



Re-Imagine

NORTH WATT CORRIDOR PLAN

February 2025

PREPARED FOR:

Sacramento County Department of Transportation



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Prepared for:

Cameron Shew, PE, TE
Principal Civil Engineer, Planning and Programs Division
Sacramento County Department of Transportation

Prepared by DKS Associates



Josh Pilachowski, PhD, PE, RSP₁

Sean Carney, TE

David Tokarski

Sylinda Villado

With Support From:

WRT



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Executive Summary

The Re-Imagine North Watt Corridor Plan is funded by the Caltrans Sustainable Communities grant program with matching funds from Sacramento County. The purpose of the Plan is to update the roadway infrastructure elements identified in the North Watt Corridor Plan (adopted by the County of Sacramento in 2012) and bring the corridor planning process into alignment with current local and regional planning efforts. The study corridor includes Watt Avenue between Peacekeeper Way to Antelope Road. Given that past alternatives for Watt Avenue would require a redesign of 34th Street which runs parallel with Watt Avenue, the plan also includes 34th Street between Freedom Park Drive and Q Street. This study area is shown in **Figure E-1**.

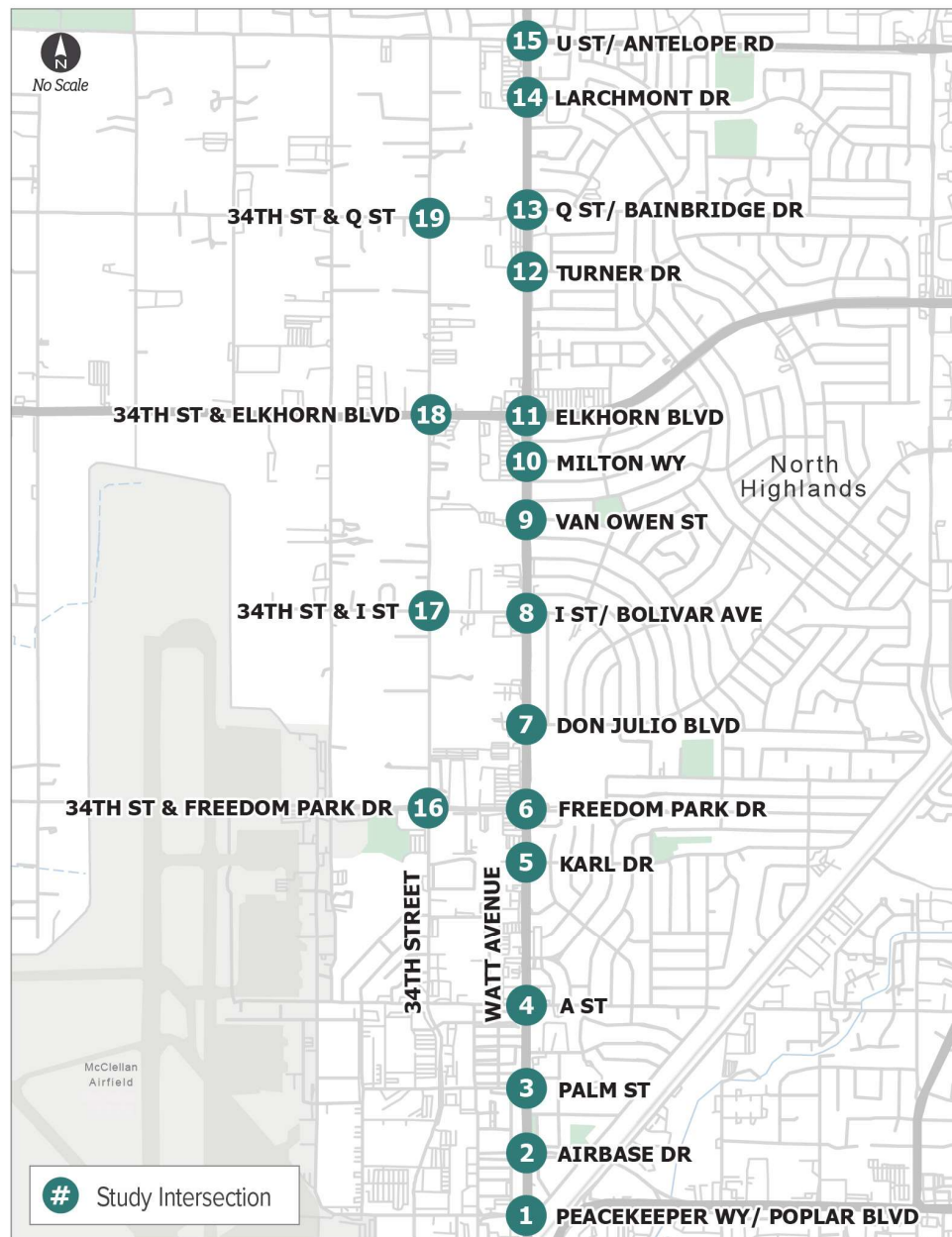


Figure E-1: Re-Imagine North Watt Study Area

Purpose and Need Statement

The following purpose and need statement was developed to guide the plan development process.

Purpose

North Watt Avenue is currently a high speed and high traffic volume corridor through North Highlands, which is designated by Sacramento County as an Environmental Justice Community. North Watt serves as local access for the surrounding residential, commercial, and employment centers while also acting as a commuter corridor for through traffic (e.g. from Antelope and Placer County). The corridor is currently characterized by the following issues and trends:

- Inconsistent sidewalk and bicycle facilities
 - Several sections of the corridor are missing these facilities. Bike lanes and sidewalks that do exist are inconsistent in horizontal clearance, width, and alignment creating a challenging environment to navigate for vulnerable road users.
- Lack of access to key locations and services
 - Several locations throughout the corridor do not meet current design standards for access by users of all abilities. Transit stops lack shade, shelter, benches, and other amenities that make them accessible for the traveling public.
- Growing vehicular demand
 - While the corridor does not currently experience excessive delays or queueing for vehicular traffic, demand is expected to grow significantly in the next 20 years. This growth is tied to both redevelopment in the local area as well as regional growth.
- High collision rates at key intersections
 - North Watt Avenue and Elkhorn Boulevard was identified in the County's Local Roadway Safety Plan (LRSP) as a high collision location.

Need

This plan seeks to re-imagine North Watt Avenue between the intersections of Peacekeeper Way and Antelope Road as a multimodal, sustainable, and safe corridor that meets the needs of all users today and into the future. A successful plan will address the following needs:

- Improve access for pedestrians and bicyclists which will allow for connectivity along the entire corridor for all users and create a more comfortable and safer traveling environment for vulnerable road users
- Improve facilities to meet current ADA requirements and County design standards, informed by State (AB 1358) and Caltrans (DP-37) complete street guidance and best practices
- Support transit services by providing infrastructure which improves the transit user experience
- Accommodate future growth without excessive traffic congestion
- Improve safety for all road users, particularly at locations identified as higher collision risk

Stakeholder and Public Engagement

A multi-faceted stakeholder and public engagement approach to the engagement process was identified and implemented for the Re-Imagine North Watt Avenue Plan. The focus of the engagement approach was to engage diverse groups and stakeholders through various methods to solicit feedback, share plan information, and ensure the plan vision aligns with the community. The public engagement approach included the formation of a Corridor Advisory Team (CAT), focus group discussions, stakeholder interviews, school and committee presentations (Bicycle Advisory Committee [SacBAC], Disability Advisory Committee - Public Access Subcommittee [DAC-PASC]), and public workshops. The engagement approach was broken into the following three phases.

Phase 1 - Existing Conditions and Needs Review

- Presentations to CAT, SacBAC, DAC-PASC
- In-Person Public Open House
- Online needs survey and interactive mapping tool

Phase 2 - Project Toolbox and Alternatives Review

- Presentations to CAT, SacBAC
- In-Person Public Workshop
- Online toolbox and alternatives survey and feedback

Phase 3 - Final Alternatives and Evaluation

- Presentations to CAT, SacBAC, DAC-PASC
- In-Person Public Town Hall Presentation
- Online posting of recommended alternatives, rendered flyby videos, and alternatives description and evaluation

Public feedback from in-person and online feedback was gathered, summarized, and used to inform and revise plan alternatives and recommendations.

Plan Alternatives Analysis Summary

The plan broadly analyzed six potential corridor alternatives in the initial screening process. These alternatives were evaluated for their effects on travel demand, vehicle operations, walking infrastructure, biking infrastructure, capacity for future transit infrastructure enhancement, and placemaking opportunities generated. Additionally, various alternative improvement concepts were vetted with stakeholders and the local community to help guide the plan development process. Through this process, the plan was narrowed down to two alternatives for consideration. These two alternatives are the Minimal Impact Alternative and the Hybrid Urban Boulevard Alternative. **Table E-1** summarizes the elements of the alternatives considered in the screening process. **Table E-2** summarizes the analysis results from the screening process.

Table E-1: Summary of Major Alternative Design Elements

ELEMENT	MINIMAL IMPACT	ONE-WAY COUPLET	LANE REDUCTION	VEHICLE/BICYCLE PRIORITY IMPROVEMENT	URBAN BOULEVARD	HYBRID URBAN BOULEVARD
ROADWAY DESIGN	No Change	Watt Avenue 3 Lanes NB 34 th Street 3 Lanes SB	Watt Avenue 4 Lanes 34 th Street 4 Lanes	Watt Avenue 6 Lanes	Watt Avenue 6 Lanes One-Way NB Frontage Road On-Way SB Frontage Road	Watt Avenue 6 lanes One-Way NB Frontage Road on Existing Segments
ROADWAY MAINTENANCE	All Scenarios: Watt Avenue repaved, sidewalks repaired, signs and signals repaired/replaced/upgraded to meet current County standards					
ACCESIBILITY ENHANCEMENTS	All Scenarios: Sidewalks, street crossing locations, bus stops, and signals upgraded to meet current County standards					
BICYCLE FACILITY DESIGN	Class II Bike Lanes	Class I Bike Trail on Watt Avenue	Class IV Bike Lanes	Class IV Bike Lanes	Class III Bike Markings on Frontage Roads	Class III Bike Markings on Frontage Road Class IV Bike Lane No Frontage Road Exists
SIDEWALK FACILITY DESIGN	5-8 foot sidewalks 0-8 foot planted buffer from roadway	8 foot sidewalk 8 foot planted buffer from roadway	8 foot sidewalk 8 foot planted buffer from roadway	5-8 foot sidewalks 0-8 foot planted buffer from roadway	Variable design on buffer between frontage road and Watt Avenue 5 foot sidewalk at property frontage	5-8 foot sidewalks 0-8 foot planted buffer from roadway Variable design on buffer between frontage road and Watt Avenue
TRANSIT FACILITY DESIGN	Minor upgrades to bus stops where feasible	Bus stops designed to current SacRT standards Future BRT Possible	Bus stops designed to current SacRT standards	Minor upgrades to bus stops where feasible Future BRT Possible	Bus stops designed to current SacRT standards Future BRT Possible	Minor upgrades to bus stops where feasible Future BRT Possible

Table E-2: Comparison of Alternatives

Measure of Effectiveness	Minimal Impact	One-Way Couplet	Lane Reduction	Vehicle/Bicyclist Priority	Urban Boulevard	Hybrid Urban Boulevard
Mobility						
Number of Intersections Not Meeting LOS Targets	2	2	3	3	3	3
Number of Queues Exceeding Storage	12	13	14	12	12	12
Average Level of Traffic Stress						
Pedestrian	3.0	2.0	N/A	2.0	2.0	2.0
Bicycle	3.3	1.0	N/A	1.0	1.0	1.0
Adaptability for Transit Improvements						
Placemaking Opportunities (Parcels)			N/A			
Community Feedback			N/A			
Right of Way Impacts						
Number of Parcels						
Full Parcels Taken	0	¹	N/A	N/A	N/A	4
Loss of Function	13	¹	N/A	N/A	N/A	52

¹

The One-Way Couple impacts every parcel along 34th street as well as parcels along the connecting routes between Watt Avenue and 34th Street. There would be minimal impacts along Watt Avenue. The exact impact was not evaluated in full in the previous plan.

Introduction

The Re-Imagine North Watt Corridor Plan is funded by the Caltrans Sustainable Communities grant program with matching funds from Sacramento County. The purpose of the Plan is to update the roadway infrastructure elements identified in the North Watt Corridor Plan (adopted by the County of Sacramento in 2012) and bring the corridor planning process into alignment with current local and regional planning efforts. The study corridor includes Watt Avenue between Peacekeeper Way to Antelope Road. Given that past alternatives for Watt Avenue would require a redesign of 34th Street which runs parallel with Watt Avenue, the plan also includes 34th Street between Freedom Park Drive and Q Street. The study area and plan and intersections analyzed for this plan are shown in **Figure 1**.

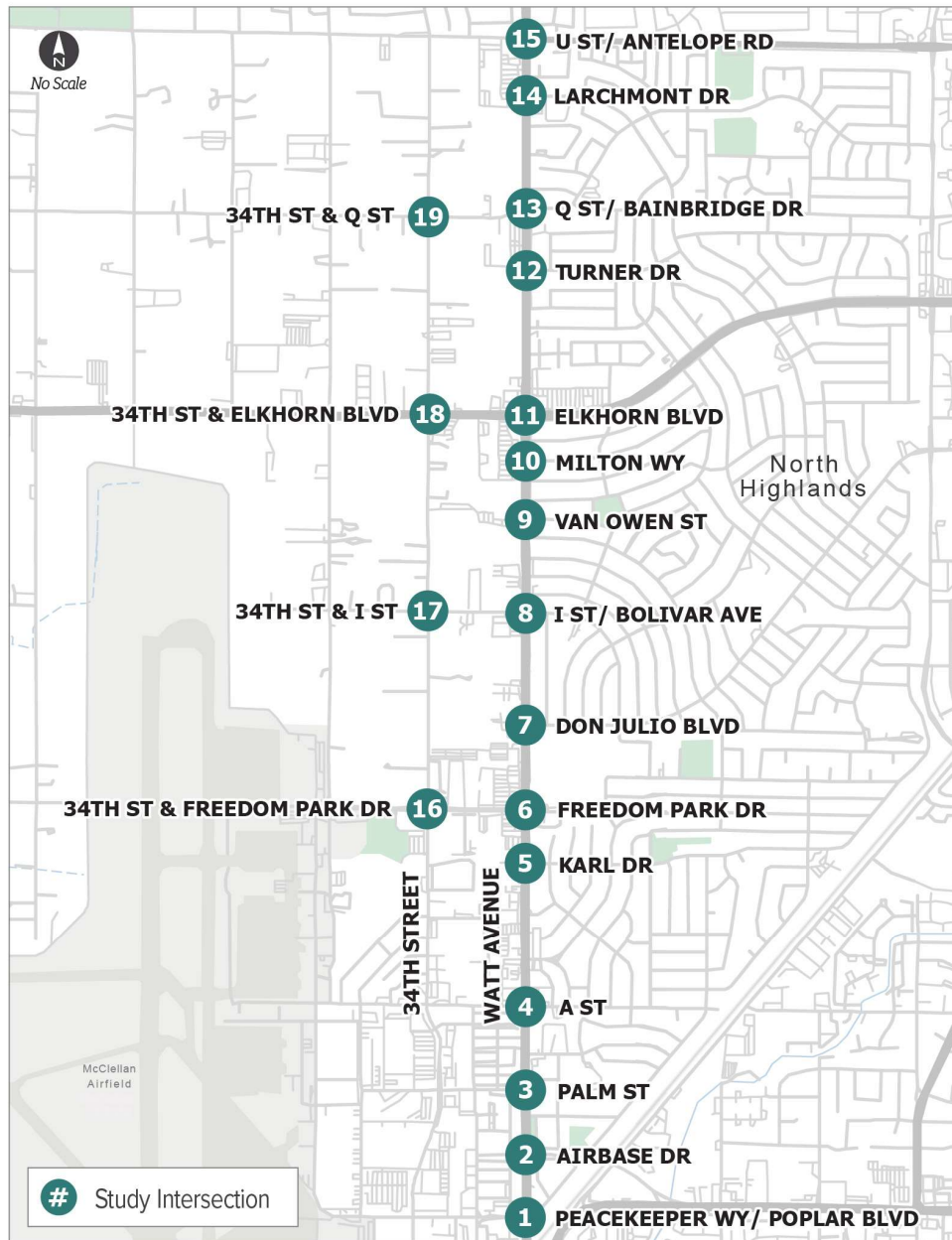


Figure 1: Re-Imagine North Watt Corridor Study Area

Background

On July 17, 2012, the North Watt Avenue Corridor Plan was adopted by the Sacramento County Board of Supervisors. This action also included a zoning ordinance amendment to consider the North Watt Avenue Corridor as a Special Planning Area (SPA) to guide infill growth and public improvements within the plan area for a planning horizon of 20 years². The 2012 North Watt

² [North Watt Avenue Corridor Plan \(2012\)](#)

Corridor Plan considered existing transit services and plans for future expansion in transit service within the plan area as the Corridor is developed with “transit-friendly” uses, such as mixed use and transit-oriented development (TOD). Policies related to transit were established as part of the Circulation Element of the 2012 Corridor Plan. The policies called for improvements to local bus transit stops, upgrading transit facilities, following spacing criteria based on the County’s standards, and accommodating future bus rapid transit (BRT) on Watt Avenue.

When the 2012 Corridor Plan was adopted, North Watt Avenue was redesignated as a Smart Growth Street (SGS) in the Sacramento County Circulation Element of the General Plan³. Additionally, it was noted that existing bicycle facilities and sidewalks found throughout the plan area are discontinuous in nature. The bicycle lanes are not developed to County standards and cannot be considered as viable bicycle lanes. Corrective measures and recommendations were stated within the 2012 Plan, which included intersection improvements, installation of new or improved bicycle and pedestrian facilities, accommodation of bus rapid transit, and more.

³ [Sacramento County General Plan - Circulation Element](#)

Purpose and Need Statement

Purpose

North Watt Avenue is currently a high speed and high traffic volume corridor through North Highlands, which is designated by Sacramento County as an Environmental Justice Community. North Watt serves as local access for the surrounding residential, commercial, and employment centers while also acting as a commuter corridor for through traffic (e.g. from Antelope and Placer County). The corridor is currently characterized by:

- Inconsistent sidewalk and bicycle facilities
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- Lack of access to key locations and services
 - Several locations throughout the corridor do not meet current design standards for access by users of all abilities. Transit stops lack shade, shelter, benches, and other amenities that make them accessible for the traveling public.
- Growing vehicular demand
 - While the corridor does not currently experience excessive delays or queueing for vehicular traffic, demand is expected to grow significantly in the next 20 years. This growth is tied to both redevelopment in the local area as well as regional growth.
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- Improve facilities to meet current ADA requirements and County design standards, informed by State (AB 1358) and Caltrans (DP-37) complete street guidance and best practices
- Support transit services by providing infrastructure which improves the transit user experience
- Accommodate future growth without excessive traffic congestion
- Improve safety for all road users, particularly at locations identified as higher collision risk

Policy Framework and Setting

The Circulation Element of the Sacramento County General Plan, as amended on October 25, 2022, lists a number of goals, policies, and implementation measures as part of the Transportation Policy Plan. The corridor plan includes policies to both create the Smart Growth Street (SGS) General Plan designation and to change the General Plan Transportation Plan to add the SGS designation for Watt Avenue from I-80 North to U Street. The concept of SGSs expands upon the “Complete Streets” concept. SGSs take a holistic view of the street, the adjacent corridor, the surrounding community and the natural environment, while allowing for more flexibility in the design of street and corridor improvements. The SGS concept is vital in the County’s goal of implementing SACOG’s adopted Blueprint Vision and concepts related to smart growth and transit-oriented development promoted in the County’s General Plan. Some of the objectives which have been developed in relation to SGSs include: incorporating “green infrastructure” to the greatest extent feasible, improving community identity by coordinating improvements to streetscape, creating communities and corridors using a holistic perspective, and more.

The following policies relate to the plan corridor:

- **CI-1.** Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated through roadway shoulders of sufficient width or other means to accommodate all modes of travel.
- **CI-2.** Promote continued mobility for individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability.
- **CI-3.** Travel modes shall be interconnected to form an integrated, coordinated, and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.
- **CI-4.** Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.
- **CI-6.** Provide support for community-based corridor planning processes on existing roadways with excess vehicle capacity within built communities to optimize the public right-of-way by utilizing the excess width for other modes of travel or public amenities such as bike lanes, landscaping, walkways, parking, or medians.
- **CI-7.** Plan and construct transportation facilities as delineated on the Transportation Plan of the Sacramento County General Plan. Transportation facilities shall be consistent with the Sacramento County Improvement Standards and Construction Specifications, the Connector Project Design Guidelines, and supplemented by the California Department of Transportation (Caltrans) design standards.
- **CI-8.** Maintain and rehabilitate the roadway system to maximize safety, mobility, and cost efficiency.
- **CI-9.** Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or improvements that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as

shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

- **CI-14.** Pursue all available sources of funding for the development, improvement, and maintenance of the roadway system.
- **CI-16.** Ensure that transportation infrastructure improvement projects initiated by the County include a comprehensive public outreach process and involves affected local stakeholders and communities in the beginning and throughout the planning and development process for the project.
- **CI-20.** Promote transit services in appropriate commercial corridors and where population and employment densities are sufficient or could be increased to support those transit services.
- **CI-32.** Develop a comprehensive, safe, convenient and accessible bicycle and pedestrian system that serves and connects the County's employment, commercial, recreational, educational, social services, housing and other transportation modes.
- **CI-34.** Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.
- **CI-38.** Design and construct pedestrian facilities to ensure that such facilities are accessible to all users.

Smart Growth Street Policies (SGS)

- **CI-65.** Incorporate Low Impact Design (LID) techniques to the greatest extent feasible to improve water quality runoff and erosion control, infiltration, groundwater recharge, visual aesthetics, etc.
- **CI-66.** Use recycled and/or recyclable materials whenever feasible.
- **CI-67.** When feasible, incorporate lighter colored (higher albedo) materials and surfaces, such as lighter-colored pavements, and encourage the creation of tree canopy to reduce the built environment's absorption of heat to reduce the urban "heat island" effect.
- **CI-68.** Smart Growth Street planning efforts shall identify specific, implementable measures to create and/or improve community identity.
- **CI-69.** Incorporate public art into streetscape improvements to the extent feasible.
- **CI-70.** Smart Growth Streets shall incorporate features such as shade trees and plantings, well designed benches and other street furniture, trash receptacles, news racks, outdoor dining experiences, entertainment, public art, pedestrian scaled lighting fixtures, wayfinding signage, bicycle racks and other amenities as appropriate.
- **CI-71.** A Smart Growth Street designation requires a focused and holistic corridor planning analysis that considers highly coordinated and interconnected land uses and transportation infrastructure within the corridor while also considering the impacts to surrounding communities and the natural environment. A Smart Growth Street should recognize that they will remain major corridors for through auto traffic that should be accommodated on the Smart Growth Street and not shifted to neighborhood streets surrounding it.
- **CI-72.** On a Smart Growth Street, the County shall strive to maintain operations and capacity on urban roadways and intersections at LOS E or better, unless maintaining this LOS would, in the County's judgment, be infeasible and conflict with the achievement of other Smart Growth Street objectives. Congestion in excess of LOS E may be acceptable

provided that provisions are made to improve overall mobility, reduce overall VMT and/or promote non-automobile transportation.

- **CI-73.** Where a Smart Growth Street planning analysis indicates that a roadway improved to its general plan designation will be congested in excess of LOS E, mobility impacts fees may be assessed to the properties within the Smart Growth Street area. Such mobility fees shall be fairly apportioned to the properties and shall be sufficient in amount to improve other Smart Growth Street objectives such as improvements that would enhance pedestrian, bicycle, transit, other modes of mobility, and public realm amenities.
- **CI-74.** Evaluation of Smart Growth Street corridors and development within those corridors shall utilize multi-modal level of service standards, including pedestrian, bicycle, and transit modes of travel in addition to motor vehicle travel, to support and encourage overall mobility through improvement to all modes of travel.
- **CI-75.** Smart Growth Street planning efforts shall develop a comprehensive strategy to significantly reduce the total number of driveways along the roadway, including specific measures to ensure implementation, such as requiring cross-access and reciprocal parking agreements between adjacent property owners.
- **CI-76.** Smart Growth Street planning efforts shall develop a comprehensive strategy to reduce both the total amount of parking and total surface area dedicated to parking facilities. In general, reduced parking requirements and innovative parking solutions such as, shared parking, structured parking, parking maximums rather than minimums, on street parking, performance parking pricing, parking benefit districts and other innovative parking solutions will be strongly encouraged wherever feasible, while large surface parking lots will be strongly discouraged.
- **CI-77.** Planning processes for Smart Growth Street corridors shall consider road diets, pedestrian and bicycle enhancements, traffic calming measures and other feasible measures to create a corridor that equitably accommodates all users and modes of travel.
- **CI-78.** Establish connectivity standards to implement within Smart Growth Street corridors, to ensure safe, pleasant and direct travel between destinations for all users.
- **CI-79.** To ensure the safety and comfort of all users, support and encourage street design to accommodate vehicular speeds of up to 40 miles per hour as appropriate.

Of the General Plan policies located outside of the Circulation Element, ED-22 (located in the Economic Development Element) is the policy that is most directly related to Watt Avenue. ED-22 focuses on the economic development element, which aims to support the redevelopment and revitalization efforts in the surrounding communities and create interrelationships with portals into the community along Watt Avenue and Winters Street. Additionally, in the Land Use Element the following policies were established to revitalize commercial corridors, which would enhance community image and stimulate private reinvestment and will encourage new economic and commercial development and improvements to housing infrastructure:

- **LU-89.** Support planning for and development of mixed-use centers and urban villages along commercial corridors to improve quality of life by creating diverse neighborhood gathering places, supporting enhanced transit service and non-automotive travel, stimulating local economic development, eliminating blight, and balancing land uses.

