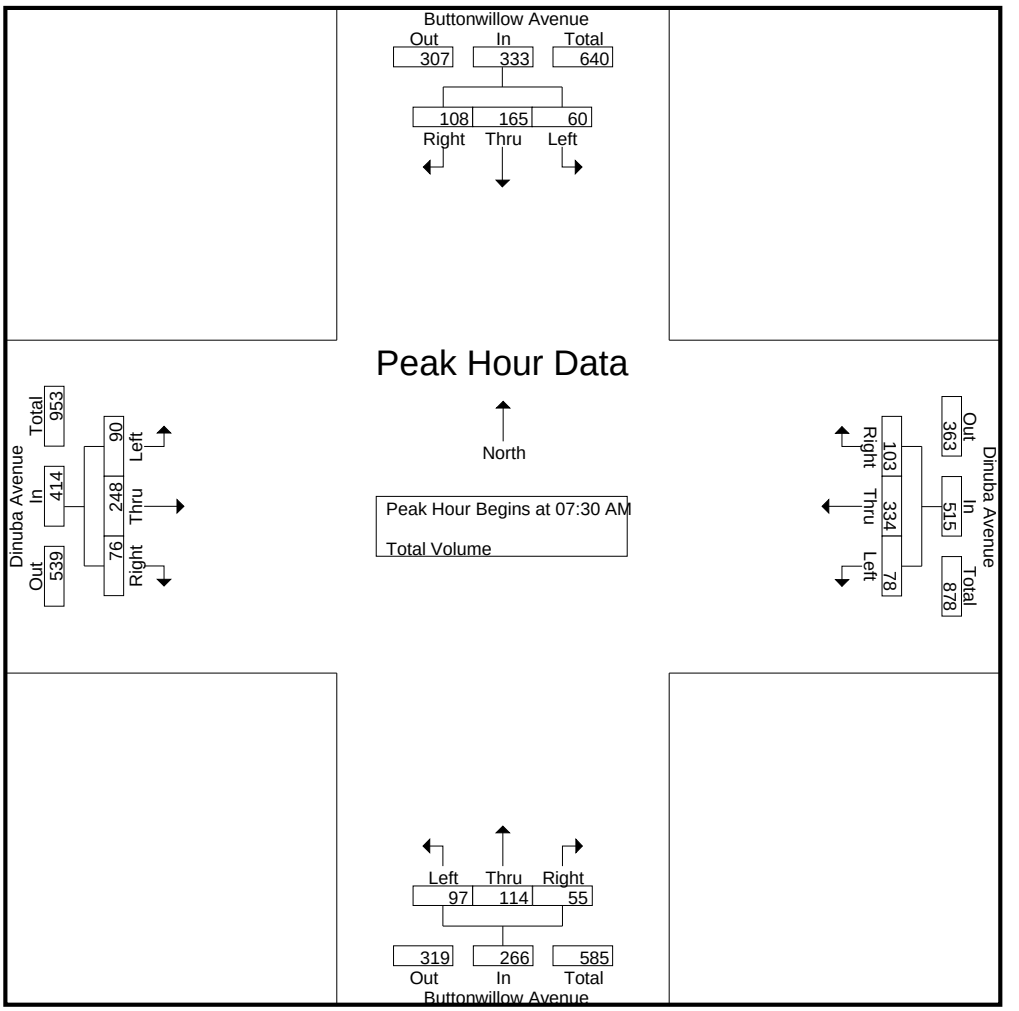
	Buttonwillow Avenue Southbound				Dinuba Avenue Westbound				Buttonwillow Avenue Northbound				Dinuba Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	10	25	17	52	7	33	10	50	13	15	5	33	7	22	14	43	178
07:15 AM	7	26	18	51	11	70	15	96	14	21	7	42	14	39	16	69	258
07:30 AM	15	41	21	77	15	79	17	111	29	37	19	85	22	64	15	101	374
07:45 AM	16	41	39	96	23	125	41	189	38	32	21	91	24	71	22	117	493
Total	48	133	95	276	56	307	83	446	94	105	52	251	67	196	67	330	1303
08:00 AM	18	46	32	96	20	78	22	120	18	20	8	46	23	62	20	105	367
08:15 AM	11	37	16	64	20	52	23	95	12	25	7	44	21	51	19	91	294
08:30 AM	10	36	19	65	10	47	14	71	15	25	9	49	16	41	18	75	260
08:45 AM	14	34	21	69	11	52	6	69	19	20	8	47	24	39	19	82	267
Total	53	153	88	294	61	229	65	355	64	90	32	186	84	193	76	353	1188
Grand Total	101	286	183	570	117	536	148	801	158	195	84	437	151	389	143	683	2491
Apprch %	17.7	50.2	32.1		14.6	66.9	18.5		36.2	44.6	19.2		22.1	57	20.9		
Total %	4.1	11.5	7.3	22.9	4.7	21.5	5.9	32.2	6.3	7.8	3.4	17.5	6.1	15.6	5.7	27.4	