- **LU-90.** Focus investment of County resources in commercial corridors to facilitate improvements to streetscapes, sidewalks, landscaping, undergrounding of utilities, and other infrastructure and public amenities to encourage and stimulate private investment.

Literature Review

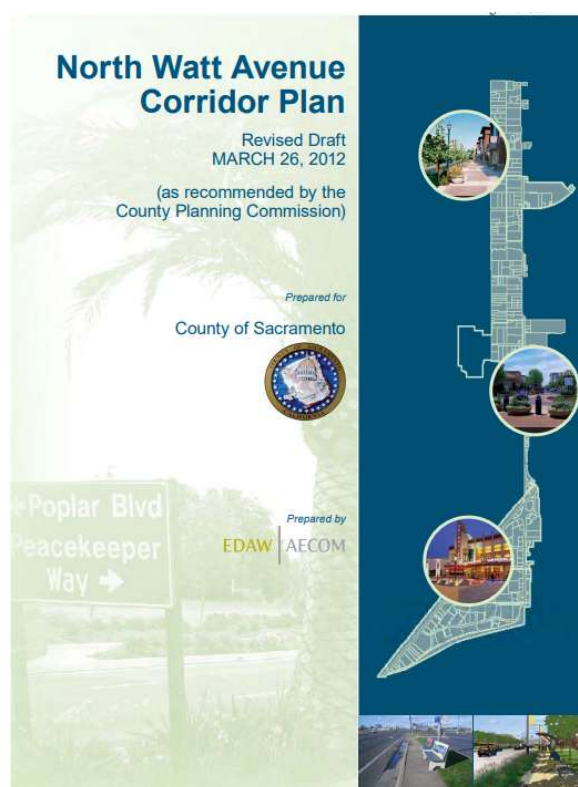
Multiple significant planning studies have been completed over the last decade plus that overlap with the study corridor. These studies have identified multimodal deficiencies and have provided plan recommendations that are relevant to this Corridor Plan. These documents and the relevant conclusions are summarized in the following sections.

North Watt Avenue Corridor Plan (2012)

The North Watt Avenue Corridor Plan⁴, adopted in 2012, proposes an ordinance covering 750 acres within the North Highlands community along a 4-mile stretch from north of I-80 to Antelope Road/U Street within unincorporated Sacramento County. With the intent to guide growth and public improvements within a planning period of 20 years, the plan may result in an addition of up to 7,200 residential units, 1.17 million square feet of new retail, and 714,700 square feet of new office uses. Generally, the overall objectives of the plan are to support regional transit, promote “vibrant” district centers, improve multimodal transportation opportunities, promote long-term sustainability, attract sustainable urban design, and more. Overall, the plan aims to enhance the quality of life within the community by focusing on the community’s vision for a vibrant and economically healthy corridor.

As part of the plan, short- and long-term improvements were proposed to improve the corridor. Some improvements include widening the roadways by increasing the number of travel lanes and constructing raised, landscaped medians throughout, transit improvements, and the construction of continuous sidewalks and class II bicycle lanes. Additionally, a plan for bus rapid transit (BRT) was discussed; however, the final alignment (i.e., Watt Avenue or 34th Street) varied between alternatives.

The plan included a request to change the roadway designation for Watt Avenue to a Smart Growth Street, in order to develop roadways with “green infrastructure.” The Smart Growth Street (SGS)



⁴ https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Specific%20Plans/North_Watt_Area_CP_0512/Part_1_Revised_NWACP_0312SM.pdf

proposed 15 policies, including the following: ensuring transportation infrastructure are interconnected within the community, maintaining operations and capacity at LOS E or better, reducing congestion and number of driveways, and considering road diets. Overall, as stated within the North Watt Avenue Corridor Plan:

"The Smart Growth Street policies state the County should strive to maintain LOS E or better. On designated Smart Growth Streets, however, the County may conclude that widening or other improvements needed to maintain LOS E or better are infeasible. In lieu of this infeasible widening or other improvements, LOS worse than E may be considered acceptable if overall mobility is improved. Overall mobility is defined as including non-automobile transportation."

Environmental Justice Element (2019)

The Environmental Justice (EJ) Element⁵ of the County's General Plan was adopted December 17, 2019. This General Plan element seeks to minimize and equalize the effects of environmental hazards among the entire community regardless of income, ethnicity, or race. The element was defined as "fair treatment and meaningful participation of people of all races, culture, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." The main goal is to address public health risks and environmental justice concerns of those living in disadvantaged communities. The objectives of the EJ Element focus on providing an equitable degree of protection from environmental and health hazards and allowing all members of a community to participate meaningfully in any civic public decision-making process.

As stated in the EJ Element, the County will use the following strategies and policies for its implementation:

- **EJ-33** - There will be an annual implementation review for the EJ Element.
- **EJ-34** - The County will embed environmental justice into its regular processes and practices.

The EJ Element identifies the study corridor as being within the North Highlands/Foothill Farms Environmental Justice Community. Community workshops were held within the community to cover identified community issues and ways to address those issues. The community workshop in the North Highlands/Foothill Farms community was held on January 22, 2019. In the community workshop, the following was stated by the public:

- "Safer bike lanes that are more separated from traffic are needed in North Highlands/Foothill Farms. Heavy and fast traffic on roads make bicyclists feel unsafe."
- "Install more sidewalks, street trees and streetlights. North Highlands/Foothill Farms has a shortage of all these items."
- "More support for the establishment and ongoing operations of community gardens and farmer markets. Large areas of the community are food deserts and community gardens, and farmer's markets can address this issue."

⁵ <https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/General%20Plan%202030/Environmental%20Justice%20Element.pdf>

- “Partner with local community-based organizations (CBOs), local churches and business improvement districts to improve public engagement. Involve the community’s youth in public engagement efforts.”
- “Neighborhood Watch Programs and sex trafficking awareness education programs to address some of the crime issues in North Highlands/Foothill Farms.”

ADA Transition Plan (2020)

The Americans With Disabilities Act (ADA) of 1990 provides comprehensive civil rights protection to qualified individuals with disabilities in the areas of employment and public accommodations. Its goal is to ensure equal participation in public life for all Americans with disabilities. Therefore, the ADA Transition Plan was established to document physical accessibility barriers to the County’s programs, services, and activities and to outline a schedule or plan for the County to transition from a state of noncompliance to compliance.

As stated in the 2020 ADA Transition Plan⁶, the following was listed as part of its existing policies and/or standards:

- The “County Street Improvement Standard” has designated “Class B Street” as a residential street with curb and gutter but without sidewalks, and a “Class C Street” as a residential street that has no sidewalk, curb, or gutter.
- Traffic/pedestrian light dictates the right of way for both pedestrians and vehicles at signalized intersections. When a signalized intersection has one or more corners without sidewalks, the County provides a pedestrian refuge area to wait for signal change indicating the crossing right of way. The safe refuge is a paved area outside of the vehicular way with raised asphalt concrete (AC) dikes to channel traffic away from the paved refuge area. Cut through level with the street at raised AC dikes are provided to allow for wheelchair passage to the crosswalk.

High-Capacity Bus Service Study (2021)

The Sacramento Regional Transit District (SacRT) High-Capacity Bus Service Study⁷ was completed in May 2021. The High-Capacity Bus Service (HCBS) Study aims to promote and improve transit throughout Sacramento Regional Transit (SacRT)’s service area.

“High-capacity transit” is characterized by fixed routes operating at higher frequency, faster speeds, limited stops, efficient operations, traffic signal prioritization, and branding infrastructure. The corridors in the HCBS study include Watt Avenue, Sunrise Boulevard, Florin Road, Arden Way, and Stockton Boulevard. As stated in the HCBS Study, Watt Avenue offers a significant number of routes and transfers within the SacRT system. Currently, the corridor is served by Routes 26, 84, and 93.

A corridor evaluation was performed for the Watt Avenue corridor based on the information collected in the existing conditions task. Based on the corridor evaluation, the Watt Avenue corridor

⁶ <https://www.saccounty.gov/Documents/ADA-Trans-Plan-Rpt.pdf>

⁷ [SacRT High-Capacity Bus Service Study](#)

was considered a suitable candidate for high-capacity bus service. The HCBS recommended improvements to the existing service and spot improvements to increase transit speed and reliability in the short term. It was noted that an increased number of projects and political support has been accelerating along the corridor. Watt Avenue was noted to have relatively lower ridership and frequency, with the greatest number of connecting transit lines. Riders on Watt Avenue appear to be the most satisfied with current transit service based on on-board surveys on bus lines serving the segment. The corridor has the greatest number of projects that would support HCBS according to the 2020 Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy. Watt Avenue serves a more diversified geographic location within the SacRT Service Area, creating a more regional network and has land use characteristics that best support HCBS now and in the future.

The HCBS Study states two key improvements and goals that are proposed along Watt Avenue, which include the following:

- From Elverta Road to Don Julio Road
 - Goal
 - Increase intuitiveness of service on the corridor and increase multimodal access to stops. Route 84 would primarily serve Watt Avenue while Route 26 covers local service.
 - Improvement
 - Increase access for active transportation, increase safety, and passenger amenities.
- From Don Julio Boulevard to I-80 Light Rail Train Station
 - Goal
 - Reduce travel time and provide more consistent run times along the corridor by consolidating stops.
 - Improvement
 - SacRT would focus on reducing the number of stops and install extra amenities such as shelters and benches.

As part of the long-term HCBS vision, the HCBS study identifies potential improvements and corresponding timeframes. Initially, the study recommends streamlining existing bus routes and enhancing transit corridors. This would involve improving frequency, realigning routes for continuous service on the arterial, making spot transit priority improvements, relocating stops for better speed/reliability and passenger access, improving pedestrian and bicycle access and more. Once the HCBS is implemented, potential improvements involve spacing stations farther apart at main intersections, providing larger shelters, boarding platforms, using all-door bus boarding, advancing bus technology, and upgrading to larger buses. The approximate annual operating costs as noted for each phase are listed below:

- Phase 1 - \$3.65 million
- Phase 2 - \$6.10 million
- Phase 3 - \$7.33 million

Active Transportation Plan (2022)

The 2022 Active Transportation Plan (ATP) was established as a tool for guiding County staff, public officials, residents, and developers to build a balanced transportation system that supports and encourages active modes of travel, which include walking, biking, and rolling (mobility devices, skateboards, scooters, and more). The main purpose of the 2022 ATP is to promote people to choose walking, biking, and rolling through the creation of safe, comfortable, and connected, and accessible transportation networks and to encourage alternatives to single-occupancy vehicle trips and improve access. The primary goals and objectives of the 2022 ATP include the following:



- Create safe and comfortable places for residents, workers, and visitors to walk, bike, and roll
- Provide active transportation access to neighborhood destinations and neighboring cities and counties
- Prioritize active transportation improvements in communities that rely on walking, biking, rolling, and public transportation
- Maintain the active transportation network in a state of good repair
- Support and expand educational programs that support walking, biking, and rolling
- Implement the recommended infrastructure projects using all available funding sources
- Improve climate change

Within the 2022 Active Transportation Plan⁸, it stated that Watt Avenue suffers from a lack of connectivity. The corridor was determined to be broken and disconnected due to the missing stretches of bike lanes between Elkhorn Boulevard and Don Julio Boulevard in North Highlands and between Madison Avenue and Arden Way in West Arden-Arcade. One of the challenges mentioned by an attendee of the Sacramento County Disability Advisory Committee, held on July 21, 2020, mentioned that a wheelchair user can and has fallen due to the unmanageable and substandard cross slopes at driveways on Watt Avenue. Additionally, one of the types of feedback received during public outreach events was concerning the existing speeds of traffic, which made Watt Avenue feel unsafe. The ATP engagement process led to recommendations throughout the County, including 194 pedestrian improvement locations, 192 miles of sidewalk gap closures, 1,218 miles of bicycle facilities, and the collection of policy and programmatic recommendations.

It is essential to maintain the bicycle facilities, shared use paths, and sidewalks to create a safer and more comfortable environment for residents to use. Hence, maintenance policies were established, which are expected to be implemented by the County:

8

https://sacdot.saccounty.net/Documents/A%20to%20Z%20Folder/Active%20Transportation/Sac%20ATP%20Plan%20+%20Appendices_June%20Final.pdf

- *Policy 1: Identify all necessary maintenance stakeholders across Sacramento County departments and partner agencies/jurisdictions.*
- *Policy 2: Maintain designated walking and bicycling facilities to be safe, comfortable, accessible, and usable for walking, bicycling, and rolling.*
- *Policy 3: Maintain bicycle parking and other support facilities for a more comprehensive bicycle network.*
- *Policy 4: Develop a communications protocol for facility closures/detours and network updates.*

Table 1 and **Table 2** summarize pedestrian intersection and bicycle recommendations within the plan corridor as identified in the ATP.

Table 1: Pedestrian Intersection Improvements - Sacramento County ATP

Intersection	Watt Avenue & Airbase Drive	Watt Avenue & Don Julio Boulevard	Watt Avenue & Elkhorn Boulevard
Project ID	6	114	9
Intersection Type	Major Intersection	Major Intersection	Major Intersection
Traffic Control	All-Way Traffic Signal	All-Way Traffic Signal	All-Way Traffic Signal
Map Book Grid ID	B5	B5	B5
Priority	No	No	No
Score	3.4	3.4	3.25
Cost Estimate	\$66,650.00	\$66,650.00	\$66,650.00
Rank	83	83	94

Source: Sacramento County Active Transportation Plan (ATP), Table C-5.

Table 2: Bicycle Recommendations - Sacramento County ATP

Watt Avenue Paseo Trail - Freedom Park Drive to U Street	
Bicycle Class	Shared-Use Path
Length (MI)	1.96
Map Book Grid ID	A4
Score	3.95
Score Estimate	\$3,199,950
Rank	45

Source: Sacramento County Active Transportation Plan (ATP), Table C-6.

Local Road Safety Plan (2022)

The Local Road Safety Plan⁹ (LRSP), adopted in January 2022, provides a summary of key safety emphasis areas, which was identified through stakeholder outreach and analysis of crash data. The emphasis areas identified included bicyclists, pedestrians, motorcyclists, and equity. The Plan addressed high-level safety needs and strategies to address certain needs. The main elements within the Plan are quantitative goals and associated strategies to measure the success of achieving its goals. The vision statement of the LRSP is to progressively reduce fatal and severe injury crashes within Unincorporated Sacramento County.

Based on the crash data analysis, the Elkhorn Boulevard and Watt Avenue intersection was a part of the top 3 locations in the County for fatal and serious injury (FSI) crash locations from 2015 to 2019. The intersection experienced seven FSI crashes, or approximately 1.4 crashes per year. Additionally, the Elkhorn Boulevard and Watt Avenue intersection had five FSI bicycle collisions from 2015 to 2019. However, this intersection was not a part of the prioritized list of top-scoring intersections for pedestrian treatments.

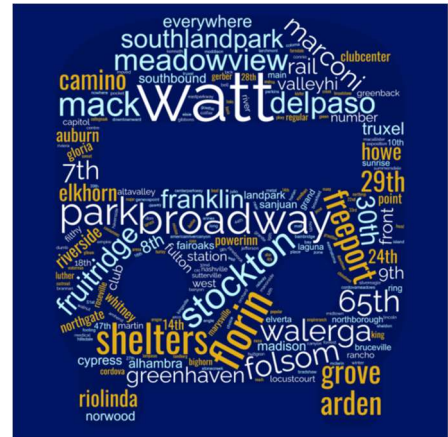
Bus Stop Improvement Plan (2023)¹⁰

Sacramento Regional Transit (SacRT) prepared a study in 2023 addressing shortcomings in its bus stops systemwide and recommending improvements to bus stop infrastructure along many of its routes. In 2020, the Caltrans Sustainable Communities Grant Program awarded funding to SacRT to prepare a Bus Stop Improvement Plan, in partnership with Civic Thread (formerly WALKSacramento). Informed by 763 in-person field assessments, input from customers and riders,

⁹ <https://sacdot.saccounty.net/Pages/Local-Roadway-Safety-Plan.aspx>

¹⁰ https://www.sacrt.com/wp-content/uploads/SacRT-Bus-Stop-Improvement-Plan-February-2023_02272023.pdf

and in consultation with SacRT’s partner jurisdictions, the plan identifies \$65.4 million worth of planned improvements to 630 bus stops. Divided into 61 priority corridors of approximately one to five miles located throughout SacRT’s service area, each bus stop was individually graded for cost-effectiveness at improving customer comfort and safety, with an emphasis on taking an equity-based approach to investing in environmental justice and designated disadvantaged communities. The Watt Avenue Corridor through North Highlands was identified as one of the study’s “High Priority” Corridors and also as part of one of the top corridors of interest for needing improvement. Public outreach results identified Watt Avenue (the entire Watt Avenue corridor) as the highest corridor of concern for survey respondents, as shown by the word cloud image.



The Plan identifies numerous major and minor bus stop improvements along the corridor between Elverta Road and I-80. For this five-mile corridor, the Plan identifies five stops where no changes are needed, 24 stops where minor to moderate changes are recommended, and 13 stops where major changes are needed but not currently feasible. Additionally, the Plan identifies 3 locations where pedestrian crossings are needed. Recommended (but not necessarily feasible) improvements¹¹ identified for stops along the corridor include improved or new bus stop shelters, improved lighting and seating, widened or improved sidewalks, relocation of stops, and improved vertical curbs. Potential locations for new crossings are identified at Turner Drive, Channing Drive, and Owens Way.

Climate Action Plan (2024)

The Climate Action Plan¹² (CAP), was adopted by the Sacramento County Board of Supervisors on November 6, 2024. The CAP details specific measures that will be implemented in Sacramento County by 2030 to reduce greenhouse gas (GHG) emissions from communitywide activities and government operations. As part of the County’s 2030 General Plan, the policies implemented within were intended to enhance and preserve the quality of life for County residents.

Additionally, the ATP works towards the goals and measures of the Climate Action Plan (2024), one of which is to reduce greenhouse gas (GHG) emissions. As stated in the ATP, the Plan supports the following measures from the Climate Action Plan:

- *Measure GHG-11: Reduce emissions from new residential and office/business professional development vehicle miles traveled (VMT). The County will achieve a 15% reduction in daily VMT compared to the regional average for all new residential and office/business professional development in the County.*

¹¹ <https://www.sacrt.com/wp-content/uploads/Appendix-E-1-Corridor-1-10-2.pdf>

¹² <https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Climate%20Action%20Plan/SEIR%20Documents/2024%20Final%20CAP.pdf>

- *Measure GHG-15: Improve pedestrian networks and facilities. The County will update the Pedestrian Master Plan to reduce barriers to walking and increased mobility for all users of the roadways.*
- *Measure GHG-17: Improved bicycle network and facilities. The County will improve the bicycle network to provide for safe and convenient bicycle travel through implementation of the Bicycle Master Plan and the improvement of bicycle infrastructure.*

The CAP includes an adaptation plan that recommends actions to reduce the community's vulnerability to the anticipated impacts of climate change. The adaptation measures address climate impacts, which calls for a comprehensive communication strategy, such as the following:

- *Prepare for Increases in Temperatures and Extreme Heat Days and Heat Waves*
- *Prepare for Increased Risk of Wildfire and Smoke Events*
- *Prepare for Increased Drought*
- *Prepare for Increased Flooding*
- *Prepare for Sea-Level Rise*

Table 3 and **Table 4** on the following pages summarize the adaptation measures identified in the CAP that are applicable to Watt Avenue.

Table 3: Temperature Related Measures - Sacramento County CAP

Measure Number	Measure Name	Strategy	Benefits	Implementing county departments	Timeframe
Temp-01	Protect Critical Infrastructure Vulnerable to Extreme Heat Events	Prepare for Increased Temperatures and Extreme Head Days and Head Waves	Reduce frequency of power outages	Department of General Services SACDOT	Near Term
Temp-02	Partner with Local Agencies and Utilities on Heat-Related Climate Change Initiatives and Efforts	Prepare for Increased Temperatures and Extreme Head Days and Head Waves	Mitigate effects of Urban Heat Island Effect (UHIE) Lower risk of heat-related illnesses Improve air quality	Sustainability Manager	Near Term
Temp-07	Use Cool Pavement Technology and Reduce the Extent of Paved Surfaces	Prepare for Increased Temperatures and Extreme Head Days and Head Waves	Mitigate effects of UHIE Lower energy consumption Improve air quality Increase electrical grid resilience	Sustainability Manager Planning & Environmental Review Building Permits & Inspection	Near Term
Temp-08	Increase Parking Lot Shading, Landscaping, and Urban Greening, Prioritizing Communities with Less Tree Cover	Prepare for Increased Temperatures and Extreme Head Days and Head Waves	Reduce effects of UHIE Provide opportunities for carbon sequestration in urban areas	Sustainability Manager Planning & Environmental Review Code Enforcement Department of General Services	Midterm

Source: Sacramento County Climate Action Plan (CAP), Table 6.

Table 4: Flood Related Measures - Sacramento County CAP

Measure Number	Measure Name	Strategy	Benefits	Implementing County Departments	Timeframe
Flood-04	Coordinate with Federal, State, and Local Agencies to Improve Emergency Evacuation and Supply Transportation Routes	Prepare for Increased Flooding	Help protect Sacramento County residents during flood events	Office of Emergency Services Department of Water Resources SACDOT (Potential collaboration opportunities with the City of Sacramento, CalOES, SAFCA, CA DWR, and FEMA)	Near Term
Flood-05	Invest in Use of Pervious Pavements and Landscaping in Developed Areas and Restrict the Use of Paved Surfaces	Prepare for Increased Flooding	Minimize surface runoff and rates of urban flooding Maintain capacity of stormwater infrastructure Lower cases of localized flooding	Sustainability Manager Planning & Environmental Review Department of Water Resources SACDOT	Near Term
Flood-7	Establish an Underground Utilities Program Resistant to Flooding	Prepare for Increased Flooding	Increase Sacramento County's resilience to temperature- and wildfire-related impacts	Sustainability Manager	Near Term

Source: Sacramento County Climate Action Plan (CAP), Table 6.

Concurrent Project Efforts

The County Office of Planning and Environmental Review (PER) has a concurrent planning effort along the Watt Avenue Corridor which is focused on land use and redevelopment opportunities. Since adoption of the existing land use plan (North Watt Corridor Plan) in August 2012, the envisioned development for the plan area has not been realized. Identified barriers to development include the plan itself (difficult to understand, contains inconsistencies, imposes unrealistic development standards, and conflicts with standards of other agencies) and critical gaps in utility capacity/infrastructure to support development (drainage issues, insufficient sewer capacity).

Through SACOG's Green Means Go program, developed for the purpose of catalyzing development in areas that have capacity for infill development while also reducing vehicle miles traveled (greenhouse gas reduction), PER was awarded funds to update the plan with the goal of transforming the corridor into a vital core for the surrounding neighborhoods and region. This planning effort is currently underway. The Re-Imagine North Watt Corridor Plan does not include any recommendations beyond corridor infrastructure elements as topics related to land use and zoning fall under the purview of this separate effort.

Stakeholder and Public Engagement

Engagement Approach

A multi-faceted approach was developed for the engagement process of the Re-Imagine North Watt Avenue plan. The focus of the engagement approach was to engage diverse groups and stakeholders through various methods to solicit feedback, share project information, and ensure the plan vision aligns with the community. The public engagement approach included the formation of a Corridor Advisory Team (CAT), focus group discussions, stakeholder interviews, school and committee presentations, and public workshops.

Stakeholder Engagement

Corridor Advisory Team

As part of the *Re-Imagine North Watt Corridor Plan*, a Corridor Advisory Team (CAT) was formed. Representatives from local and regional organizations such as business owners, law enforcement, and transportation and planning agencies were invited to participate in the CAT. The CAT supported the plan by providing pertinent feedback for their groups that were being represented, ensure the plan would support the needs of vulnerable groups, and identify potential needs and improvements along the corridor.

The participating CAT members are listed on the following page in **Table 5**. The CAT was updated on plan status at three meetings over the course of the project that covered the following topics:

- CAT Workshop #1 (October 5, 2023) – Existing conditions and needs review
- CAT Workshop #2 (April 10, 2024) – Project toolbox and alternatives review
- CAT Workshop #3 (December 3, 2024) – Final alternatives and evaluation

Each meeting involved an update of plan status, a review of the analysis and current recommendations, a request for feedback on the recommendations, and a feedback period where the CAT members could ask questions about the plan. Each meeting was held in advance of the corresponding public workshop and the feedback was used to inform ongoing analysis and presentation to the public.

Table 5. Corridor Advisory Team Members

ORGANIZATION	NAME
McClellan Business Park	Trey Gundlach
North Highlands Recreation & Park District	Larry Mazzuca - Administrator
Sacramento County Bicycle Advisory Committee	Benjamin Rady, Associate Planner
Sacramento County Disability Advisory Committee	Cheryl Bennett - County Disability Compliance Officer
Sacramento County Sheriff's Office	James Hicks - Sheriff Records Officer II
Sacramento Regional Transit District	Kevin Schroder - Senior Planner

Committee Presentations

Plan status, findings, and recommendations were also regularly communicated to the Bicycle Advisory Committee (SacBAC) and the Disability Advisory Committee Physical Access Subcommittee (DAC-PASC), two active Sacramento County advisory committees. The committees were updated on plan status at meetings over the course of the plan that covered the following topics:

- SacBAC (January 17, 2024) – Existing conditions and needs review
- DAC-PASC (February 20, 2024) – Existing conditions and needs review
- SacBAC (May 9, 2024) – Project toolbox and alternatives review
- SacBAC (November 14, 2024) – Final alternatives and evaluation
- DAC-PASC (November 19, 2024) – Final alternatives and evaluation

Each meeting involved an update of plan status, a review of the analysis and current recommendations, a request for feedback on the recommendations, and a feedback period where the committee members could ask questions about the plan.

Focus Group Meeting

As part of the outreach effort, a focus group session was facilitated on November 14, 2023. The focus group consisted of eight representatives from local community groups and organizations to discuss strategies to increase public engagement by partnering with existing community meetings in the plan area. Focus group attendees were provided a plan map showing transit stops and signalized intersections. Additionally, the focus group was provided a walkthrough of the plan website to leave comments at specific locations along the corridor. The focus group setting also provided participants with the opportunity to provide feedback and insight into the North Watt Avenue corridor. The focus group was successful in identifying several “pop-up/community group” meetings. For a complete summary of feedback received during the focus group, see the *Stakeholder Engagement Summary Memo* in **Appendix A**.

Stakeholder Interviews

Meetings and interview with stakeholders were conducted to raise awareness of the Re-Imagine North Watt Corridor Plan and further engage stakeholders. From March to April 2024, existing meetings in the plan area were identified as potential events to share plan resources and solicit feedback. The committee meetings held included with the following stakeholders:

- Tri Communities Lunch Bunch Meeting – March 7, 2024
- North Watt Avenue Business Watch – March 11, 2024
- McClellan Business Watch – March 14, 2024
- North Highlands Round Table – March 25, 2024
- Community Collaborative Charter School – April 2, 2024
- North Highlands Recreation and Parks District – April 11, 2024

Public Engagement

Public Outreach Meetings

Over the course of the plan duration, three formal public engagement events were conducted, and several informal events were attended.

Public Engagement Meetings

Three public engagement meetings were held at key plan stages: plan initiation, potential improvements, and final alternatives. Meetings were advertised through a combination of social media posts, emails to existing County and plan-focused email lists, mailed postcards, and flyer distribution throughout the corridor. All formal plan meetings were held at the North Highlands Recreation and Parks District and included a presentation of plan materials and open discussion periods for attendees to provide feedback. The details and focus of the meetings are listed below:

- Public Open House (December 2, 2023) – Existing conditions and needs review
- Public Workshop (April 20, 2024) – Project toolbox and alternatives review
- Public Town Hall (December 11, 2024) – Final alternatives and evaluation

Public Feedback

A variety of tools and methods were used to promote the plan, gather feedback, and provide updates including a plan specific website, interactive mapping tool, and an online community survey. The feedback received from the Social Pinpoint interactive mapping tool and community survey are summarized in the following sections.

Interactive Mapping Tool

During the first round of outreach, the interactive mapping tool was primarily used to gather community feedback for high priority locations and issues related to the following concerns:

- Accessibility Concern
- Bicyclist Concern
- Pedestrian Concern
- Safety Concern
- Transit Concern
- General Comments

The interactive mapping tool received roughly 140 comments, however only 45% of comments received were within the plan boundary and relevant to the plan. Comments received primarily focused on safety, transit, and general comments as shown in **Figure 2**.

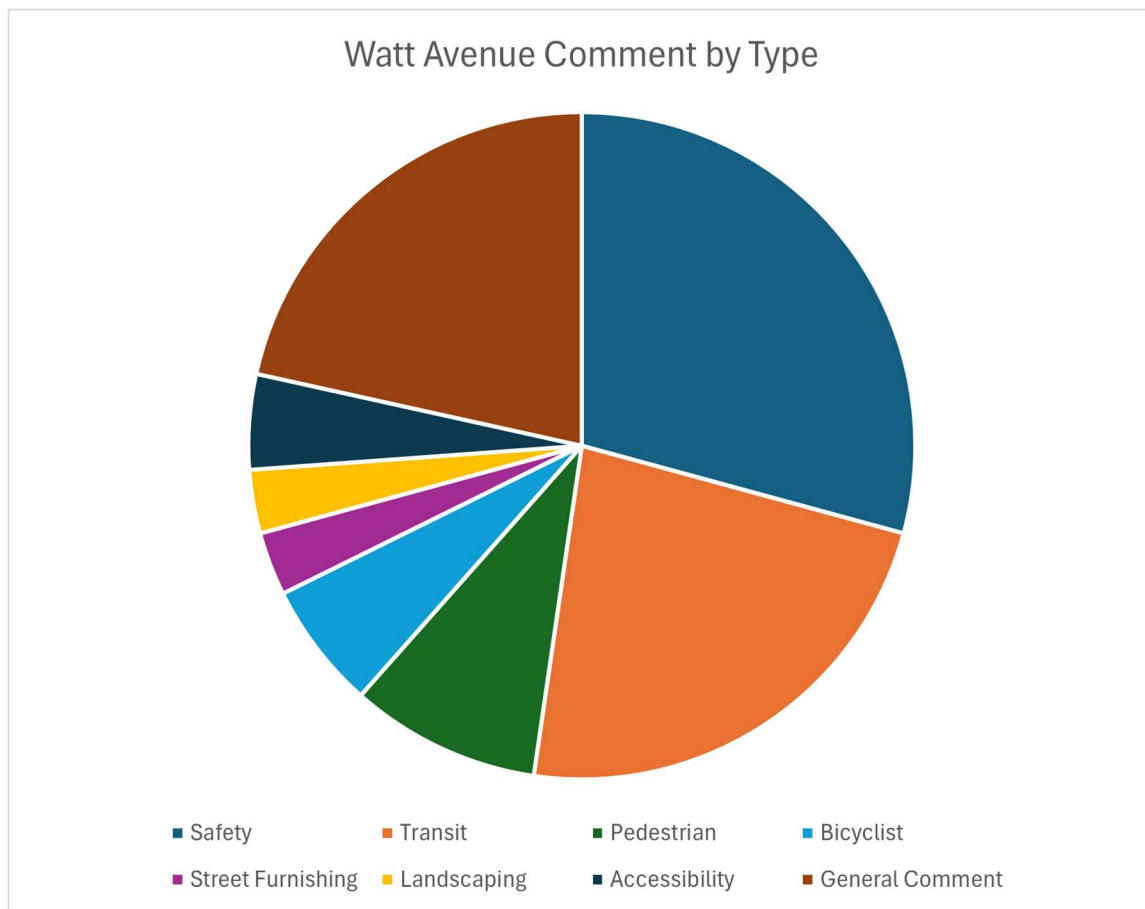


Figure 2: North Watt Avenue Comments by Type

Of the comments received that were relevant to the project, the majority of comments were focused near Freedom Park Drive, A Street, and Airbase Drive as shown in **Figure 3**.

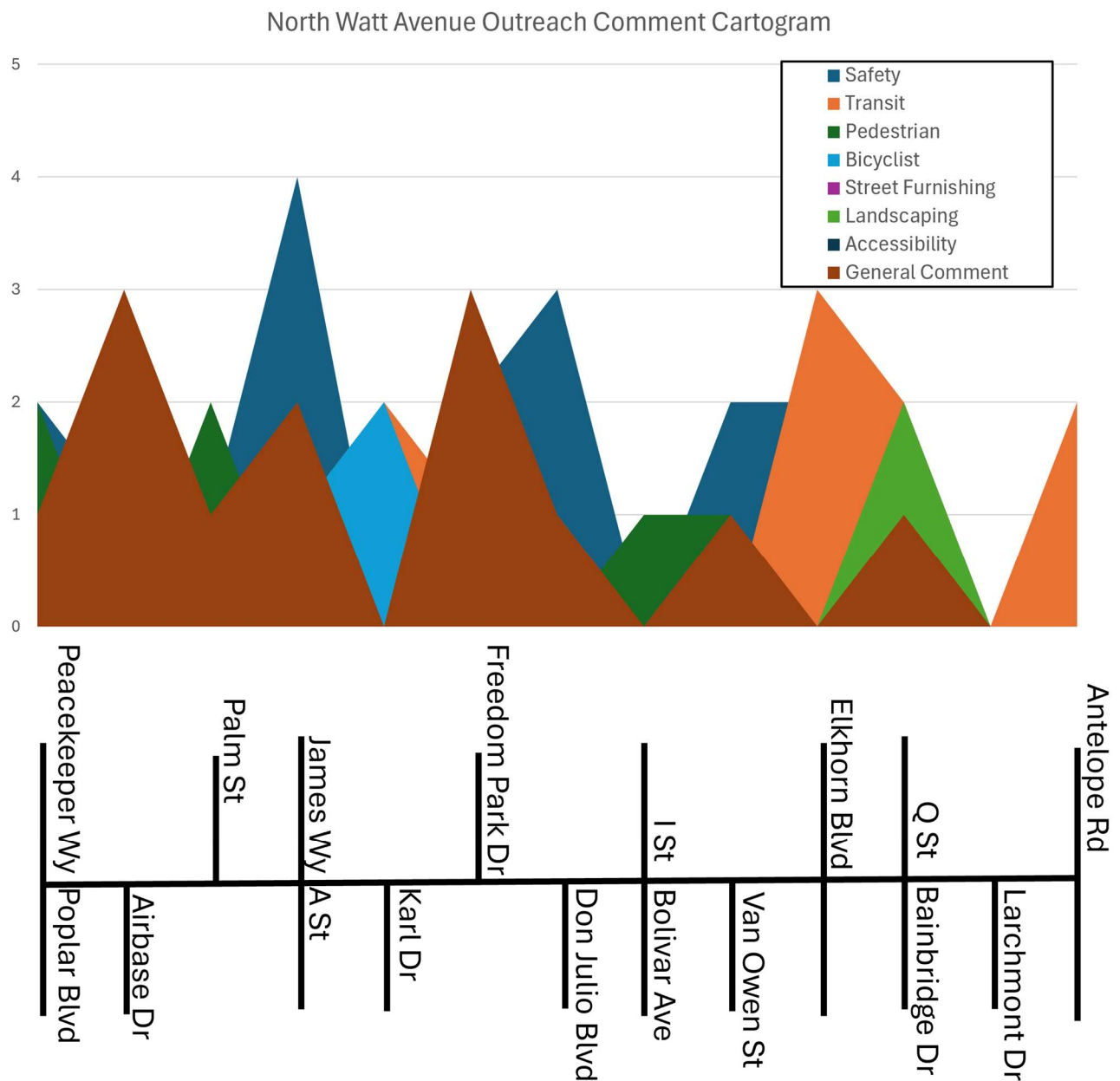


Figure 3: North Watt Avenue Outreach Comment Cartogram

Community Survey Results

In addition to the interactive mapping tool, a community survey was distributed on the plan website. While the community survey was not visited as often as the interactive map, the survey received 15 online responses. The majority of the survey questions were short answer, multiple choice results are summarized in **Figure 4** and **Figure 5**. For the complete survey results, see **Appendix B**. A full list of the comments received is included in **Appendix C**.

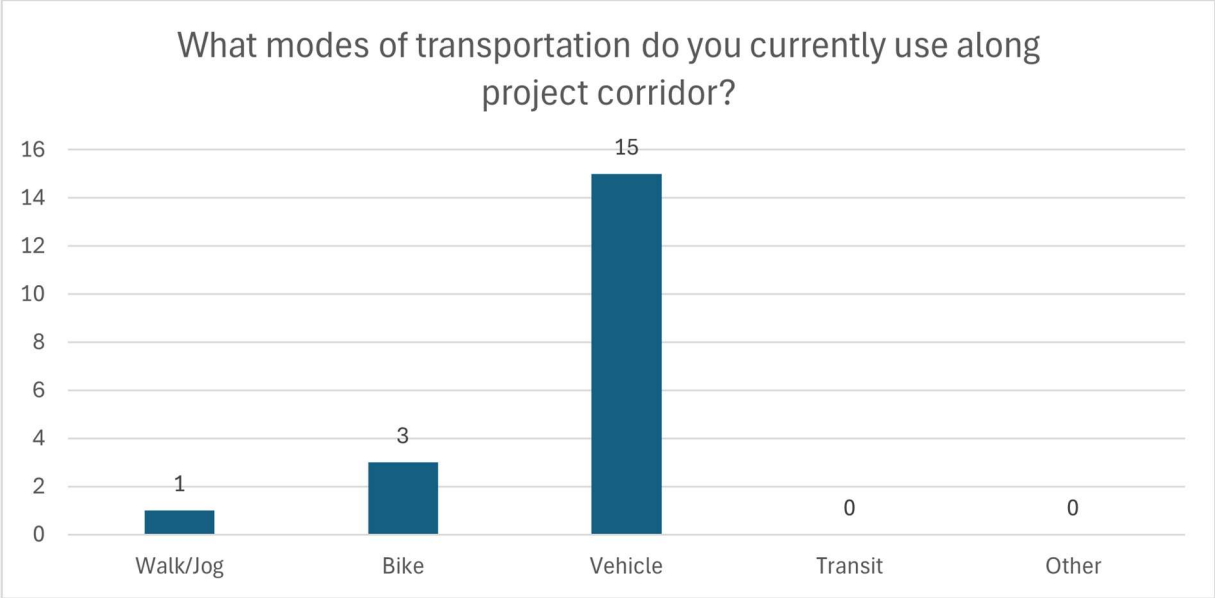


Figure 4: Survey Results - Modes of Transportation

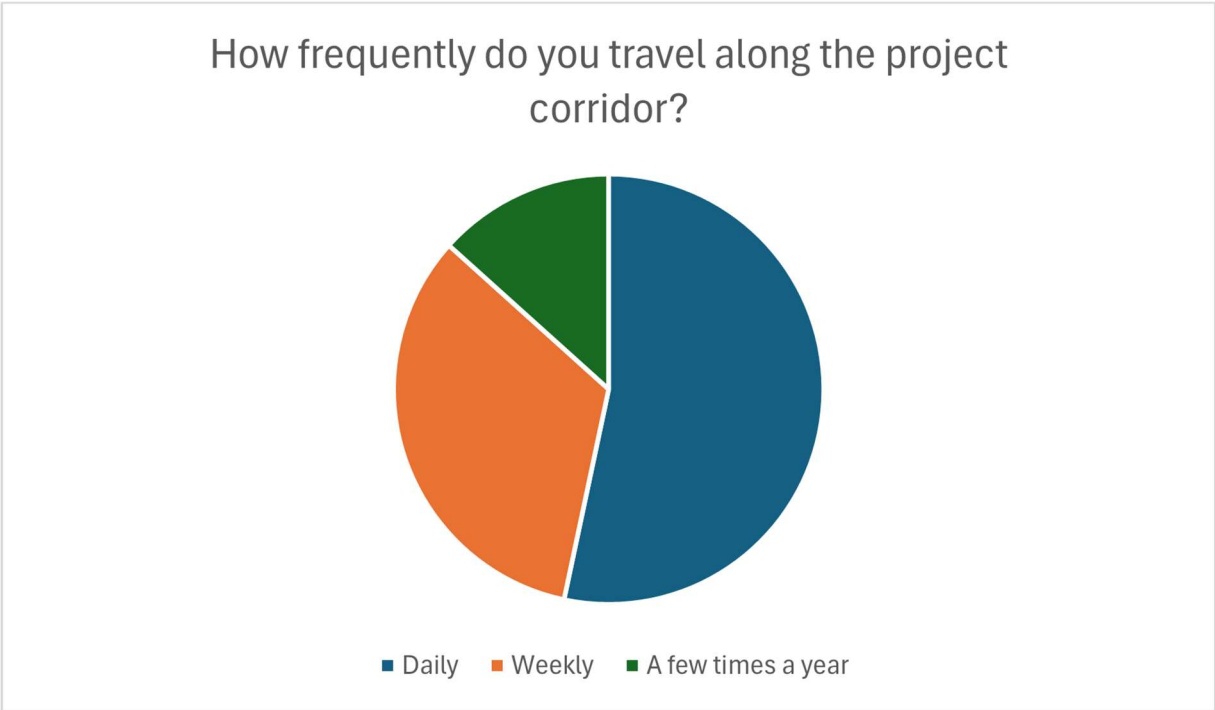


Figure 5: Survey Results - Corridor Travel Frequency

Analysis Methodology

Safety Analysis

Crash data over a five-year period (2018-2022) was analyzed to conduct safety analysis within the corridor. The data consisted of all crashes on or approaching North Watt Avenue between Peacekeeper Way and Antelope Boulevard. The crash data results are summarized by severity, primary collision factor, collision type, environmental factors, and location to observe patterns and prioritize locations.

Traffic Operations

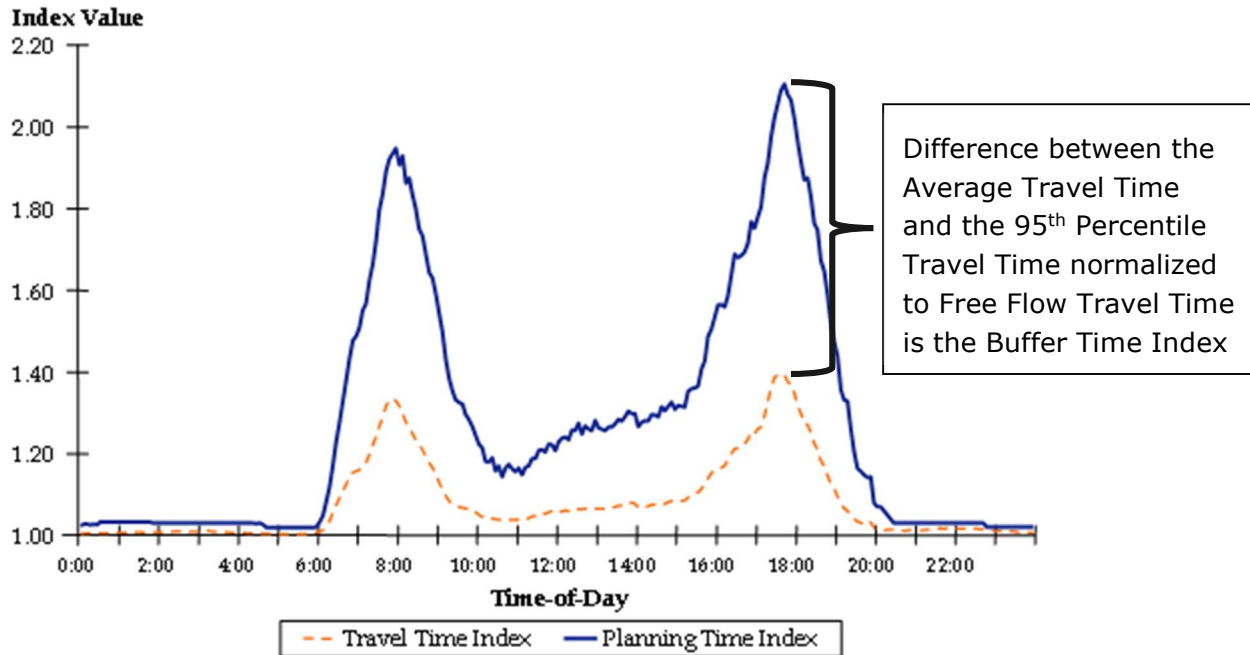
Travel Time Reliability & Congestion

The National Performance Management Research Data Set (NPMRDS) is a transportation performance metric for travel time reliability (TTR). Travel time reliability is how predictable travel time is for commuters and goods movement and the variation in travel time for the same day to day trip. When travel time variability is large, travel time is considered unreliable meaning it is difficult to predict accurate and consistent estimates for it. When there is little variability in travel time, a trip is considered reliable.

Unreliable travel time is caused by a series of issues rooted in imbalance in demand and capacity resulting in congestion. When a roadway is congested, travel time variability increases, becoming unreliable. The primary causes of congestion that influence travel time reliability are:

- Normal travel fluctuations
- Physical bottlenecks
- Special events
- Traffic incidents
- Inclement weather
- Traffic control devices
- Work/construction zones

One measure to determine travel time reliability is Buffer Time, which is the extra amount of time a traveler needs to account for the above average travel time to ensure they are on time, at least 95% of the time. Buffer Time and Buffer Time Index (BTI) is normalized against the average travel time. The relationship between travel time reliability indexes is shown in **Figure 6**.



Source: *Traffic Congestion and Reliability: Linking Solutions to Problems*, FHWA, 2004

Figure 6: Relationship Between Travel Time Index and Buffer Time Index

To calculate travel time reliability and congestion for North Watt Avenue, average speed data was obtained from the National Performance Program’s NPMRDS from the Federal Highway Administration (FHWA). To reflect annual average weekday conditions, the data was filtered to isolate average conditions: Tues-Thurs AM/PM peak periods for passenger vehicles and heavy-duty trucks separately and together. The AM and PM peak periods were identified by the most congestion continuous 60-minute span for both passenger vehicles and trucks. The free flow speed (FFS) of the corridor was determined through analyzing the fastest vehicle speeds for the peak hour from 12:00-3:00am. Additionally, the Highway Capacity Manual 7th Edition defines congestion and reliability thresholds shown in **Table 6**.

Table 6: Congestion and Reliability Performance Measures

	Reliable	Moderately Reliable	Unreliable
Buffer Time Index (BTI)	BTI < 1.25	BTI 1.25-< 1.5	BTI >= 1.5
Uncongested >= 60% of free flow	Predictable and efficient	Not always predictable, usually efficient	Unpredictable, not often congested
Congested <60% of free flow	Predictable and inefficient	Not always predictable, usually inefficient	Unpredictable, not often congestion

Source: *Highway Capacity Manual (HCM)*, 7th Edition

Roadway Segment Level of Service

Level of service analyses were conducted for the roadway segments in the plan area based upon daily traffic volumes, number of traffic lanes between intersections, and roadway characteristics. The capacity class categories are based upon the nature of traffic flow along the facility, including number of interruptions due to intersection control and “side-friction” due to driveways and local streets. For each capacity class, relationships were developed between daily traffic volumes and roadway level of service. **Table 7** summarizes the maximum daily traffic volumes associated with each level of service designation and capacity class combination. Although segment-based level of service calculations is based upon daily traffic volumes, the resultant levels of service are representative of peak hour conditions.

Table 7: Level of Service Thresholds for Roadway Segments

Facility Type	Lanes	LOS A	LOS B	LOS C	LOS D	LOS E
Arterial – Low Access Control	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial – moderate Access Control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000
Arterial – High Access Control	2	12,000	14,000	16,000	18,000	20,000
	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	43,000	48,000	54,000	60,000
Residential	2	600	1,200	2,000	3,000	4,500
Residential Collector with Frontage	2	1,600	3,200	4,800	6,400	8,000
Residential Collector without Frontage	2	6,000	7,000	8,000	9,000	10,000
Facility Type Assumptions		Stops per Mile		Driveways	Speed	
Arterial – low access control		4+		Frequent	25-35 MPH	
Arterial – moderate access control		2-4		Limited	35-45 MPH	
Arterial – high access control		1-2		None	45-55 MPH	

Source: County of Sacramento Transportation Analysis Guidelines (2020)

Intersection Level of Service

Level of Service (LOS) for intersections was calculated using Synchro software following the Highway Capacity Manual 6th Edition, which is based on average vehicle delay. Six service levels are defined, ranging from LOS A, the best operating conditions, to LOS F, the worst operating conditions. LOS E corresponds to “at or near capacity” operations. When demand exceeds capacity, stop-and-go conditions result, and operations are designated LOS F. The delay thresholds and corresponding LOS values for intersections are presented in **Table 8**.

Table 8: Intersection Level of Service Criteria

Level of Service (LOS)	Delay (sec./veh.)		Description
	Signalized ^A	Unsignalized ^B	
A	< 10	< 10	Represents free flow. Individual users are virtually unaffected by others in the traffic stream. Usually no conflicting traffic.
B	> 10 to 20	> 10 to 15	Stable flow, but the presence of other users in the traffic stream begins to be noticeable. Occasionally some delay due to conflicting traffic.
C	> 20 to 35	> 15 to 25	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream. Delay is noticeable, but not inconveniencing.
D	> 35 to 55	> 25 to 35	Represents high-density, but stable flow. Delay is noticeable and irritating; increased likelihood of risk taking.
E	> 55 to 80	> 35 to 50	Represents operating conditions at or near the capacity level. Delay approaching tolerance levels; risk taking behavior is likely.
F	> 80	> 50	Represents forced or breakdown flow. Delay exceeds tolerance level; high likelihood of risk taking.

Notes:

- A. HCM 6, Chapter 19 (Signalized Intersections)
- B. HCM 6, Chapters 20-22 (Stop-Controlled Intersections and Roundabouts)

Intersection Queuing

The standard for evaluating vehicle queues at intersections is the 95th percentile queue, defined to be the length of queue that has only a five percent probability of being exceeded during the analysis period. As such, the 95th percentile queue is not representative of what a driver would typically experience but is used to determine if adequate storage is provided in turn pockets. Queues were calculated at study intersections using Synchro software.

Level of Traffic Stress

Bicycles

Bicycle Level of Traffic Stress (BLTS) was calculated using the methodologies described in the Mineta Transportation Institute’s Report 11-19 Low-stress Bicycling and Network Connectivity (2012). BLTS quantifies the stress level of a given roadway segment by considering a variety of criteria including street width (number of lanes), speed limit or prevailing speed, presence and width of bike lanes, and the presence and width of parking lanes. BLTS is designated with a score of 1 through 4, with 1 providing the most comfort and 4 providing the least comfort. Generally, a BLTS score of 1 indicates that the roadway provides a stress level tolerable by small children, and a BLTS score of 4 indicates a stress level tolerable only to strong and fearless bicyclists (See **Figure 7**). The Mineta Transportation Institute’s LTS methodology is described in greater detail in **Appendix D**.