	Buttonwillow Avenue Southbound				Dinuba Avenue Westbound				Buttonwillow Avenue Northbound				Dinuba 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	15	41	21	77	15	79	17	111	29	**37**	19	85	22	64	15	101	374
07:45 AM	16	41	**39**	**96**	**23**	**125**	**41**	**189**	**38**	32	**21**	**91**	**24**	**71**	**22**	**117**	**493**
08:00 AM	**18**	**46**	32	96	20	78	22	120	18	20	8	46	23	62	20	105	367
08:15 AM	11	37	16	64	20	52	23	95	12	25	7	44	21	51	19	91	294
Total Volume	60	165	108	333	78	334	103	515	97	114	55	266	90	248	76	414	1528
% App. Total	18	49.5	32.4		15.1	64.9	20		36.5	42.9	20.7		21.7	59.9	18.4		
PHF	.833	.897	.692	.867	.848	.668	.628	.681	.638	.770	.655	.731	.938	.873	.864	.885	.775

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City of Reedley
N/S: Buttonwillow Avenue
E/W: Dinuba Avenue
Weather: Clear

File Name : 08_RDY_Bw_Din AM
Site Code : 99925624
Start Date : 6/4/2025
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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				07:15 AM				07:30 AM				07:30 AM			
+0 mins.	15	41	21	77	11	70	15	96	29	**37**	19	85	22	64	15	101
+15 mins.	16	41	**39**	**96**	15	79	17	111	**38**	32	**21**	**91**	**24**	**71**	**22**	**117**
+30 mins.	**18**	**46**	32	96	**23**	**125**	**41**	**189**	18	20	8	46	23	62	20	105
+45 mins.	11	37	16	64	20	78	22	120	12	25	7	44	21	51	19	91
Total Volume	60	165	108	333	69	352	95	516	97	114	55	266	90	248	76	414
% App. Total	18	49.5	32.4		13.4	68.2	18.4		36.5	42.9	20.7		21.7	59.9	18.4	
PHF	.833	.897	.692	.867	.750	.704	.579	.683	.638	.770	.655	.731	.938	.873	.864	.885

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City of Reedley
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E/W: Dinuba Avenue
Weather: Clear

File Name : 08_RDY_Bw_Din PM
Site Code : 99925624
Start Date : 6/4/2025
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Groups Printed- Total Volume