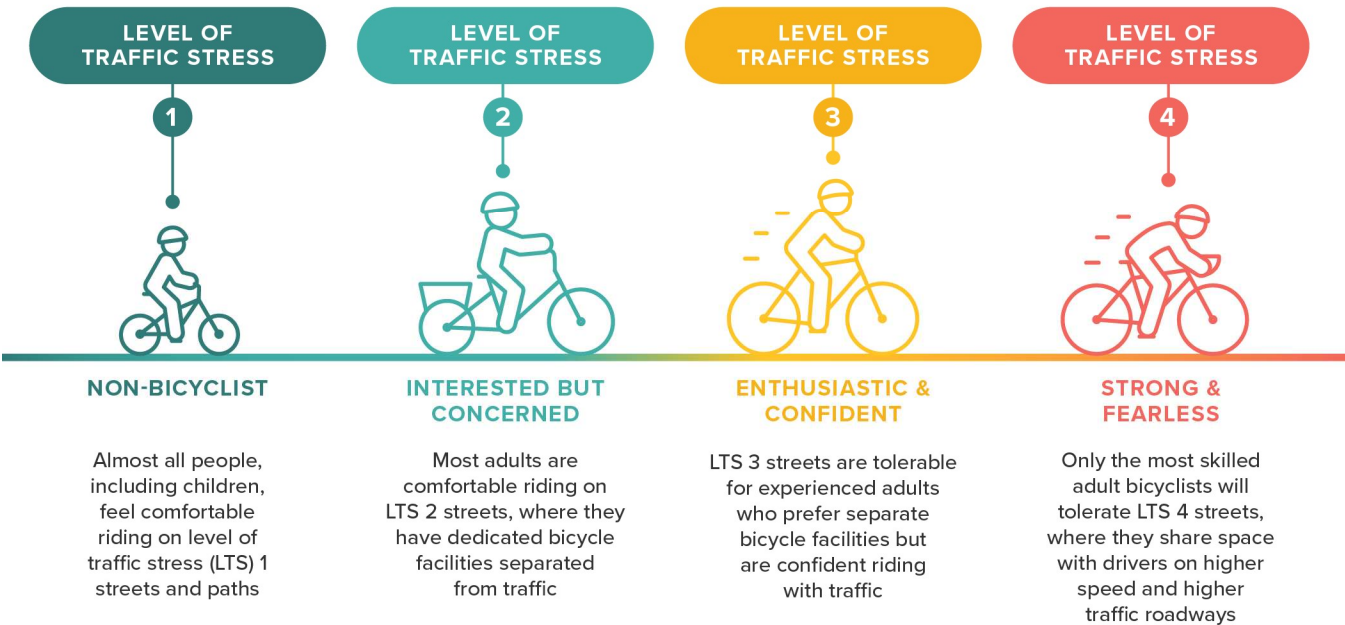


Figure 7: BLTS Score Description

Along the plan corridor, criteria are applied separately for each category using the “worst case principle” meaning the worst (or highest) score among the criteria considered governs the overall LTS score for that facility.

Pedestrians

Pedestrian Level of Traffic Stress (PLTS) has been calculated for the corridor based on the methodologies described in the Oregon Analysis Procedures Manual. Analogous to LTS for bicycles, the PLTS methodology classifies facilities into four different stress levels experienced by pedestrians and other sidewalk users, as shown in **Figure 8**. The following criteria are used to determine PLTS for roadway segments:

- Sidewalk type and condition
- Buffer type and width
- Bike lane width
- Parking width
- Number of lanes
- Posted speed
- Illumination presence
- Surrounding land use type

Oregon's PLTS methodology is described in greater detail in **Appendix E**.

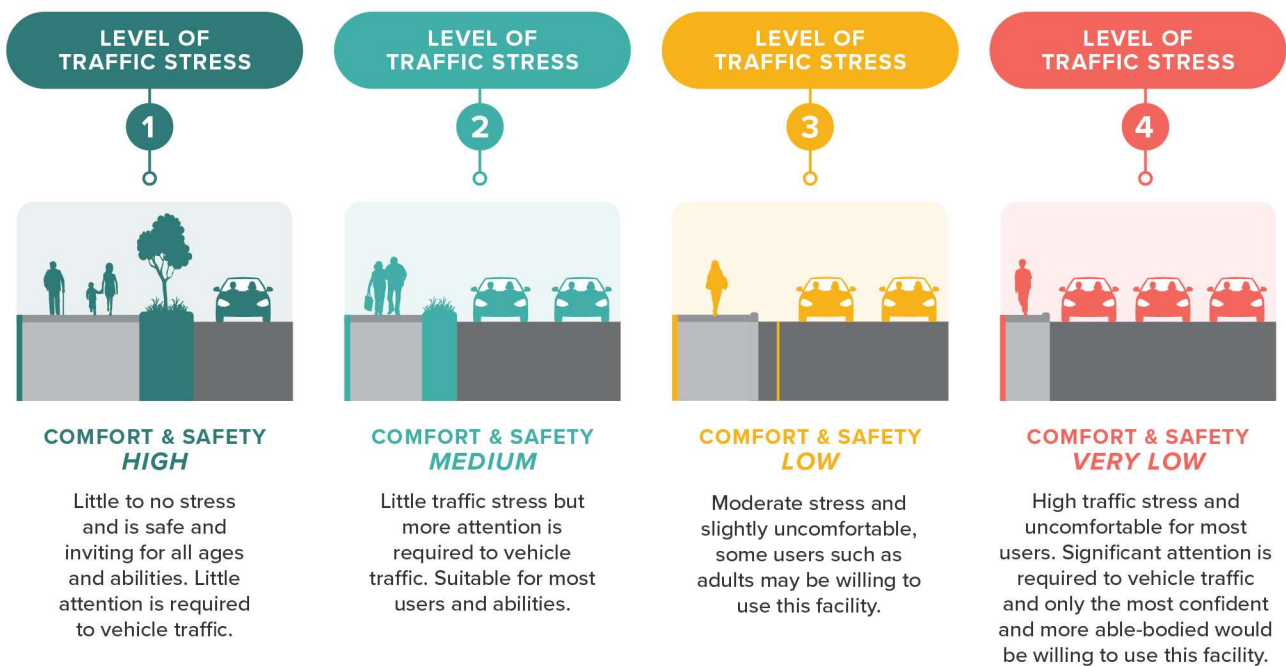


Figure 8. PLTS Score Description

Travel Demand Model Land Use

For alternatives to be evaluated in future conditions, travel demand was forecast for the year 2045 using SACOG's SACSIM19 model for each of the design alternatives. This discussion focuses on land use assumptions used for the forecasts, while the roadway assumptions and resultant forecast volumes are discussed in detail in the **Alternatives Analysis** section below.

Model Land Use Review

Table 9 shows the land uses assumed in SACOG's SACSIM19 existing (2016) and future (2040) models for TAZs in the plan area and displayed in **Figure 9**. As stated previously, SACOG's 2040 and Sacramento County's super-cumulative land use are identical in the plan area. The table shows that households in the plan area traffic analysis zones (TAZs) increase by 46% and total employment increased by 28.6% between 2016 and 2040/ super-cumulative models. Of this growth, over 75% of the households and employment are west of North Watt Avenue.

Table 9: Travel Demand Model Land Use by TAZ

TAZ	Side of Watt Avenue	Total Households			Total Employment		
		2016	2040/SC ¹	Growth	2016	2040/SC ¹	Growth
314	West	-	749	749	1,548	2,046	498
316		45	767	722	806	1,543	737
318		124	557	433	622	566	(56)
320		116	656	540	663	899	236
330		-	233	233	1,688	1,750	62
1513		173	347	174	2,513	3,175	662
319	West/East	1,587	1,924	337	733	993	260
315	East	2,023	2,061	38	166	174	8
317		1,343	1,399	56	189	184	(5)
321		2,653	2,907	254	399	559	160
331		114	343	229	417	643	226
Total		8,178	11,943	3,765 (+46%)	9,744	12,532	2,788 (+28.6%)

Source: DKS Associates, 2025

¹ SC = Super-Cumulative

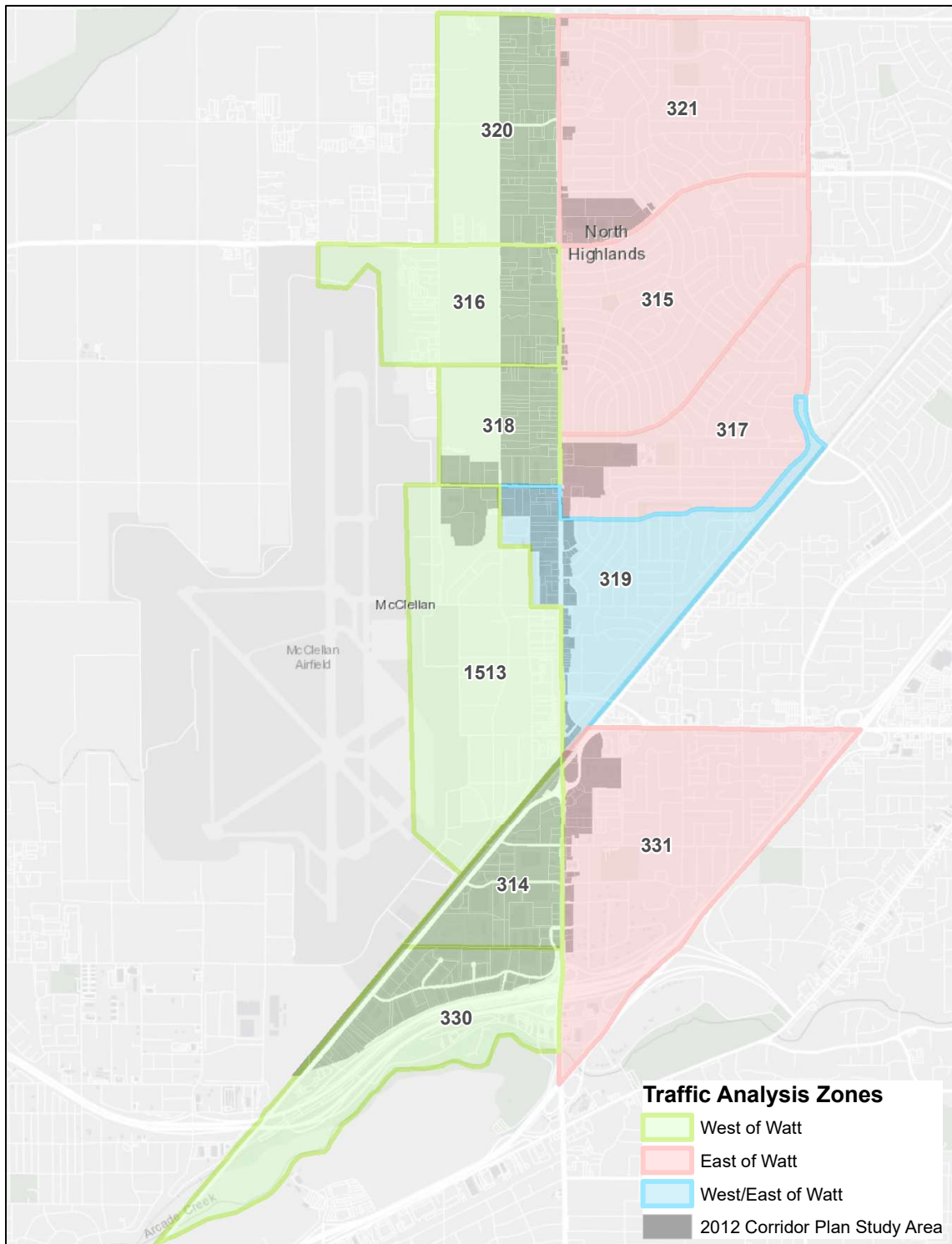


Figure 9: Study Area Traffic Analysis Zones

Table 10 shows the 2012 North Watt Avenue Corridor Plan land use assumptions by district and compares that land use to the travel demand model land use. Note that for summarization, the Town Center District includes the North Highlands Town Center. The 2012 plan reports non-residential land uses by square footage for “Commercial” and “Office” and does not list industrial as a land use category. The travel demand model includes non-residential land uses as employment, not square footage, and includes ten different employment categories. For this comparison, “Commercial” includes three model employment categories (retail, food/beverage, and service) while “Office” includes three other employment categories (office, government, and medical). Other model employment categories (education, industrial, and other) are not included in the previous study land use summaries by district. Because one data source is by square footage and the other is by employment, one of the two must be converted for comparison. In order to compare the model land use data with the previous land use plan, the model employment numbers were converted to square footage by using 500 square feet per employee for commercial uses and 300 square feet per employee for office uses.

Land Use Comparison Conclusions and Model Modifications

To make this plan consistent with the land uses developed for the North Watt Avenue Corridor Plan, the future travel demand model was updated to reflect the general land use assumptions reported in that plan. This includes approximately doubling the number of new dwelling units in the study area. New households were assumed to be multi-family units (SACSIM Household Type 3: Apartment/Condo). For non-residential uses, employment in the SCS/super-cumulative model more closely matched the land use assumed in the 2012 plan. As such, the necessary changes were of a smaller magnitude. Non-residential growth was factored to match control totals for the categories of commercial and office/medical described above for each of the districts in the 2012 plan. As the 2012 plan does not specify industrial or other non-residential land uses except for within the North Highlands Town Center, these other land uses were assumed to not grow from 2016 levels within the plan area. Additionally, the traffic analysis zones (TAZs) in the model were subdivided or split to better represent the study area in the model and allow for more accurate assignment of vehicles onto the roadway system. Resultant land use totals by district in the revised model are consistent with those listed in **Table 10**.

Table 10: Corridor Plan and Model Land Use By District

District	Land Use	SACSIM Model 2016	SACSIM Model 2040/SCS	2012 Plan
Elkhorn District	Residential DU	536	1,847	2,363
	Retail/ Comm KSF	349.0	502.0	292.5
	Office/ Medical KSF	82.8	179.4	220.25
Town Center District	Residential DU	379	1,224	2,280
	Retail/ Comm KSF	323.5	342.0	292.5
	Office/ Medical KSF	103.2	80.7	134.85
Triangle Gateway District	Residential DU	114	1,325	2,550
	Retail/ Comm KSF	601.5	805.5	585
	Office/ Medical KSF	362.4	482.4	359.6
Total North Watt Avenue Corridor Plan	Residential DU	1,029	4,369	7,193
	Retail/ Comm KSF	1,274.0	1,649.5	1,170
	Office/ Medical KSF	548.4	798.9	714.7

Source: DKS Associates, 2025

Existing Conditions

Description of North Watt Corridor

Historically, the North Watt Avenue corridor has high traffic volumes, speeds, and a lack of complete streets and traffic calming features. Safety is a key issue for the corridor; North Watt Avenue was identified in the Active Transportation Plan as a high injury corridor. A field visit was conducted on Tuesday, July 18, 2023, to observe and identify the existing multimodal infrastructure, facilities, and networks that are present through the plan corridor. Pictures from the site walk can be found in **Appendix F**.

North Watt Avenue generally has four and six travel lanes with a striped or landscaped median. Posted speed limits within the plan corridor range from 35 to 45 mph. The right-of-way (ROW) of the North Watt Avenue corridor varies from 70 to 90 feet, putting forth challenges and opportunities for better street design. Based on the field visit, it was observed that roadway features, which include bicycle and pedestrian facilities, medians, landscaping, road grade and width, and signages, were inconsistent throughout the corridor. The sidewalks along the corridor are generally five feet wide and are provided with pedestrian ramps. However, only a few ramps are ADA compliant, lacking the appropriate running and cross slope, width, flared sides and are not contained within the marked crosswalk. Existing crosswalks at signalized intersections are marked and actuated, although many intersections lack countdown signal heads and accessible pedestrian signal (APS) technology. At major signalized intersections, many crossings lack a median refuge and striping for higher visibility. Additionally, the positioning of existing utility poles installed along the sidewalks conflict with ADA standards in many locations.

The plan corridor has been divided into four segments to describe the existing conditions of the North Watt Avenue corridor. **Table 11** provides an overall summary of the existing conditions and characteristics for each corridor segment. The primary features, facilities, and land use of each segment are shown in **Figure 10** through **Figure 13**. For the complete Existing Conditions Analysis Technical Memo see **Appendix G**.

Existing Conditions - Road Segment 1: Antelope Road to Elkhorn Boulevard

Characterized by retail uses with parking lot frontage and vacant properties on the west and low rise residential on the east side of Watt Avenue

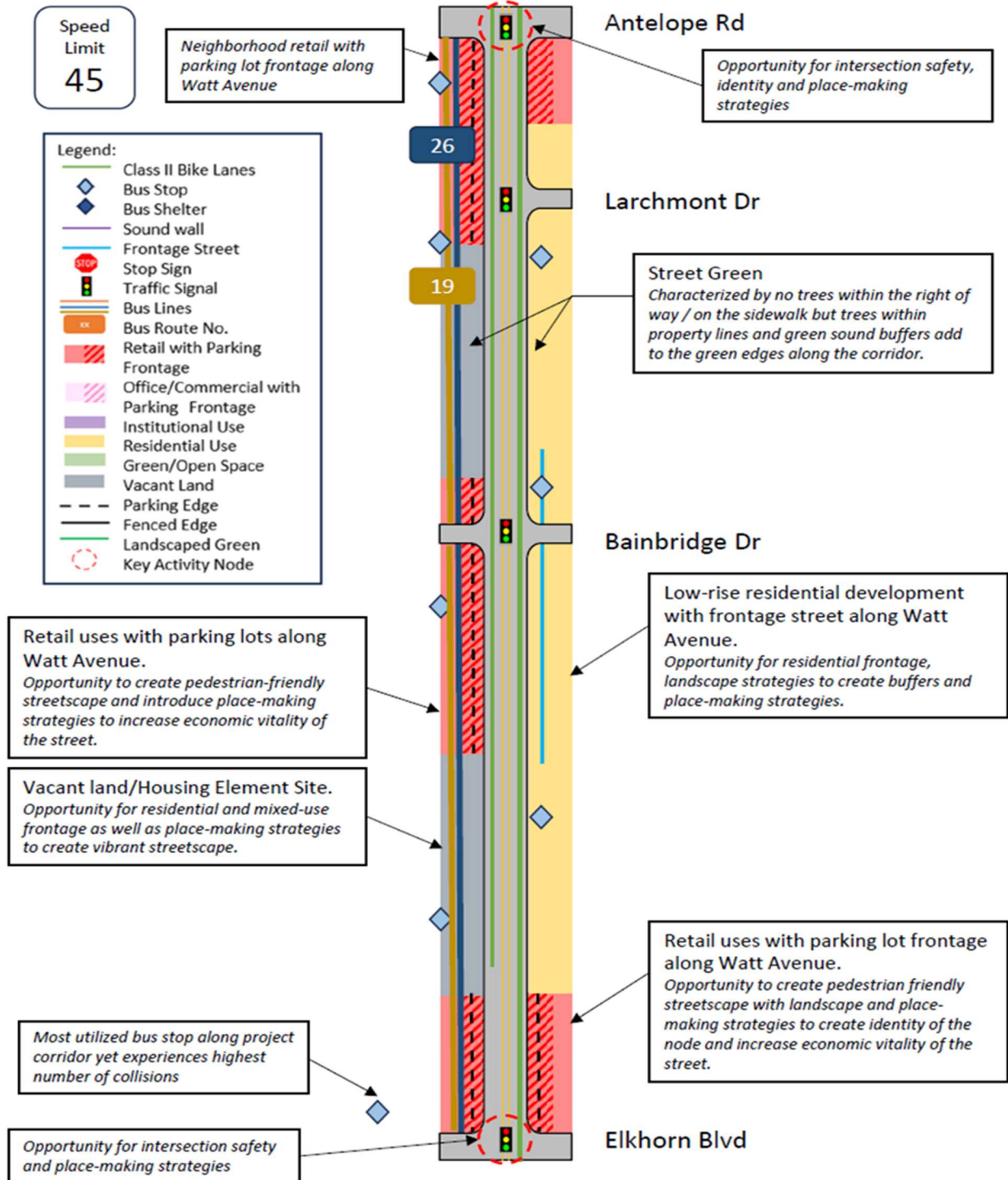


Figure 10: Road Segment 1 (Antelope Road to Elkhorn Boulevard)

Existing Conditions - Road Segment 2: Elkhorn Boulevard to Don Julio Boulevard

Characterized by retail uses with parking lot frontage on the west and low rise residential on the east side of Watt Avenue

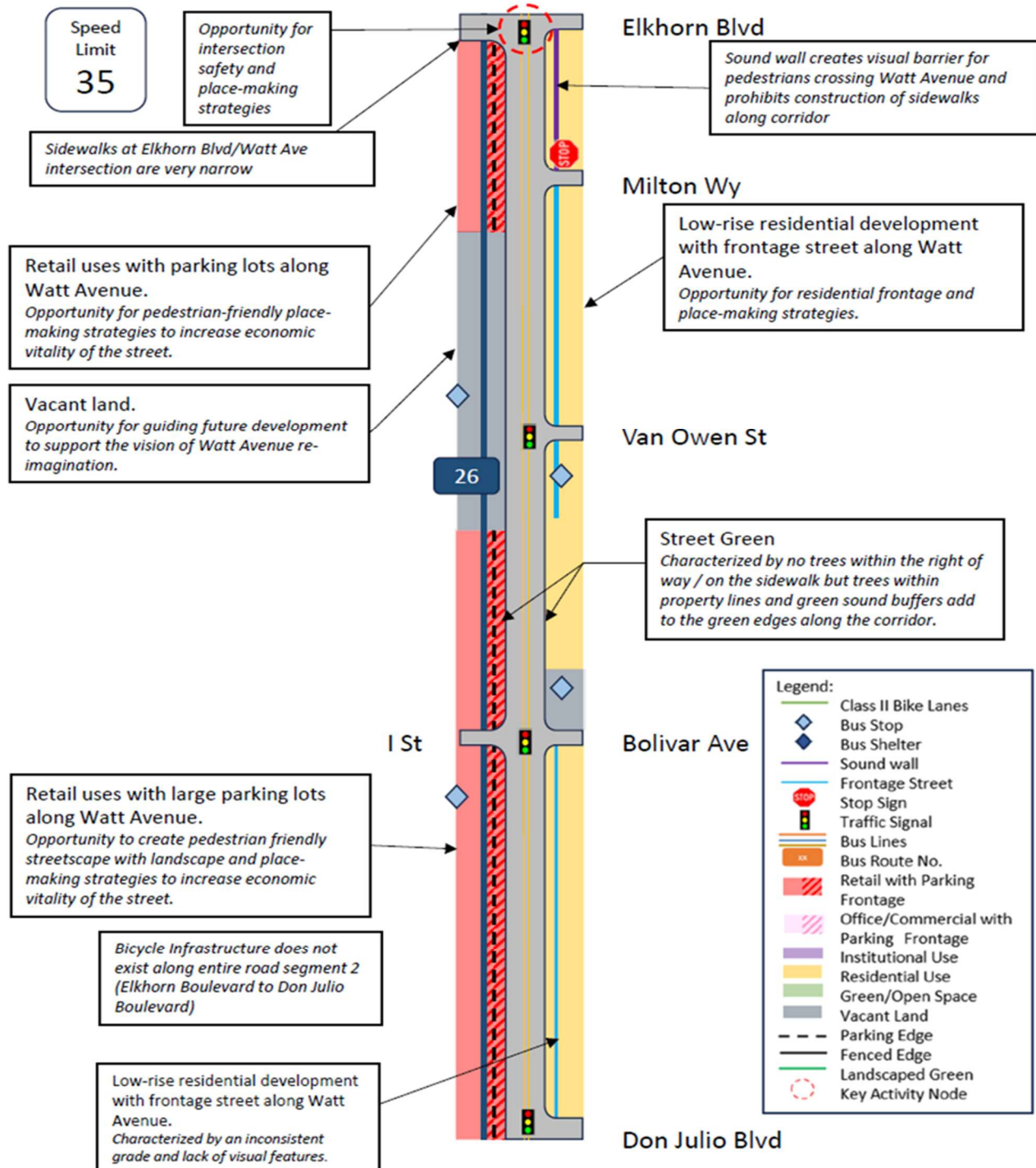


Figure 11: Road Segment 2 (Elkhorn Boulevard to Don Julio Boulevard)

Existing Conditions - Road Segment 3: Don Julio Boulevard to A Street

Characterized by retail uses with parking lot frontage along Watt Avenue on the west and mixed land uses and activity nodes on the east side of Watt Avenue

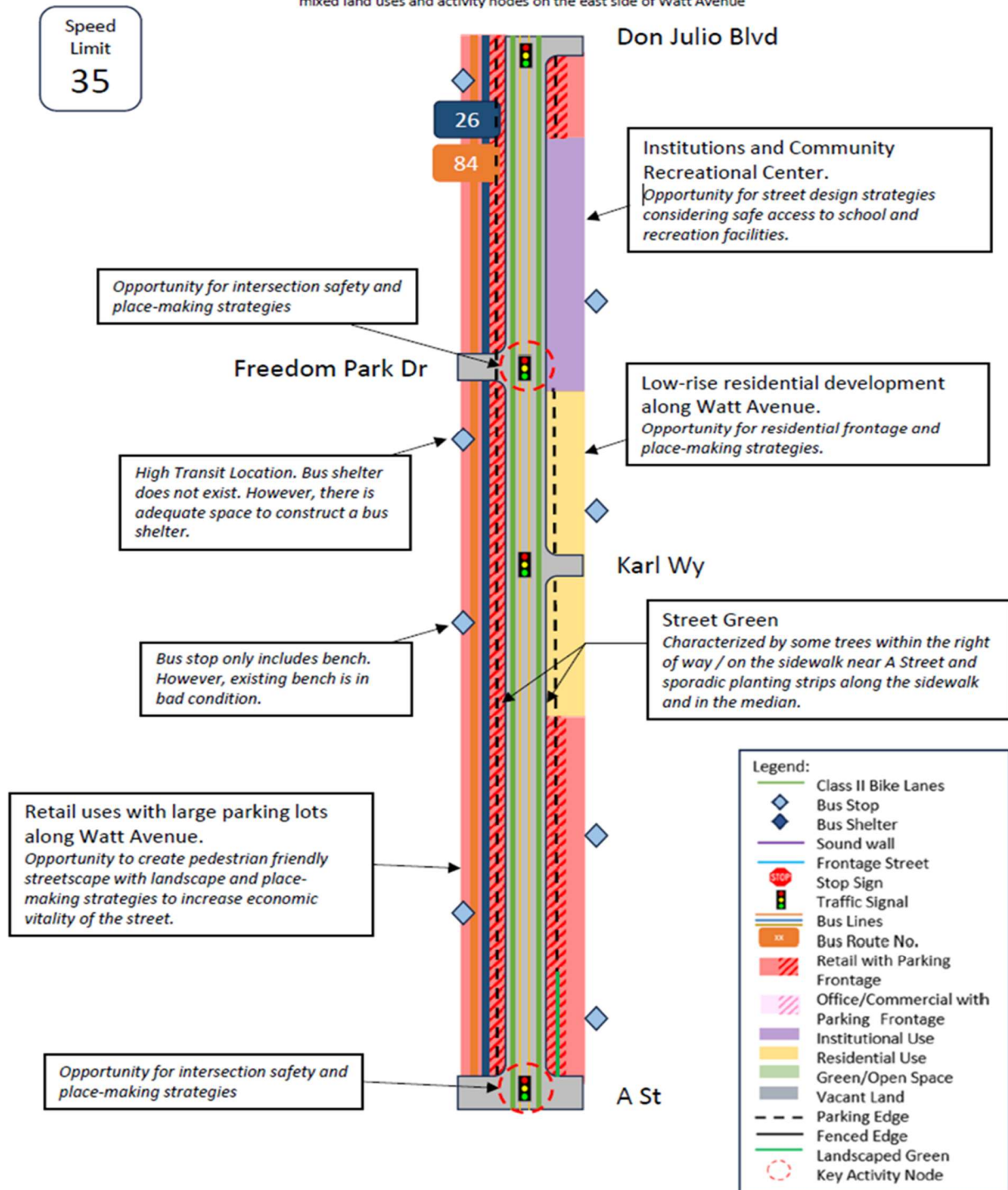


Figure 12: Road Segment 3 (Don Julio Boulevard to A Street)

Existing Conditions - Road Segment 4: A Street to Peacekeeper Way

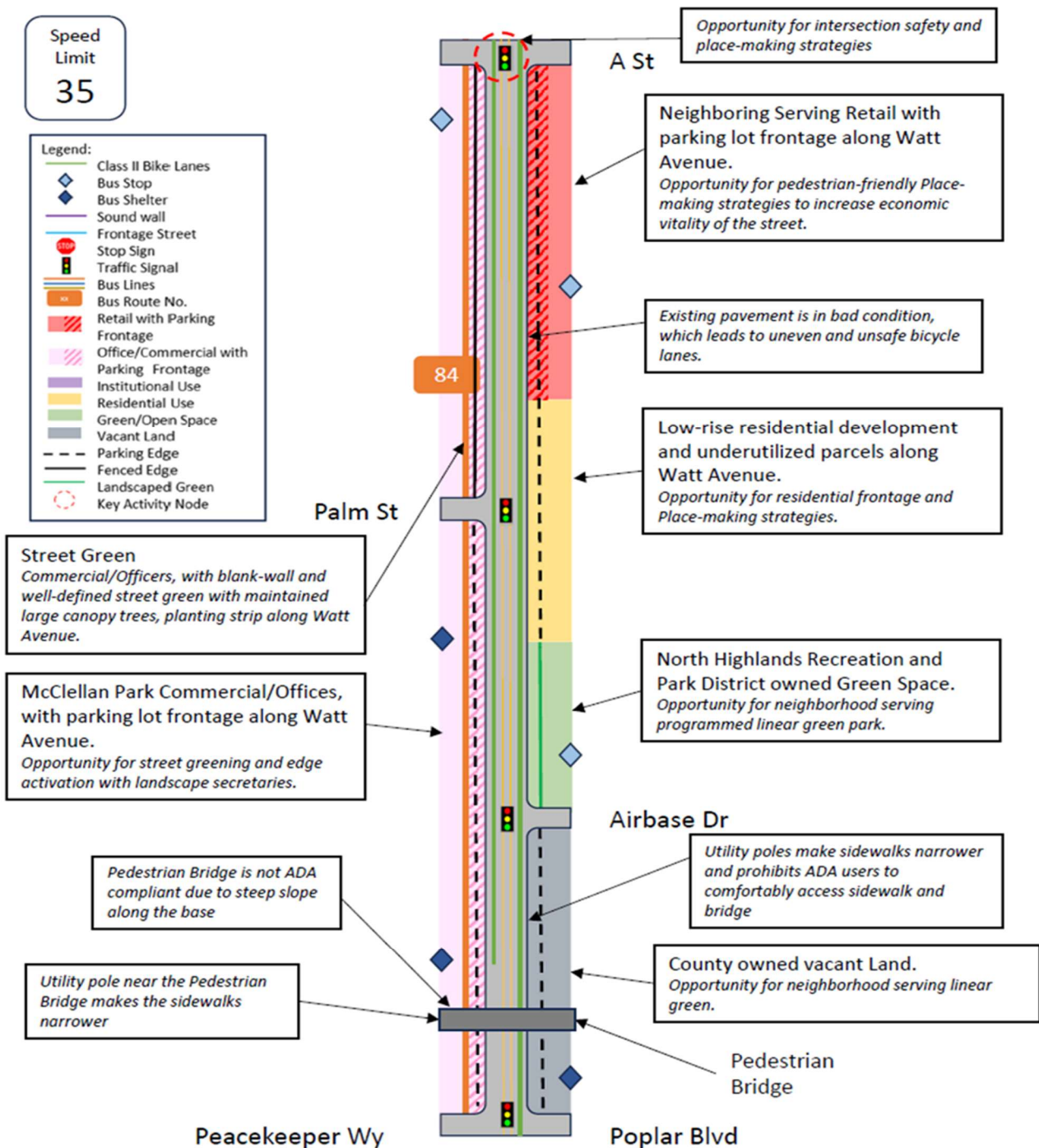


Figure 13: Road Segment 4 (A Street to Peacekeeper Way)

Table 11: Existing Characteristics of Corridor Segments

Characteristic	Corridor Segment 1	Corridor Segment 2	Corridor Segment 3	Corridor Segment 4
Boundaries	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Don Julio Boulevard	Don Julio Boulevard to A Street	A Street to Peacekeeper Way
Length (Approx)	0.96 miles	0.81 miles	0.72 miles	0.53 miles
Number of Lanes	4	4	4 to 6	4
Posted Speed Limit	45 mph	35 mph	35 mph (25 mph within school zone)	35 mph
Adjacent Land Uses	NB: Residential SB: Commercial	NB: Residential SB: Commercial	NB: Residential, Commercial SB: Commercial, Industrial	NB: Residential, Commercial SB: Commercial, Government
Notable Locations	Shopping Plaza (South of U Street)	Family Community Church, USPS, Second Slavic Baptist Church	Watt & Freedom Park Center	Citizens Corps/CERT, ARC Community College
Major Cross Streets within Road Segment	Antelope Road Larchmont Drive Bainbridge Drive Turner Drive Elkhorn Boulevard	Milton Way Van Owen Street Bolivar Avenue Don Julio Boulevard	Freedom Park Drive Karl Way A Street	Palm Street Airbase Drive Peacekeeper Way
Median Types	Raised/concrete with minor landscaping	Raised/concrete with minor landscaping, striped/painted	Raised/concrete with minor landscaping, striped/painted	Raised/concrete with landscaping, striped/painted
Existing Bicycle Facilities	Class II- Bike lanes (with exception of section north of Elkhorn Boulevard in SB direction)	None	Class II - Bike lanes	Class II - Bike lanes (with exception of section north of Peacekeeper Way in SB direction)
Condition of Pedestrian Facilities	Sidewalks are in good condition but lack buffers from traveling lanes	Sidewalks are in good condition but lack buffers from traveling lanes	Sidewalks are in good condition but lack buffers from traveling lanes	Pedestrian bridge not ADA compliant Existing utility poles restrict width of existing sidewalk

Characteristic	Corridor Segment 1	Corridor Segment 2	Corridor Segment 3	Corridor Segment 4
Bus Shelter Locations	None	None	None	(Routes 84, 93) North of Pedestrian Bridge (SB) (Routes 84, 93) South of Pedestrian Bridge (NB) (Route 84) South of Watt Avenue / Palm Street (SB)

Source: DKS Associates, WRT, 2025

Demographics

The North Watt Avenue corridor is located within the North Highlands / Foothill Farms community. As written in the Environmental Justice Element, the total population within the North Highlands / Foothill Farms community was approximately 10,576 persons. According to the U.S. 2010 Census, of the 10,576 persons, 25 percent were 19 years old and below, 55 percent were between the ages of 20 and 59 years old, and 20 percent were 60 years old and above. Similarly, the U.S. 2021 Census maintained a similar breakdown of the population regarding age.

Regarding the baseline conditions of the North Highlands/Foothill Farms community, as of 2017, only 63 percent of households were within ½ mile of a grocery store. The rate of asthma emergency visits within the community are among the worst in the state of California and could be due to their proximity to high volume roadways. The community does not have robust tree canopies, making residents more susceptible to getting heat stroke or exhaustion during a heat wave. Additionally, according to the Climate and Economic Justice Screening Tool, the North Watt Avenue corridor is located within disadvantaged communities that are above the 65th percentile of low income, asthma, housing, poverty, and pollution. According to the American Community Survey 5-Year Estimates, the North Highlands community median household income was \$62,156, whereas the median household income in Sacramento County was \$84,010¹³, and the North Highlands area has a larger percent of people experiencing poverty at approximately 20%¹⁴. The North Highlands community is predominately white (57.6%) and Hispanic or Latino (13.6%).

Existing Land Use

In order to summarize model land uses in the vicinity of the plan corridor, land uses assumed in traffic analysis zones (TAZs) directly adjacent to the corridor have been summarized and compared between the existing and future model scenarios. In total, the plan area consists of a portion of 11 TAZs, 6 of which are on the west side of Watt Avenue, 4 of which are on the east side of Watt Avenue,

¹³ <https://www.census.gov/quickfacts/fact/table/sacramentocountycalifornia/PST045223>

¹⁴ <https://www.census.gov/quickfacts/fact/table/northhighlandscdpcalifornia/PST045222>

and 1 of which straddles Watt Avenue with most of it on the east side and a smaller portion of it on the west side of Watt Avenue.

Table 12 shows the land uses assumed in SACOG's SACSIM19 existing (2016) models for TAZs in the plan area and displayed in the figure above. As stated previously, SACOG's 2040 and Sacramento County's super-cumulative land use are identical in the study area. The table shows that households in the plan area TAZs increase by 46% and total employment increases by 28.6% between 2016 and 2040/ super-cumulative models. Of this growth, over 75% of the households and employment are west of Watt Avenue.

Table 12: Travel Demand Model Land Use by TAZ

TAZ	Side of Watt Avenue	Existing (2016) Model Land Use	
		Total Households	Total Employment
314	West	-	1,548
316		45	806
318		124	622
320		116	663
330		-	1,688
1513		173	2,513
319	West/East	1,587	733
315	East	2,023	166
317		1,343	189
321		2,653	399
331		114	417
Total		8,178	9,744

Source: DKS Associates, 2025

In addition to summarizing TAZs as a whole for the plan area, the fact that the travel demand model land use inputs consist of individual parcels, households, and people allows the summarization of model data by district, as identified in the 2012 North Watt Avenue Corridor Plan. **Figure 14** shows the land use plan and districts as identified in the 2012 plan.

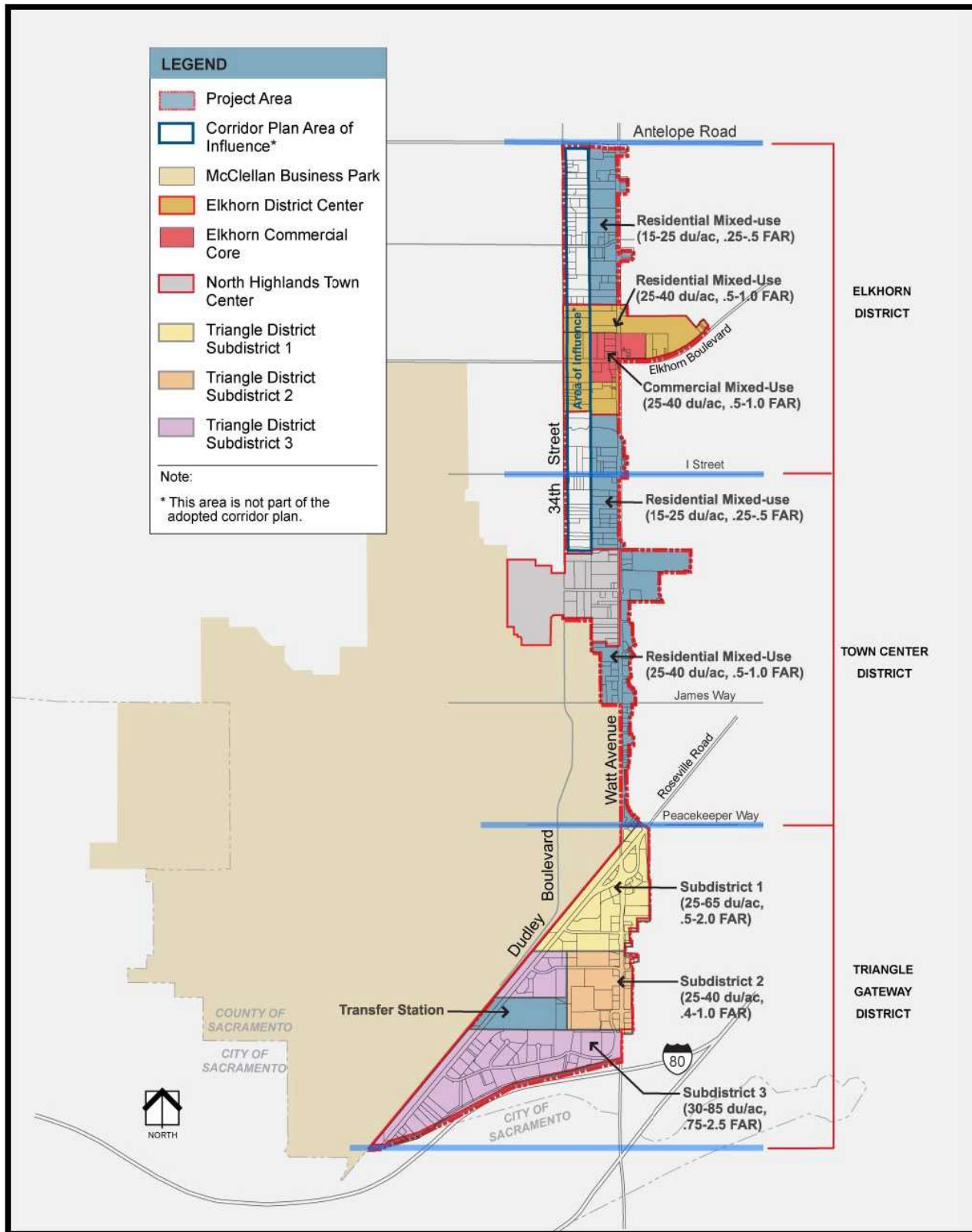


Figure 14: North Watt Avenue Corridor Plan Districts and Land Use

Existing Infrastructure by Mode

To better understand the challenges presented by this corridor, a site walk was performed by planning staff. As shown above in **Figure 10** through **Figure 13**, concerns and opportunities related to multimodal accessibility, consistency, and safety were identified for each of the following modes:

Pedestrian

There are several gaps in sidewalks along the corridor, requiring pedestrians to walk in adjacent parking lots or along the shoulder, increasing their exposure to oncoming traffic. Additionally, in some locations where sidewalks do exist, utility poles and other fixed objects reduce the available usable sidewalk width, inconsistent with current standards. The pedestrian bridge, located north of the Watt Avenue / Peacekeeper Way intersection, does not meet accessibility requirements due to the grade of the ramp on either side, creating an inaccessible environment for those with reduced mobility.

Bicycle

The bicycle infrastructure is inconsistent along the corridor. For instance, at the Watt Avenue / Elkhorn intersection, bike lanes are present on the north leg, but not the south leg. The same issue may be observed to the east and west legs at the intersection. Additionally, wherever bicycle lanes exist, there are no buffers between the closest travel lane and the bike lane, causing a high stress environment. In several segments where bicycle lanes are provided, the lane straddles the curb/gutter and paved asphalt, providing an inconsistent and non-level surface to bike on.

Transit

There are minimal bus stop amenities provided along the corridor, despite the high number of routes and volume of transit users. Bus stops are often denoted with only a sign, even at the highest volume stops along the corridor, lacking shade, shelter, seating, lighting, informational transit route maps, and waste receptacles.

Vehicle

Based on the gaps and inconsistencies in infrastructure for both transit and active transportation, the plan corridor can currently be described as an automobile-centric corridor with roadways that cater primarily to cars and trucks. Pavement quality along much of Watt Avenue in Sacramento County is degraded enough to result in decreased comfort for vehicles along the roadway.

Existing Traffic Volumes

Sacramento County provided existing traffic volume counts (February of 2019 and May of 2022) at several intersections and new traffic counts (AM and PM peak hour turning movements) were collected for the remaining intersections in May of 2023. **Figure 15** shows the existing turning movement counts at study intersections, as well as daily (24-hour) roadway segment counts at three locations along Watt Avenue. The traffic counts can be found in **Appendix G**.

Study Intersection (this page) AM (PM) Peak Hour Traffic Volumes 00,000 Average Daily Traffic (ADT)
 # Study Intersection (next page) Left • Thru • Right Volume Turn Movement * ADT Extent

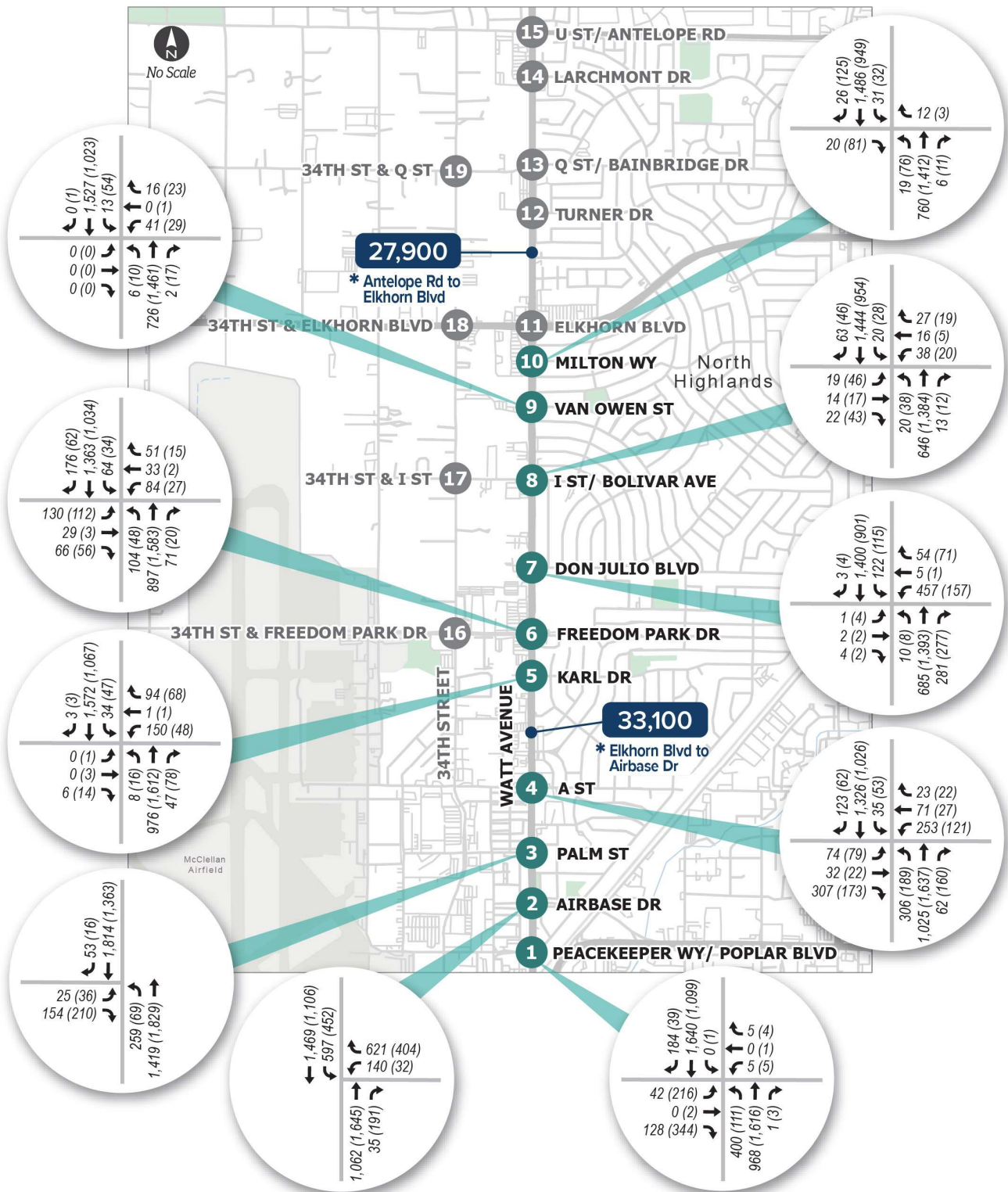


Figure 15: Existing Corridor Traffic Volumes

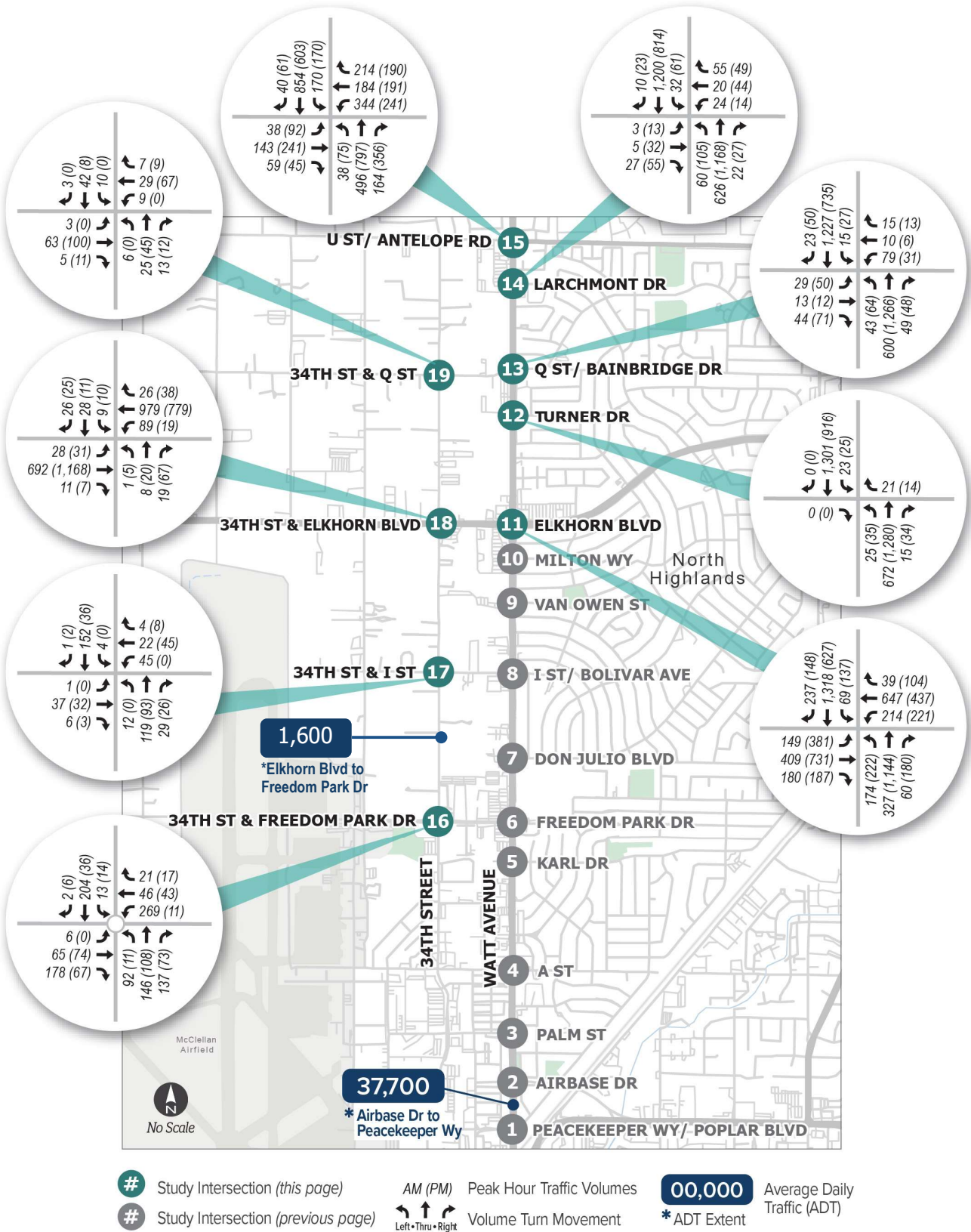


Figure 15: Existing Corridor Traffic Volumes (continued)

Performance Measures

Safety Analysis

A safety analysis was performed using crash data from the Sacramento County Crossroads database within a five-year period (2018-2022). The data consisted of all crashes on or approaching North Watt Avenue between Peacekeeper Way and Antelope Boulevard. Collision data for this analysis can be found in **Appendix H**.