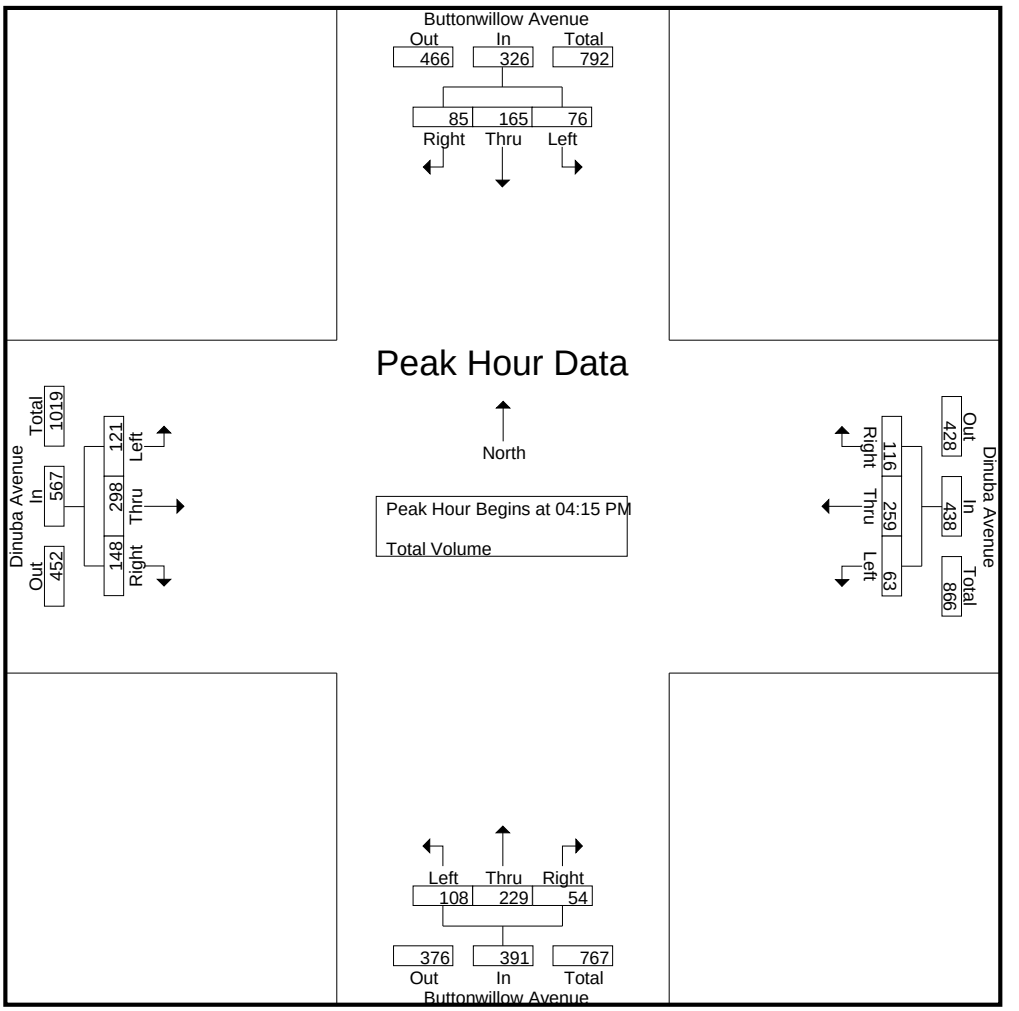
	Buttonwillow Avenue Southbound				Dinuba Avenue Westbound				Buttonwillow Avenue Northbound				Dinuba Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	22	39	22	83	17	65	17	99	26	36	5	67	24	61	41	126	375
04:15 PM	24	36	15	75	18	64	30	112	37	57	13	107	26	75	49	150	444
04:30 PM	16	39	23	78	22	78	32	132	28	55	14	97	32	85	35	152	459
04:45 PM	14	40	21	75	13	60	30	103	28	68	13	109	25	76	39	140	427
Total	76	154	81	311	70	267	109	446	119	216	45	380	107	297	164	568	1705
05:00 PM	22	50	26	98	10	57	24	91	15	49	14	78	38	62	25	125	392
05:15 PM	25	37	21	83	12	57	28	97	20	53	12	85	25	56	25	106	371
05:30 PM	21	40	30	91	9	53	23	85	16	94	29	139	27	47	34	108	423
05:45 PM	20	46	25	91	5	54	24	83	19	69	40	128	22	47	17	86	388
Total	88	173	102	363	36	221	99	356	70	265	95	430	112	212	101	425	1574
Grand Total	164	327	183	674	106	488	208	802	189	481	140	810	219	509	265	993	3279
Apprch %	24.3	48.5	27.2		13.2	60.8	25.9		23.3	59.4	17.3		22.1	51.3	26.7		
Total %	5	10	5.6	20.6	3.2	14.9	6.3	24.5	5.8	14.7	4.3	24.7	6.7	15.5	8.1	30.3	

	Buttonwillow Avenue Southbound				Dinuba Avenue Westbound				Buttonwillow Avenue Northbound				Dinuba 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**24**	36	15	75	18	64	30	112	**37**	57	13	107	26	75	**49**	150	444
04:30 PM	16	39	23	78	**22**	**78**	**32**	**132**	28	55	**14**	97	32	**85**	35	**152**	**459**
04:45 PM	14	40	21	75	13	60	30	103	28	**68**	13	**109**	25	76	39	140	427
05:00 PM	22	**50**	**26**	**98**	10	57	24	91	15	49	14	78	**38**	62	25	125	392
Total Volume	76	165	85	326	63	259	116	438	108	229	54	391	121	298	148	567	1722
% App. Total	23.3	50.6	26.1		14.4	59.1	26.5		27.6	58.6	13.8		21.3	52.6	26.1		
PHF	.792	.825	.817	.832	.716	.830	.906	.830	.730	.842	.964	.897	.796	.876	.755	.933	.938

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

City of Reedley
N/S: Buttonwillow Avenue
E/W: Dinuba Avenue
Weather: Clear

File Name : 08_RDY_Bw_Din PM
Site Code : 99925624
Start Date : 6/4/2025
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:

	05:00 PM				04:00 PM				05:00 PM				04:00 PM			
+0 mins.	22	**50**	26	**98**	17	65	17	99	15	49	14	78	24	61	41	126
+15 mins.	**25**	37	21	83	18	64	30	112	**20**	53	12	85	26	75	**49**	150
+30 mins.	21	40	**30**	91	**22**	**78**	**32**	**132**	16	**94**	29	**139**	**32**	**85**	35	**152**
+45 mins.	20	46	25	91	13	60	30	103	19	69	**40**	128	25	76	39	140
Total Volume	88	173	102	363	70	267	109	446	70	265	95	430	107	297	164	568
% App. Total	24.2	47.7	28.1		15.7	59.9	24.4		16.3	61.6	22.1		18.8	52.3	28.9	
PHF	.880	.865	.850	.926	.795	.856	.852	.845	.875	.705	.594	.773	.836	.874	.837	.934