Corridor Summary

The number of crashes by year and severity are summarized in **Table 13**. During this period, the corridor experienced 661 crashes, with 26 crashes resulting in fatalities or serious injuries (KSI). All of the years showed consistent numbers of total crashes and KSI except for 2019, which had approximately 20% to 25% more crashes occur.

Table 13: Crashes by Year and Severity

Severity	2018	2019	2020	2021	2022	Total
Fatal Injury	1	0	1	0	2	4
Severe Injury	2	6	5	5	4	22
Minor Injury	7	13	18	17	12	67
Possible Injury	39	33	23	23	31	149
Property Damage Only	78	99	84	86	72	419
Total	127	151	131	131	121	661

Source: DKS Associates, 2025

Along the corridor, there were 17 pedestrian-involved crashes and 22 bicycle-involved crashes, each representing approximately 3% of total crashes. Ten of the pedestrian-involved crashes and one of the bicycle-involved crashes resulted in a KSI, representing over 40% of all KSIs.

The intersections with the highest number of crashes were Elkhorn Boulevard (19, 14%), Peacekeeper Way (57, 9%) and A Street (56, 8%). The intersection with the highest number of KSIs was Elkhorn Boulevard (3, 12%). Elkhorn was identified in the County's Local Roadway Safety Plan as a safety priority intersection.

Crash Type Summary

Figure 16 illustrates the distribution of crashes by type from 2018 to 2022. Of the 661 crashes, rear-end crashes were the most frequent, accounting for 282 (43%) of total crashes, with sideswipes (134, 20%) and broadsides (133, 20%) being the next most frequently occurring crashes. Pedestrian-involved crashes were the most frequently occurring KSIs, accounting for 10 (38%) of KSIs with rear-ends (5, 19%) and broadsides (4, 15%) being the next most frequently occurring KSIs.

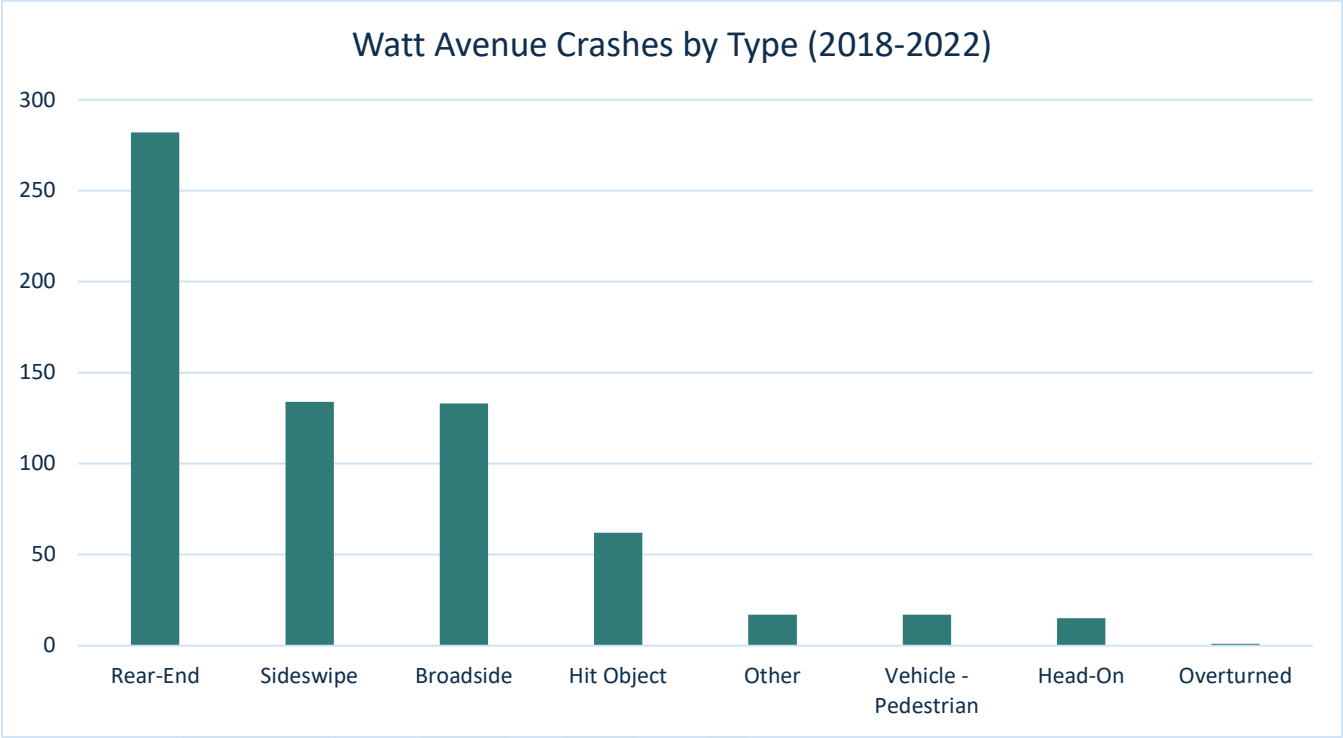


Figure 16: Crashes by Type

Primary Collision Factor Summary

Figure 17 illustrates crashes by primary collision factor as identified by the reporting officer. The primary collision factors most frequently occurring were unsafe speed (36%), unsafe lane changing (15%). Issues related to automobile right-of-way and traffic signals and signs were each related to 10% of crashes. Unsafe speed and pedestrian violations (crossing against a signal or at an unmarked crossing) were identified as the most frequent factors for KSIs, accounting for 6 (23%) each.

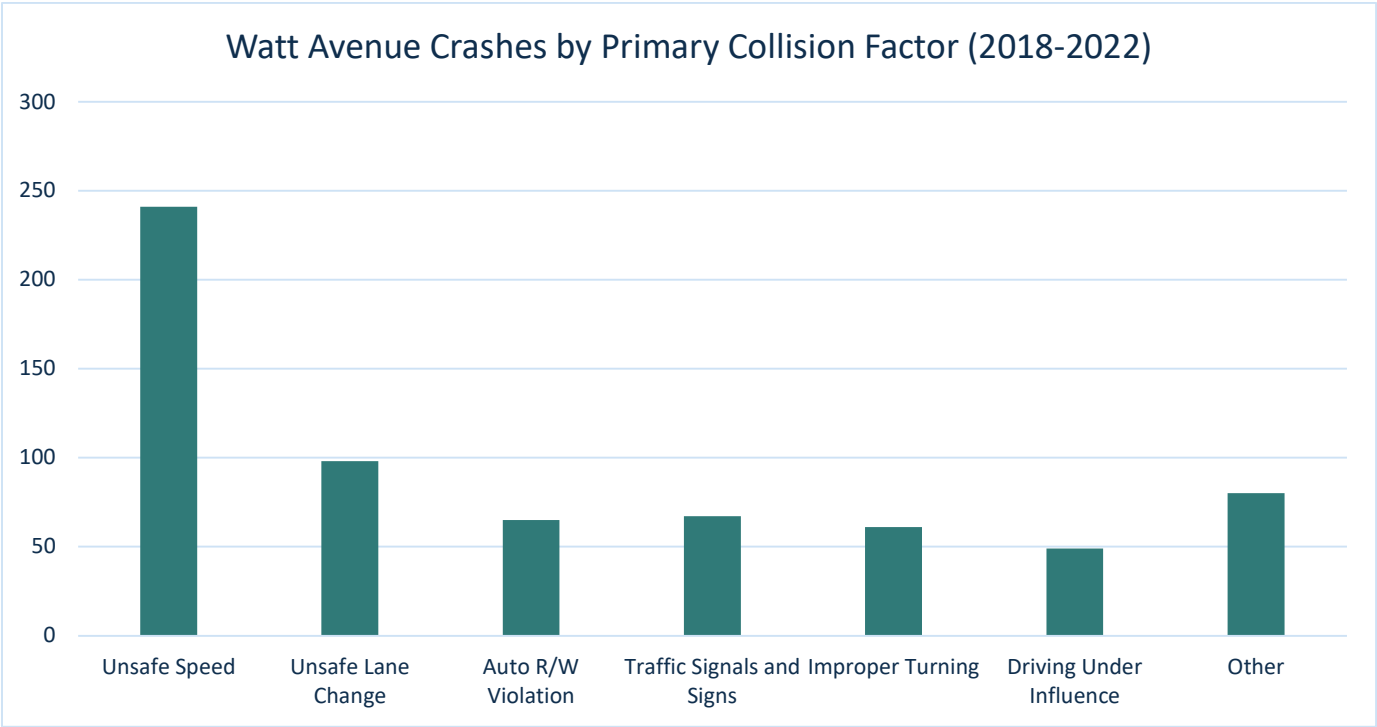


Figure 17: Crashes by Primary Collision Factor

Travel Time Reliability & Congestion

Travel time reliability and congestion were analyzed for autos and trucks during the AM peak hour (7:30-8:30am) and PM peak hour (4:00-5:00pm), shown in **Figure 18** and **Figure 19**. Throughout the corridor travel time is largely reliable but long segments of congestion occur consistently throughout AM and PM peak hour periods. Congestion primarily occurs south of Elkhorn Boulevard and north of I-80.

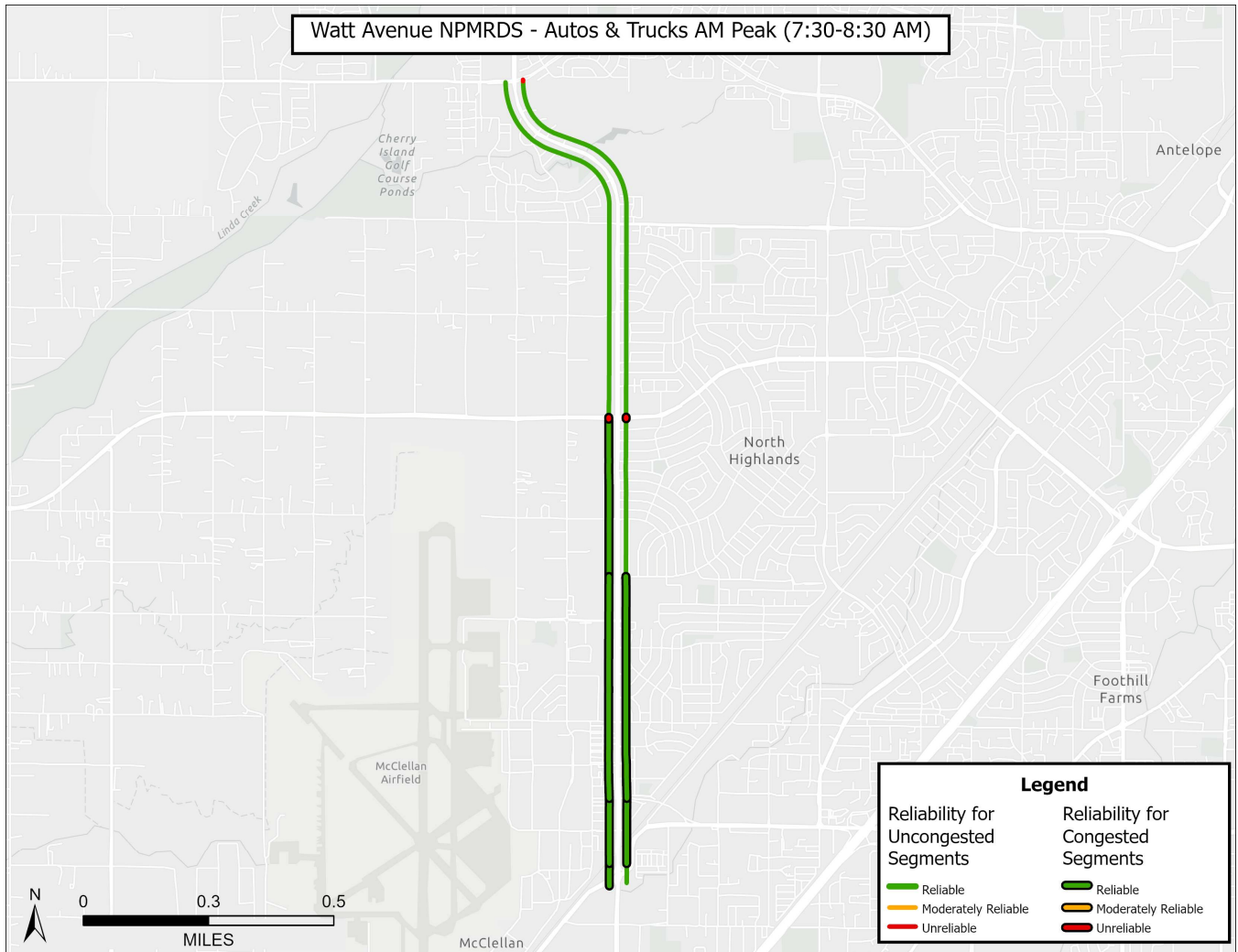


Figure 18: Travel Time Reliability – AM Peak Hour

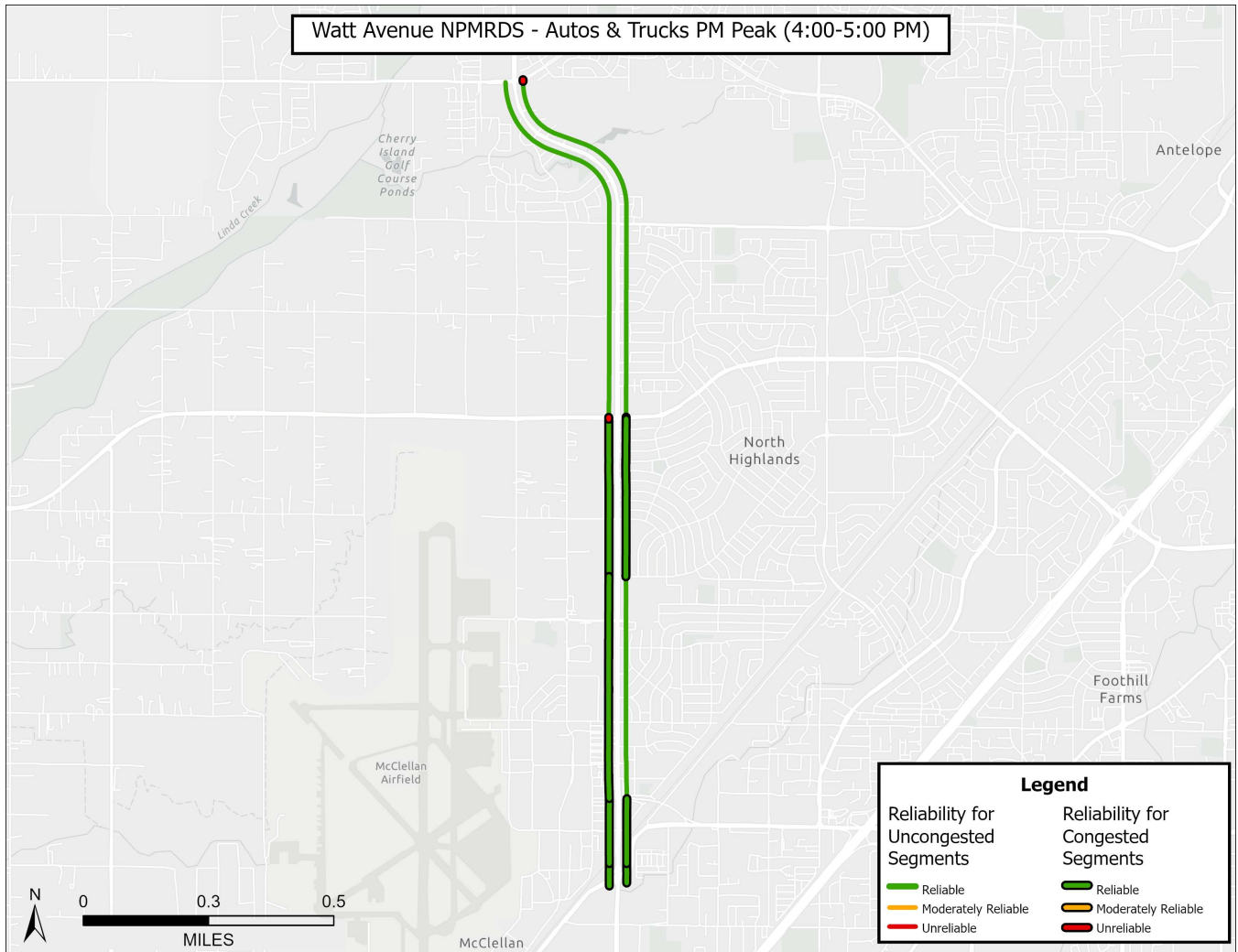


Figure 19: Travel Time Reliability – PM Peak Hour

Existing Road Segment Level of Service

Road segment level of service analysis indicates that all roadway segments are expected to operate acceptably at LOS C or better during existing conditions. **Table 14** summarizes the existing year roadway segment LOS.

Table 14: Existing Roadway Segment Level of Service

Roadway	Extent	Roadway Type/ Lanes	Existing Daily Traffic Volume	LOS
Watt Avenue	Peacekeeper Way to Airbase Drive	Arterial Moderate 6 Lanes	37,700	A
	Airbase Drive to Elkhorn Boulevard	Arterial Moderate 6 Lanes	33,100	A
	Elkhorn Boulevard to Antelope Road	Arterial Moderate 4 Lanes	27,900	B
34th Street	Elkhorn Boulevard to Freedom Park Drive	Residential Collector Without Frontage	1,600	A

Source: DKS Associates, 2025

Existing Intersection Level of Service

Table 15 summarizes the existing peak hour intersection operating conditions. Results indicate that all plan intersections operate at LOS C or better except for the Watt Avenue and Elkhorn Boulevard intersection, operates at LOS D during the PM Peak hour, and the 34th Street and Elkhorn Boulevard intersection, which operates at LOS F during both AM and PM peak hours exceeding the County's LOS E standard for urban intersections. Detailed output sheets supporting this analysis from the Synchro software can be found in **Appendix I**.

Table 15: Existing Intersection Operations Analysis

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Watt Avenue & Peacekeeper Way/Poplar Boulevard	14	B	20.4	C
2. Watt Avenue & Airbase Drive	24.5	C	23.5	C
3. Watt Avenue & Palm Street	21.7	C	8.6	A
4. Watt Avenue & A Street	31.9	C	29	C
5. Watt Avenue & Driveway/Karl Drive	13.3	B	13	B
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	26.9	C	31.9	C
7. Watt Avenue & Private Driveway/Don Julio Boulevard	27.2	C	28.4	C
8. Watt Avenue & I Street/Bolivar Avenue	13.7	B	18	B
9. Watt Avenue & Van Owen Street	5.2	A	6.2	A
10. Watt Avenue & Commercial Driveway/Milton Way	0.6 [17.9]	A [C]	1.2 [16.3]	A [C]
11. Watt Avenue & Elkhorn Boulevard	30.9	C	41.4	D
12. Watt Avenue & Commercial Driveway/Turner Drive	0.4 [10.8]	A [B]	0.4 [14.2]	A [B]
13. Watt Avenue & Q Street/Bainbridge Drive	15.9	B	24.2	C
14. Watt Avenue & Commercial Driveway/Larchmont Drive	13.4	B	27.7	C
15. Watt Avenue & U Street/Antelope Road	22.8	C	34.4	C
16. 34th Street & Freedom Park Drive	7.2	A	3.9	A
17. 34th Street & I Street	8.3	A	7.6	A
18. 34th Street & Elkhorn Boulevard	4.7 [108.5]	A [F]	4.9 [74.2]	A [F]
19. 34th Street & Q Street	7.5	A	7.6	A

Source: DKS Associates, 2025

For two-way-stop-controlled intersections, delay and LOS for the intersection average and for worst movement are reported: Average [Worst Movement]

Bold and shaded cells indicate intersections that exceed County LOS standards.

Existing Intersection Queuing

95th percentile queues were estimated for existing plan intersections and compared to available storage lengths.

Table 16 shows turning movements with peak hour 95th percentile queues that exceed available storage. Three intersections have 95th percentile queues that exceed existing storage for at least one turning movement in both AM and PM peak hours.

Table 16: Existing Intersection Queuing Analysis

INTERSECTION	TURNING MOVEMENT	AVAILABLE STORAGE LENGTH (FT)	95TH PERCENTILE QUEUE (FT)	
			AM PEAK HOUR	PM PEAK HOUR
4. Watt Avenue & A Street	WBL	100	205	150
	NBL	205	255	215
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	WBL	40	115	60
15. Watt Avenue & U Street/Antelope Road	WBL	210	380	265
	NBR	175	50	270
	SBL	190	155	195

Source: DKS Associates, 2025

Bold and shaded cells indicate 95th percentile queues exceed available storage.

Bicycle Level of Traffic Stress (BLTS)

The criteria and resulting BLTS along the corridor are summarized in **Table 17**. Based on these criteria, Watt Avenue between Peacekeeper Way and Don Julio Boulevard receives a BLTS score of 3, and Watt Avenue Between Don Julio Boulevard and Antelope Road receives a BLTS score of 4. Using the worst-case principle, the posted speed and presence/absence of bicycle lanes along the corridor govern the BLTS score along the corridor. Scores of 3 and 4 denote a high stress experience. The Bicycle LTS score along the study corridor is illustrated in **Figure 20**.

Table 17: Existing Roadway Characteristics and Bicycle Level of Traffic Stress

Study Corridor Segment	Posted Speed (MPH)	Parking Lane	Bike Lane	Travel Lanes ^a	BLTS
Peacekeeper Way to Don Julio Boulevard	35	No	Yes	6	3
Don Julio Boulevard to Van Owen Street	35	No	No	4	4
Van Owen Street to Elkhorn Boulevard	35	No	No	6	4
Elkhorn Boulevard to Antelope Road	45	No	Yes	4	4

Source: DKS Associates, 2025

^aTravel lanes do not include parking lanes or turning lanes

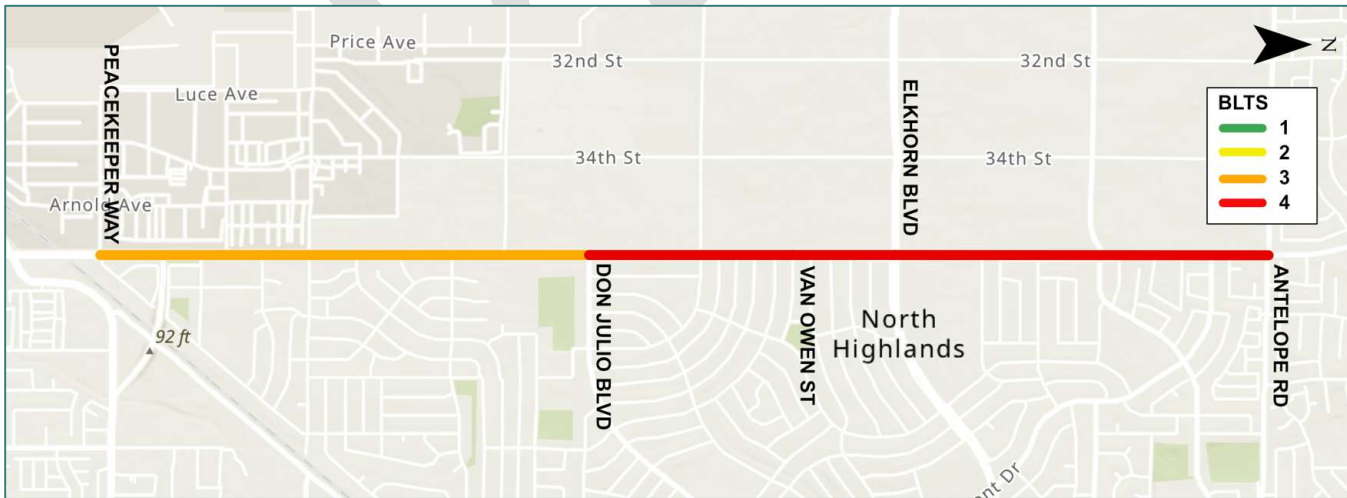


Figure 20: Existing Bicycle Level of Traffic Stress Along Study Corridor

Pedestrian Level of Traffic Stress (PLTS)

The criteria and resulting PLTS along the corridor are summarized in **Table 18**. Based on these criteria, Watt Avenue between Antelope Road and Elkhorn Boulevard receives a PLTS score of 4, and Watt Avenue Between Elkhorn Boulevard and Peacekeeper Way receives a PLTS score of 2. Using the worst-case principle, the posted speed, lack of buffer, along the corridor govern the BLTS score along the corridor. Scores of 3 and 4 denote a high stress experience. The Bicycle LTS score along the study corridor is illustrated in **Figure 21**.

Table 18: Existing Roadway Characteristics and Pedestrian Level of Traffic Stress

	PEACEKEEPER WAY TO DON JULIO BOULEVARD	DON JULIO BOULEVARD TO VAN OWEN STREET	VAN OWEN STREET TO ELKHORN BOULEVARD	ELKHORN BOULEVARD TO ANTELOPE ROAD
STREET WIDTH (THROUGH LANES PER DIRECTION)	3	2	3	2
BUFFER TYPE	Bike Lane	None	None	Bike Lane
TOTAL BUFFER WIDTH (FT)	5	0	0	5
SIDEWALK WIDTH (FT)	5	5	5	5
SPEED LIMIT OR PREVAILING SPEED (MPH)	35	35	35	45
PLTS SCORE	4	4	4	3

Source: DKS Associates, 2025

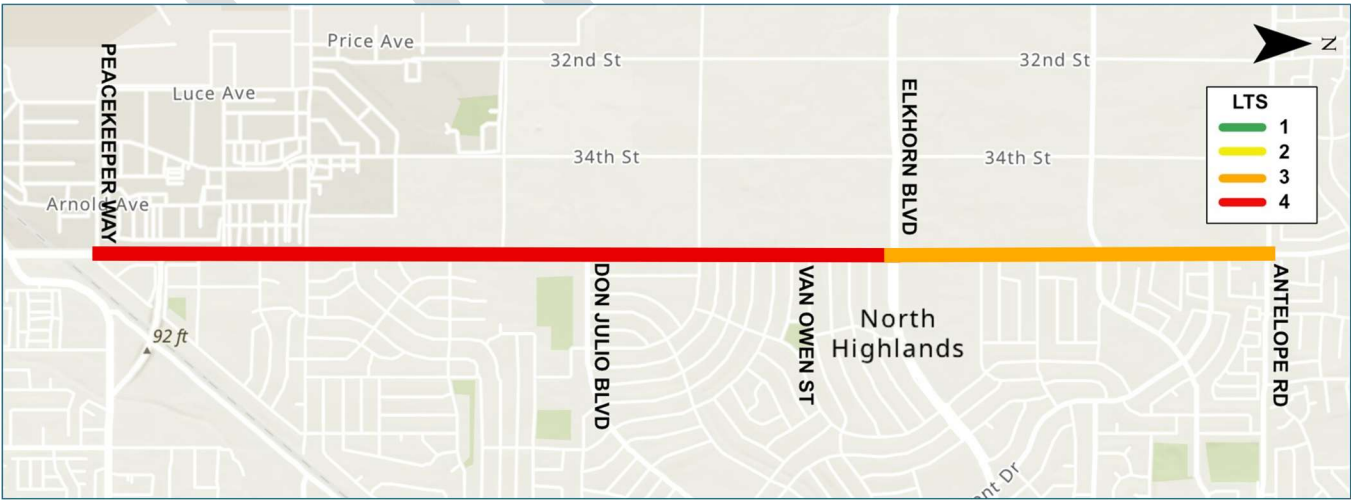


Figure 21: Existing Pedestrian Level of Traffic Stress Along Study Corridor

Alternatives Development

This section describes the process that was used to develop plan alternatives. This process included collaboration with the local community, public stakeholders, and County Staff. The ultimate result of this work was the development of two corridor alternatives for adoption consideration which were further refined and studied.

Alternatives Development Toolbox

Infrastructure Toolbox

A range of multimodal strategies were identified to help improve multimodal accessibility, connectivity, and safety along the North Watt Avenue plan corridor. **Table 19** summarizes the identified multimodal strategies and detailed descriptions of each strategy are presented following the table. Where applicable, benefit-cost summaries are provided for each strategy. The multimodal accessible corridor strategy is shown in **Figure 22**. **Figure 23** illustrates multimodal strategy examples are listed below:

1. Bus stops design and placement;
2. Bus stops and bus-bay interface;
3. Protected bikeways;
4. High-visibility crosswalk;
5. Compact intersections for safer walkability;
6. Street furniture-bicycle stand.

A full description of all tools, along with graphic examples is provided in **Appendix J**.

Table 19: Multimodal Strategies for North Watt Avenue Corridor

Pedestrian Strategies	Bicycle Strategies	Transit Strategies	Motor Vehicle Strategies
Driveway Consolidation		Dedicated Bus Lanes	TWLTL
Widen Sidewalks	Class II Buffered Bike Lanes	Buss Pullouts	Stacking Lane
Leading Pedestrian Interval	Class IV Bike Lanes	Bus Amenities/Bus Stops	Turn Lanes
Universal Design and Accessibility	Bike Boxes	TSP	Lane Widening
Underground Utilities	-	Queue Jumps	Speed Survey
Bus Stop Design and Floating Bus Stops			Retro-Reflective Back Plates

Pedestrian Strategies	Bicycle Strategies	Transit Strategies	Motor Vehicle Strategies
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ROW Acquisition

Reduce Setback (Land Use)/ROW

Street Greening

Source: DKS Associates, 2025

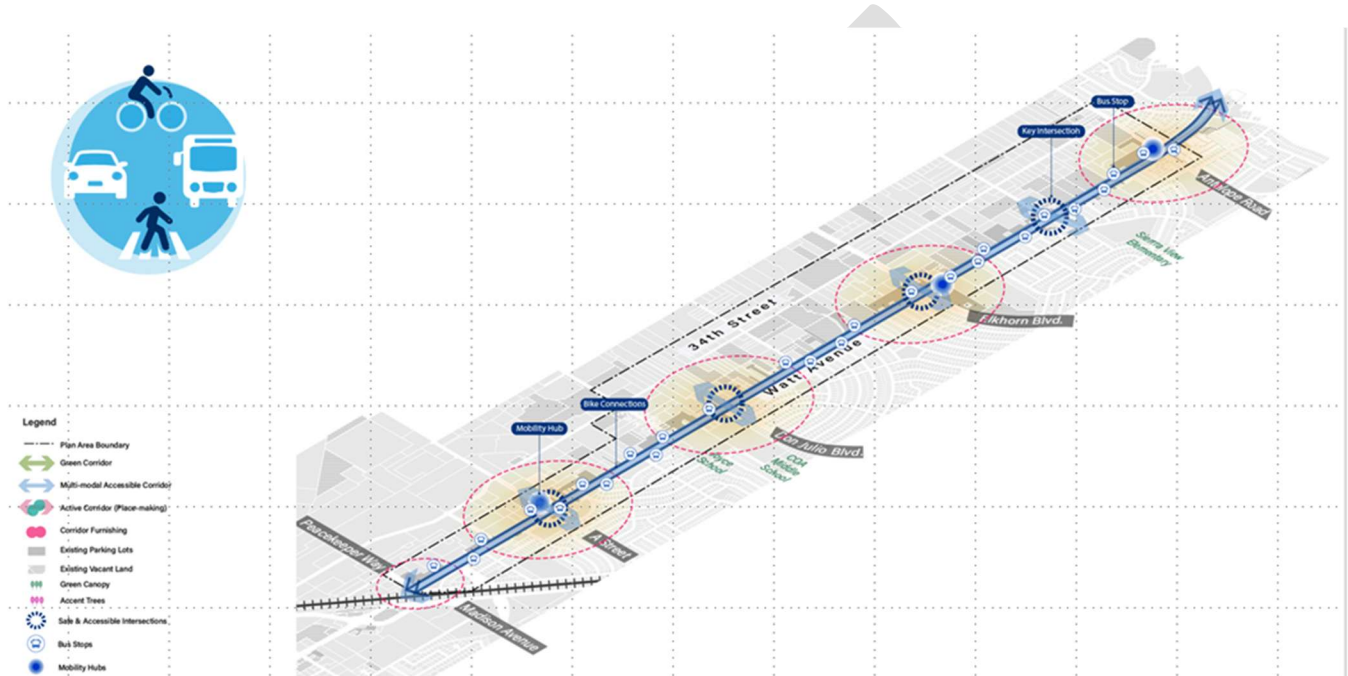


Figure 22. Multimodal Accessible Corridor Strategy



Figure 23. Multimodal Strategy Examples

Placemaking Toolbox

Placemaking in street design refers to the process of creating active and vibrant, people-centered public spaces that promote social interaction, connectivity, and economic activity; by prioritizing human-scale design to transform streets into lively, safe, and functional public spaces. It involves designing streets not just as transportation corridors but as social and cultural hubs that prioritize all modes of mobility such as pedestrians, cyclists, transit and also public life. Key design elements include widened sidewalks, street furniture, landscaping, lighting, and public art to foster a sense of place and identity. Effective placemaking integrates local character, sustainability, and accessibility to create inclusive and enjoyable urban environments.

The placemaking toolbox aims to create a distinct identity for North Watt Avenue as a multi-modal green corridor with a strong sense of character, and an improved experience for enhanced walkability (**Table 20**). Streetscape elements illustrated in this chapter suggest strategies to advance the greater vision for North-Watt Avenue as a safe and comfortable multi-modal street. The illustrations demonstrate how streetscape elements could be incorporated into the corridor design implementation.

- Corridor Greening includes strategies for drought-tolerant street landscaping, increased tree cover, and storm water management to mitigate urban heat island effect and other climate impacts and create a more inviting environment.
- Corridor activation emphasizes creation of dynamic public spaces through curb-side installations, public art, identity features and amenities that foster social interaction and economic vitality.

Table 20. Placemaking Toolbox for North Watt Avenue Corridor

CORRIDOR GREENING		CORRIDOR ACTIVATION	
Street Planting		Gateway Features	
Reduces urban heat island effect by providing shade and creates a comfortable street environment		Defines corridor identity through strategic interventions	
Planted Median		Identity Markers	
Expands tree canopy and enhances corridor identity		Includes recurring features such as streetlights with banners, wayfinding signage, etc. to strengthen corridor character and sense of place	
Green Walls		Public Art	
Provides an aesthetic treatment to concrete sound walls and vertical surfaces		Enhances corridor identity and community engagement	
Storm Water Management		Outdoor Seating and Curbside Activation	
Improves resilience through green infrastructure		Creates vibrant and engaging streetscapes	

Source: WRT, 2025.

Corridor Greening Strategies

This section summarizes the corridor greening strategies as identified in the placemaking toolbox. **Figure 24** illustrates points along the North Watt Avenue corridor where corridor greening strategies can be implemented.

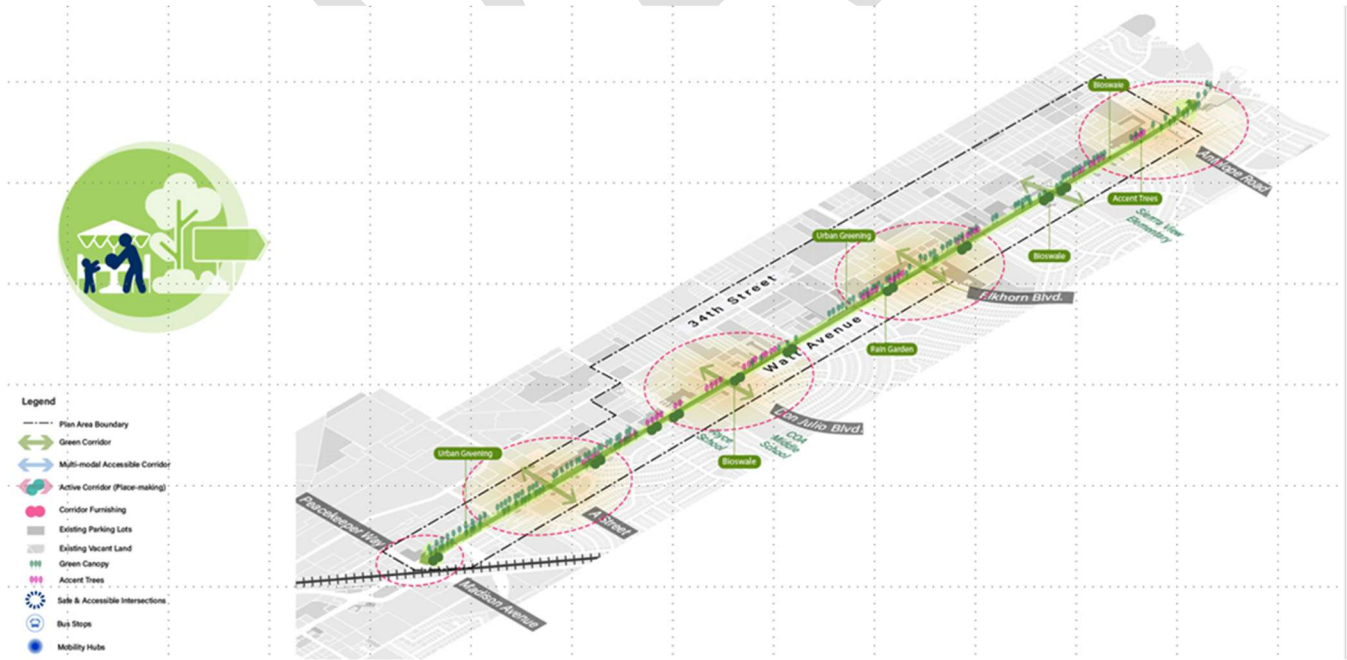


Figure 24. Green Corridor Strategies

Street Planting

The Sacramento region experiences extreme heat in summer months that creates an urban heat island (UHI) effect. Extensive paved surfaces and limited tree canopy contribute to higher temperatures, especially in heavily built-up areas like the North Watt Corridor. This phenomenon not only intensifies heat-related discomfort but also exacerbates energy consumption and air pollution. To mitigate these challenges, urban greening strategies focused on planting native tree species can play a transformative role.

Introducing a diverse palette of drought-resistant, native trees along the North Watt Corridor can create a shaded, comfortable environment for pedestrians, cyclists, and transit users. These trees will provide natural cooling, reduce surface temperatures, and improve air quality, making the street more livable and resilient to extreme heat. Additionally, a well-planned urban canopy enhances the corridor's aesthetic appeal, reinforcing a green identity for the street while promoting environmental sustainability.

By integrating urban greening with Sacramento's broader climate adaptation strategies, the North Watt Corridor can evolve into a more inviting, functional, and climate-resilient public space and contribute to the greater open space network.

Planted Median

Medians offer a valuable opportunity for integrating accent trees that enhance the visual identity and character of a corridor. Strategically planting distinctive tree species along medians can create a cohesive streetscape, providing a strong sense of place and reinforcing the corridor's aesthetic appeal. By selecting trees with striking seasonal colors, unique forms, or flowering canopies, the median planting can serve as a natural landmark, guiding movement and improving wayfinding.

Beyond aesthetics, median trees contribute to environmental benefits such as reducing heat buildup, filtering air pollutants, and providing a buffer between travel lanes. Drought-tolerant and native species should be prioritized to ensure sustainability while maintaining a low-maintenance, high-impact design. When combined with complementary landscape elements such as understory plantings and enhanced lighting, median accent trees can transform a corridor into a more inviting, recognizable, and climate-resilient urban space.

Green Walls

Green walls, or vertical gardens, are an innovative urban greening strategy that enhances the visual identity, environmental quality, and comfort of streetscapes. By incorporating vegetation on building facades, retaining walls, or freestanding structures, green walls help soften the built environment, creating a more inviting and aesthetically pleasing corridor. These living walls can be designed with native and drought-tolerant plant species to ensure sustainability while adding seasonal color and texture to the streetscape.

Storm Water Management

Effective stormwater management is crucial for creating resilient and sustainable urban environments. By integrating green infrastructure strategies such as bioswales, permeable pavements, rain gardens, and tree trenches, stormwater can be naturally absorbed, filtered, and redirected to reduce strain on conventional drainage networks.

Extended sidewalks and bulb-outs allow opportunities to incorporate stormwater management into the streetscape design. Creating resilient landscapes along the corridor fosters a richer ecology and emphasizes this streetscape as part of an ecological infrastructure. Incorporating stormwater retention and filtration systems along key corridors ensures a more climate-adaptive approach, mitigating the impacts of heavy rainfall while supporting long-term ecological health.

Examples of green corridor strategies are shown in **Figure 25** and listed below:

1. Green canopy and seating along the sidewalk;
2. Sidewalks with landscape buffers/planter strips;
3. Stormwater management-rain garden;
4. Green walls;
5. Median planter with green infrastructure.



Figure 25. Green Corridor Strategy Examples

Corridor Activation

This section summarizes the corridor activation strategies as identified in the placemaking toolbox. **Figure 26** illustrates points along the North Watt Avenue corridor where corridor activation strategies can be implemented.

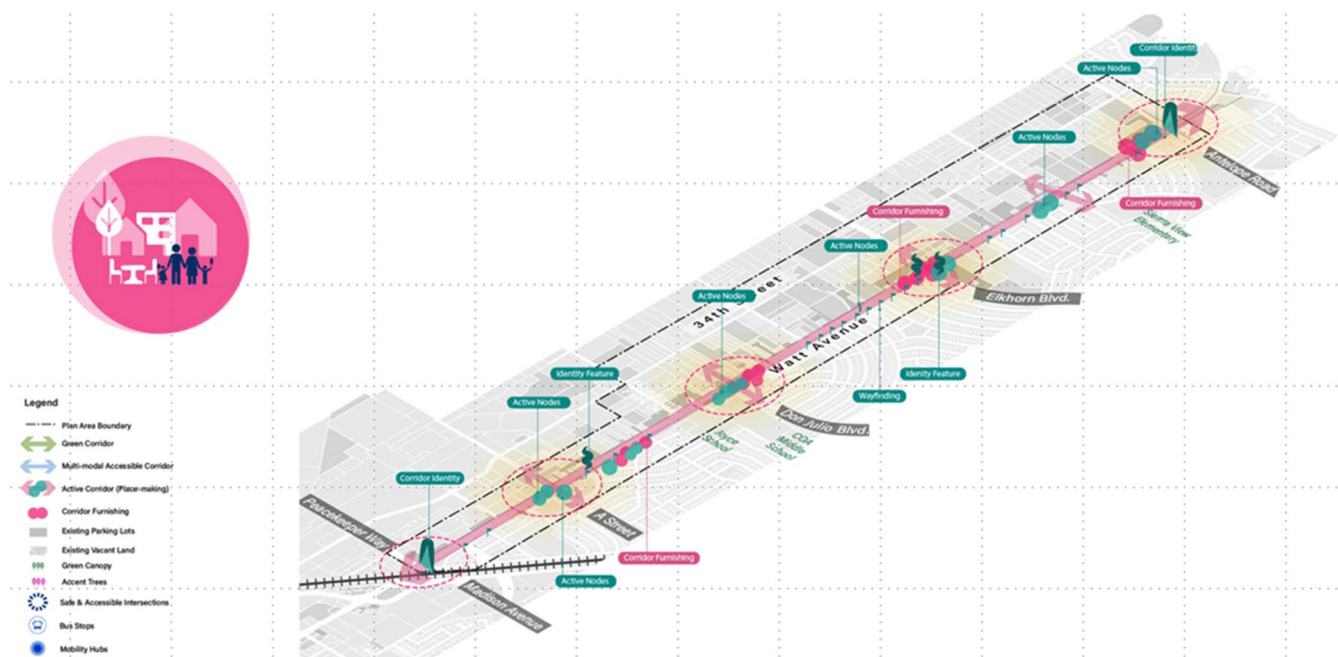


Figure 26. Corridor Activation Strategy

Gateway Features

Introducing gateway elements at key points along a corridor can significantly enhance its identity, creating a sense of arrival and reinforcing the character of the street. These elements serve as visual markers that distinguish the corridor, making it more recognizable and inviting for pedestrians, cyclists, and drivers alike.

Gateway features can include bold pedestrian and vehicular signage, patterned or colored crosswalks, sculptural installations, and distinctive planting schemes. Integrating unique street furnishings and lighting further strengthens the corridor's aesthetic appeal, fostering a cohesive and memorable streetscape. By combining functional and artistic design elements, gateway interventions create a lasting impression, making the corridor more engaging, navigable, and reflective of the community's identity.

Identity Markers

Identity markers are key design elements that help establish a corridor's unique character, reinforcing a sense of place and community identity. These markers can take various forms, including custom signage, thematic street furniture, and distinctive lighting features. Strategically placed along the corridor, they create visual continuity and provide wayfinding cues, making the street more engaging and navigable.

Incorporating locally inspired motifs, materials, and cultural references into identity markers enhances their relevance and connection to the community. Planting signature trees or using distinctive landscape elements can further reinforce the corridor's theme while contributing to environmental sustainability. By integrating these elements cohesively, identity markers help transform the corridor into a recognizable and memorable urban space.

Public Art

Public art plays a vital role in transforming streetscapes into dynamic and culturally rich environments. By integrating murals, sculptures, interactive installations, and artistic paving into the corridor, public art creates a sense of place and strengthens community identity. These artistic interventions can reflect local history, culture, and values, making the corridor more engaging and meaningful for residents and visitors.

Beyond aesthetics, public art fosters social interaction, promotes walkability, and enhances the overall experience of the streetscape. When strategically placed at key nodes, intersections, and gateways, it serves as a visual anchor, guiding movement and reinforcing the corridor's unique character. By collaborating with local artists and communities, public art initiatives can turn the street into an open-air gallery, celebrating creativity while contributing to an inclusive and vibrant urban environment.

Outdoor Seating and Curbside Activation

Outdoor seating and curbside activation play a crucial role in transforming streets into lively, people-oriented spaces. By integrating well-designed seating areas, parklets, and sidewalk cafés, streetscapes can become more inviting, fostering social interaction and supporting local businesses. Comfortable and strategically placed seating encourages pedestrians to linger, enhancing the vibrancy and walkability of the corridor.

Curbside activation strategies, such as temporary or permanent dining areas, pop-up retail spaces, and interactive public spaces, help maximize the use of sidewalks and underutilized street edges. These interventions not only improve the pedestrian experience but also contribute to economic vitality by drawing foot traffic and supporting small businesses. Thoughtful design elements—such as shading, greenery, and artistic furnishings—further enhance the appeal, creating a more dynamic and engaging urban environment.

Examples of corridor activation strategies are shown in **Figure 27** and listed below:

1. Placemaking through public art;
2. Identity markers;
3. Gateway Feature
4. Placemaking through artistic paving pattern;
5. Street furniture;
6. Activity nodes.



Figure 27. Active Corridor Strategy Examples

Project Alternatives Considered

Project alternatives were developed first broadly by their proposed major infrastructural changes and then screened through the analysis process until two alternatives remained for consideration. In total, six draft alternative concepts were developed for the plan screening analysis. These included:

- No Build Alternative
- One-Way Couplet Alternative
- Lane Reduction Alternative
- Corridor Widening Alternative
- Urban Boulevard Alternative
- Hybrid Urban Boulevard Alternative

These alternatives are further described in this section.

Minimal Impact Alternative

This alternative originally started as a no improvement alternative to serve as a baseline for comparison with the other alternatives. Based on a review of the existing corridor conditions, this was updated to a minimum build alternative to bring the corridor up to current engineering standards with minimal property impacts along the length of the corridor. This includes completing all necessary maintenance along the corridor, closing existing gaps in the sidewalk and bicycle infrastructure, upgrading street crossing locations to current standards, and adding landscaping and frontage improvements along the corridor where it is feasible. The number of lanes on Watt Avenue would not change from their existing configurations. In addition, transit stops would be

upgraded to meet minimum standards or relocated to locations where those standards could be met. **Figure 28** shows the idealized cross section for this alternative.

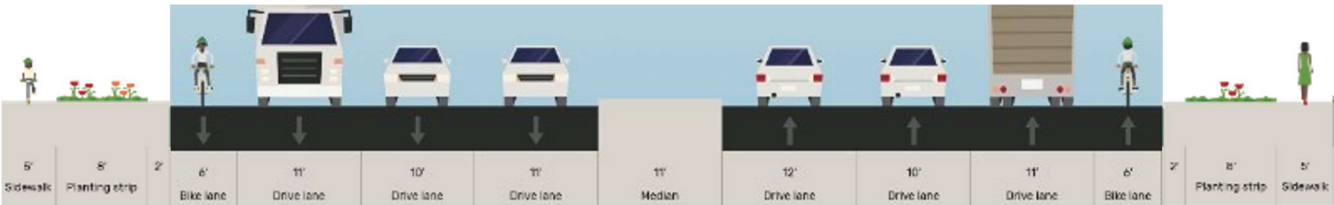


Figure 28: Minimum Impact Alternative Ideal Cross Section

One-Way Couplet Alternative

This alternative is a modification of the adopted alternative from the 2012 North Watt Avenue Corridor Plan and would convert North Watt Avenue into a three-lane, one-way northbound roadway. Southbound traffic would be accommodated by converting 34th Street into a three-lane, one-way southbound roadway. As originally conceived, a fourth transit only lane would be added to each street to serve as a future bus rapid transit corridor. This plan additionally considered the option to include a Class I bike trail on the western side of North Watt Avenue. Similar to the Minimum Impact Alternative, this option includes completing all necessary maintenance along the corridor, closing existing gaps in the sidewalk and bicycle infrastructure, upgrading street crossing locations to current standards, and adding landscaping and frontage improvements along the corridor. **Figure 29** illustrates the cross sections for North Watt Avenue and 34th Street.

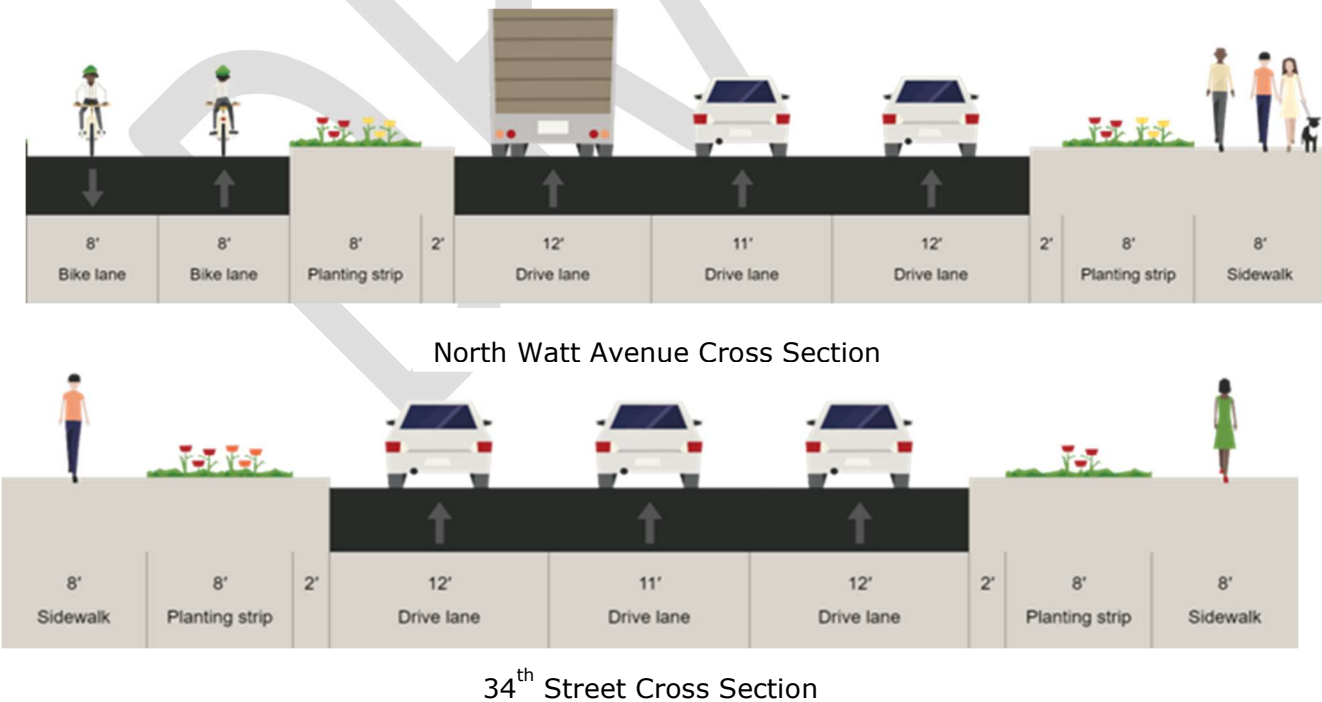


Figure 29: One-Way Couplet Alternative Ideal Cross Sections

Lane Reduction Alternative

This alternative considers the option where North Watt would be narrowed to a consistent four lane cross section. The Right of Way which is taken from the vehicle traffic would be re-allocated providing wider sidewalks, enhanced bicycle facilities, and adding landscaped buffers between the sidewalks and the roadway. To accommodate traffic which would be displaced from Watt Avenue, 34th Street would be widened to four lanes between James Way and North of Elkhorn Boulevard. Similar to the Minimum Impact Alternative, this option includes completing all necessary maintenance along the corridor, closing existing gaps in the sidewalk and bicycle infrastructure, upgrading street crossing locations to current standards, and adding landscaping and frontage improvements along the corridor.

Vehicle/Bicyclist Priority Improvement Alternative

This alternative would widen the existing Watt Avenue to accommodate six lanes of traffic for most of the study corridor, add Class IV buffered bike lanes on both sides of Watt Avenue, and widen the sidewalks to eight feet to meet the current County standard for the corridor. The buffer between the bicycle lane and traffic would include raised vertical elements which could be designed to be either raised curbs or flexible posts. Similar to the Minimum Impact Alternative, this option includes completing all necessary maintenance along the corridor, closing existing gaps in the sidewalk and bicycle infrastructure, upgrading street crossing locations to current standards, and adding landscaping and frontage improvements along the corridor. **Figure 30** illustrates the cross section for the vehicle/bicyclist priority improvement alternative.



Figure 30: Vehicle/Bicyclist Priority Alternative Ideal Cross Sections

Urban Boulevard Alternative

This alternative would redesign Watt Avenue into an urban boulevard. Watt Avenue would be widened to a consistent six lane cross section and one lane, one way frontage roads would be installed on both sides of the corridor to handle local traffic. A buffer would be added between the main roadway and the frontage roads which would include a five foot to eight foot sidewalk and planting strips. The frontage roads would be striped with Class III bicycle facilities to accommodate people riding their bikes in a lower stress environment. At transit stop locations, a floating bus stop would be added onto this buffer. Similar to the Minimum Impact Alternative, this option includes completing all necessary maintenance along the corridor, closing existing gaps in the sidewalk and

bicycle infrastructure, upgrading street crossing locations to current standards, and adding landscaping and frontage improvements along the corridor. **Figure 31** illustrates the cross section for the Urban Boulevard Alternative.

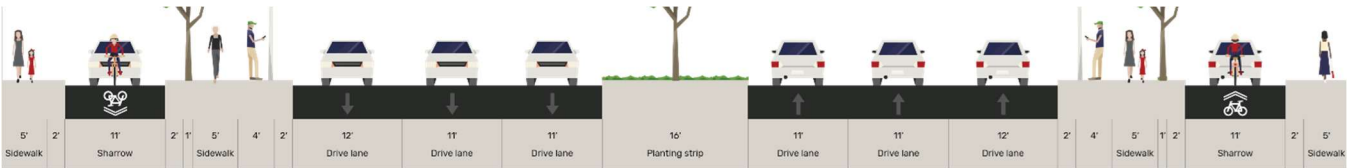


Figure 31: Urban Boulevard Alternative Ideal Cross Section

Hybrid Urban Boulevard Alternative

This alternative is a combination of the Vehicle/Bicyclist Priority and the Urban Boulevard alternatives. This option would widen Watt Avenue to a consistent six lane cross section. Where there is an existing frontage road on the east side of the roadway, the frontage road would be converted to one-way northbound with a parking lane. Similar to the Urban Boulevard Concept, the frontage road would be striped with a Class III bicycle facility. On the west side of the road, a Class IV bike lane would be added throughout the corridor. A Class IV bike lane would also be added to the east side of the corridor on sections where there are no frontage roads. Sidewalks along the corridor would be widened to eight feet and an eight foot planting buffer would be installed between the sidewalk and the travel lanes. Similar to the Minimum Impact Alternative, this option includes completing all necessary maintenance along the corridor, closing existing gaps in the sidewalk and bicycle infrastructure, upgrading street crossing locations to current standards, and adding landscaping and frontage improvements along the corridor. **Figure 32** illustrates the cross section for the Hybrid Urban Boulevard Alternative.

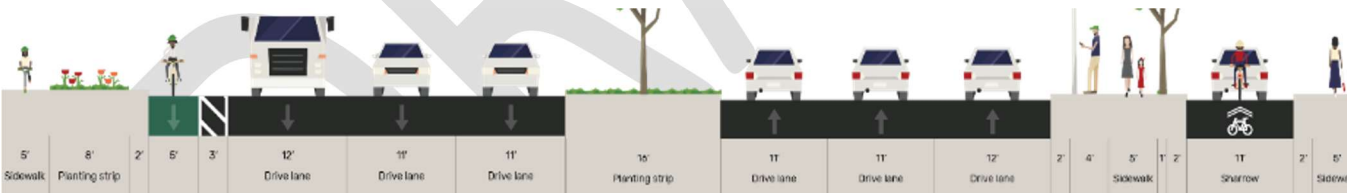


Figure 32: Hybrid Urban Boulevard Alternative Ideal Cross Section

Alternatives Summary

Table 21 on the following page summarizes the general aspects of each of the alternatives under consideration.

Table 21: Summary of Major Alternative Design Elements

ELEMENT	MINIMAL IMPACT	ONE-WAY COUPLET	LANE REDUCTION	VEHICLE/BICYCLE PRIORITY IMPROVEMENT	URBAN BOULEVARD	HYBRID URBAN BOULEVARD
ROADWAY DESIGN	No Change	Watt Avenue 3 Lanes NB 34 th Street 3 Lanes SB	Watt Avenue 4 Lanes 34 th Street 4 Lanes	Watt Avenue 6 Lanes	Watt Avenue 6 Lanes One-Way NB Frontage Road On-Way SB Frontage Road	Watt Avenue 6 lanes One-Way NB Frontage Road on Existing Segments
ROADWAY MAINTENANCE	All Scenarios: Watt Avenue repaved, sidewalks repaired, signs and signals repaired/replaced/upgraded to meet current County standards					
ACCESSIBILITY ENHANCEMENTS	All Scenarios: Sidewalks, street crossing locations, bus stops, and signals upgraded to meet current County standards					
BICYCLE FACILITY DESIGN	Class II Bike Lanes	Class I Bike Trail on Watt Avenue	Class IV Bike Lanes	Class IV Bike Lanes	Class III Bike Markings on Frontage Roads	Class III Bike Markings on Frontage Road Class IV Bike Lane No Frontage Road Exists
SIDEWALK FACILITY DESIGN	5-8 foot sidewalks 0-8 foot planted buffer from roadway	8 foot sidewalk 8 foot planted buffer from roadway	8 foot sidewalk 8 foot planted buffer from roadway	5-8 foot sidewalks 0-8 foot planted buffer from roadway	Variable design on buffer between frontage road and Watt Avenue 5 foot sidewalk at property frontage	5-8 foot sidewalks 0-8 foot planted buffer from roadway Variable design on buffer between frontage road and Watt Avenue
TRANSIT FACILITY DESIGN	Minor upgrades to bus stops where feasible	Bus stops designed to current SacRT standards Future BRT Possible	Bus stops designed to current SacRT standards	Minor upgrades to bus stops where feasible Future BRT Possible	Bus stops designed to current SacRT standards Future BRT Possible	Minor upgrades to bus stops where feasible Future BRT Possible

Alternatives Analysis

The plan alternatives were evaluated for their impacts to travel patterns, traffic operations, modifications to pedestrian and bicycle infrastructure, adaptability to future transit improvements, required right of way acquisition, and cost. During this process, the community was engaged for their feedback on the potential design concepts. It should be noted that not all alternatives received a full evaluation for all criteria as they were screened out before the related analysis was completed. Additionally, some alternatives are grouped together for specific portions of this analysis as they are functionally similar to each other for the criteria being evaluated. Both cases will be noted as appropriate throughout this section.

Traffic Forecasts

In order to evaluate various performance metrics for each alternative under future (2045) conditions, the SacSIM19 model (modified for this plan) was used to forecast volumes (including turning movements for the AM and PM peak hours and daily volumes for segment analysis). Modifications were made to the model in terms of land use (described in previous sections of this document) and roadway networks described in this section. For the traffic forecasting, the Vehicle/Bicycle Priority, Urban Boulevard, and Hybrid Urban Boulevard alternatives were grouped together as “Six-Lane Alternatives”.

Model Roadway Network Modifications

For Existing Conditions, the model roadway network was coded with lanes matching current roadway conditions, with some segments being split to accommodate new TAZ “centroid” connectors and some minor roadways being added to the network. Roadway networks for each 2045 alternative were coded with lane assumptions to best match the roadway design assumed for the alternative, as shown in **Figure 33**. The figure shows that lanes are consistent along Watt Avenue for Existing and the Minimal Impact Alternative, with six lanes between Peacekeeper Way and Don Julio Boulevard and four lanes between Don Julio Boulevard and north of Antelope Road. The figure also shows that Elkhorn Boulevard east of Watt Avenue is four lanes under existing conditions and six lanes under all future scenarios. For the Couplet Alternative, Watt Avenue between A Street and Q Street is coded as three lanes in one direction (northbound Watt Avenue and southbound 34th Street) while the connectors between the two one-way roadways are represented by Q street to the north and A Street to the south (each carrying three lanes in the one-way couplet counterclockwise direction. For the Lane Reduction Alternative, Watt Avenue is coded as four lanes all the way through the plan area while for the Hybrid Alternative Watt Avenue is coded as six lanes all the way through the plan area.



Figure 33: Travel Demand Model Roadway Networks (Lanes)

Volume Forecasts for Project Alternatives

SACOG's SACSIM19 Activity Based Travel Demand Model was used to forecast volumes on plan area roadways and intersections. The SACSIM model has a base year of 2016 and future year of 2040 modeled based on the County's Super Cumulative model and modified to reflect the North Watt Area Corridor Plan (2012) land use. The future year model was run with the four different networks reflecting the four project alternatives described in the previous section. For each alternative, peak hour and daily model volumes were extracted to provide the basis for peak hour intersection turning movement and daily roadway segment forecasts. Forecasts were adjusted to account for model error following procedures in the National Cooperative Highway Research Program (NCHRP) *Report 765: Analytical Travel Forecasting Approaches for Project-Level Planning and Design*, 2014. The base year was interpolated to 2023 to match traffic counts, and the horizon year was extrapolated to the project horizon year of 2045. The following sections describe each of the four sets of future traffic volumes.

Minimal Impact Alternative

Forecasted volumes for the Minimal Impact Alternative show about a 30% increase from existing counts, which represents about 1.2% per year. Traffic volumes generally increase except for peak-direction flow on Don Julio Boulevard (as some traffic is shifting to new parallel capacity on Elkhorn Boulevard which is planned to be widened from four to six lanes by 2045). **Figure 34** shows the Minimal Impact Alternative future traffic volumes.

One-Way Couplet Alternative

For the One-Way Couplet Alternative, changes in model turning-movement volumes compared to the Minimal Impact Alternative model were applied to the adjusted forecast for the Minimal Impact Alternative, and then manual adjustments were made to account for changes to allowed and disallowed turning movements. The combined north-south volume of Watt Avenue and 34th Street functioning as a six-lane couplet is about 10% lower than the six-lane alternatives which have more overall capacity with six lanes on Watt Avenue and two lanes on 34th Street. **Figure 35** shows the One-Way Couplet future traffic volumes.

Lane Reduction Alternative

Forecasted volumes for the Lane Reduction Alternative show about a 20% increase from existing counts on average, but most of the growth occurs in the off-peak direction with volumes decreasing from existing in the peak direction where lanes are reduced from six to four lanes. **Figure 36** shows the Lane Reduction Alternative future traffic volumes.

Six-Lane Alternatives

On average, forecasted volumes for the Minimal Impact Alternative have about 40% increase from existing counts. Traffic volumes on Watt Avenue increase more on the segment north of Don Julio Boulevard where the road is widened from four to six lanes. **Figure 37** shows future traffic volumes for the six-lane alternatives.

Study Intersection (this page) AM (PM) Peak Hour Traffic Volumes 00,000 Average Daily Traffic (ADT)
 # Study Intersection (next page) Left • Thru • Right Volume Turn Movement * ADT Extent

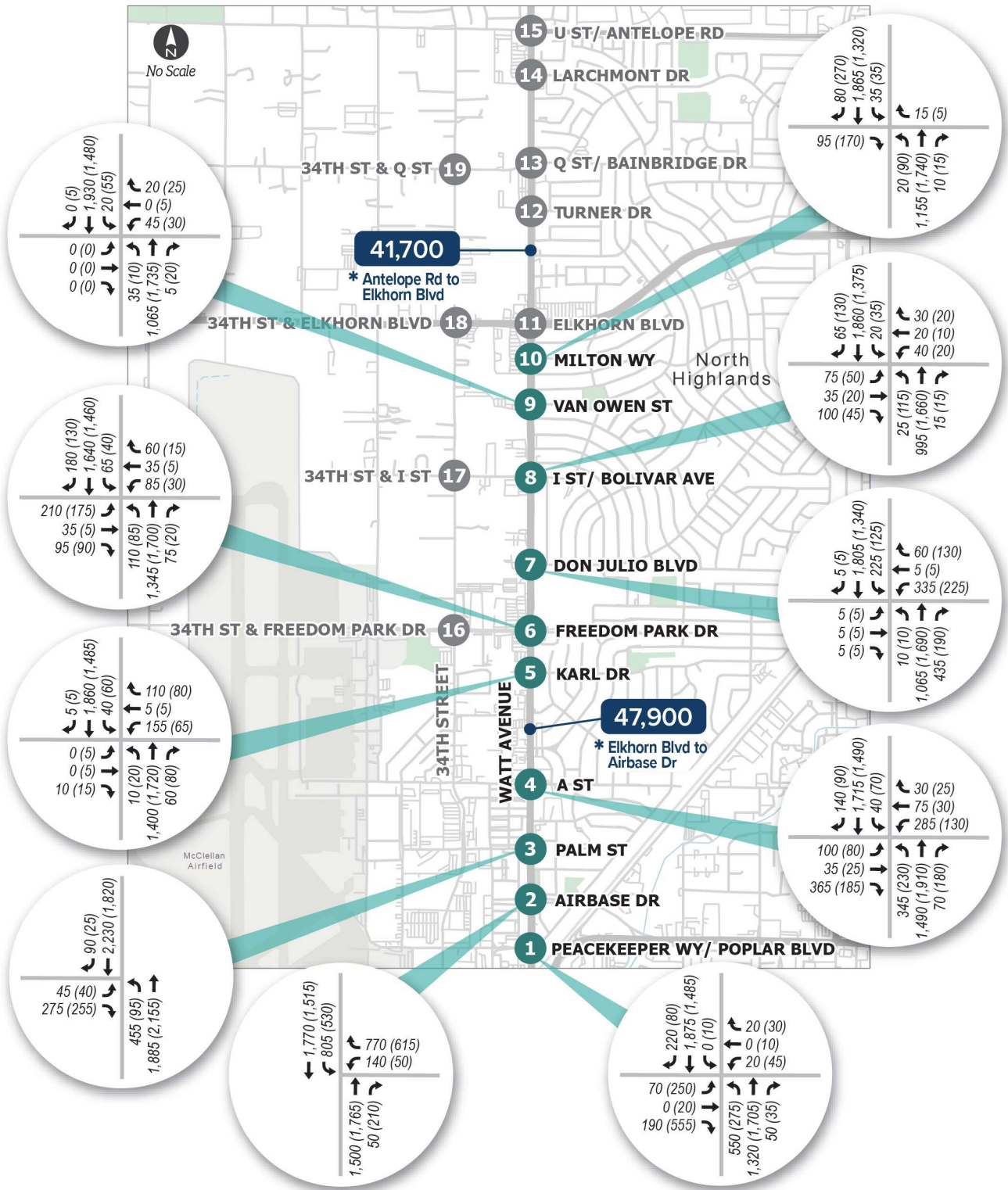


Figure 34: Minimal Impact Alternative Future Traffic Volumes

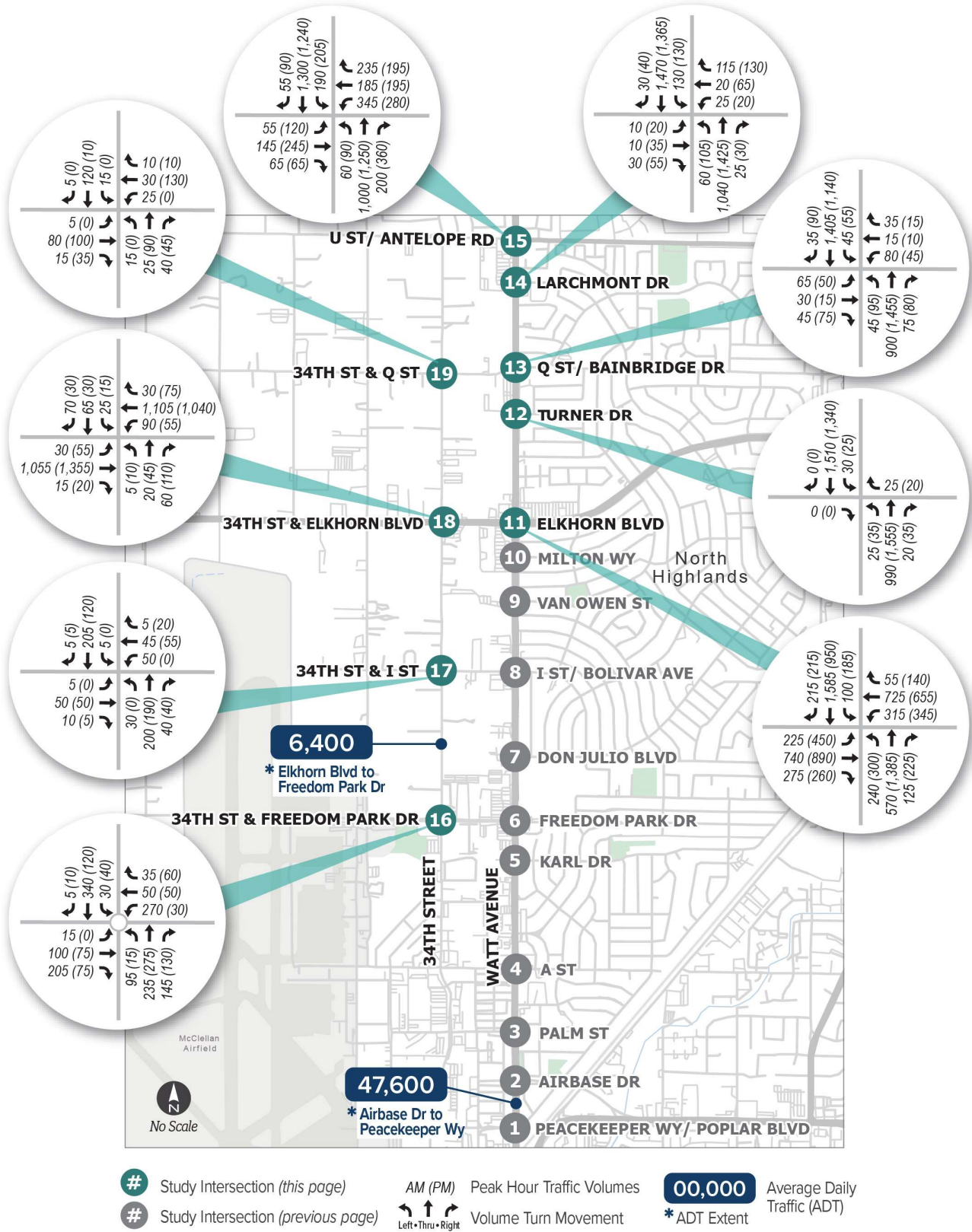


Figure 34: Minimal Impact Alternative Future Traffic Volumes (continued)

Study Intersection (this page) AM (PM) Peak Hour Traffic Volumes 00,000 Average Daily Traffic (ADT)
 # Study Intersection (next page) Left • Thru • Right Volume Turn Movement * ADT Extent

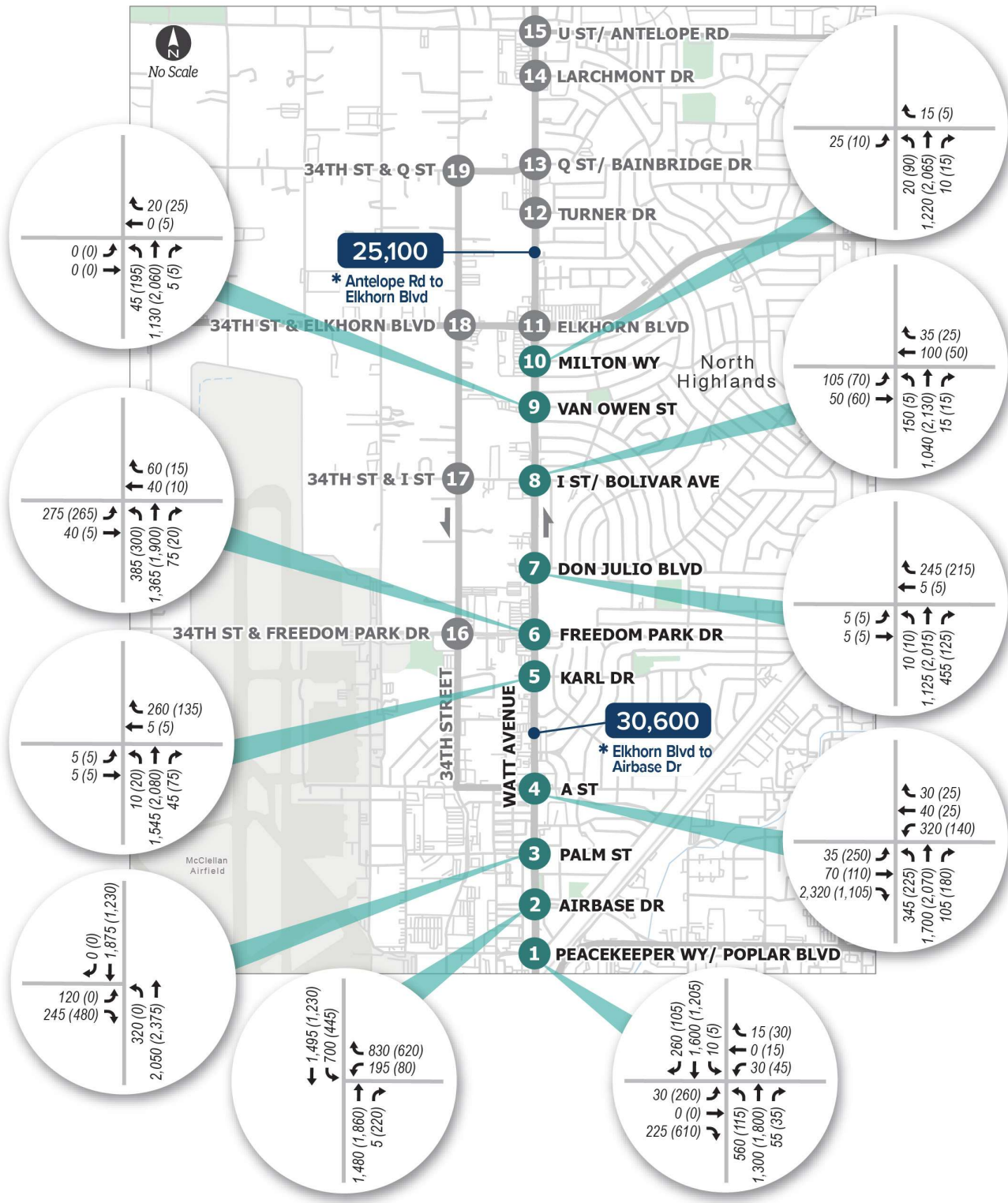


Figure 35: One-Way Couplet Alternative Future Traffic Volumes

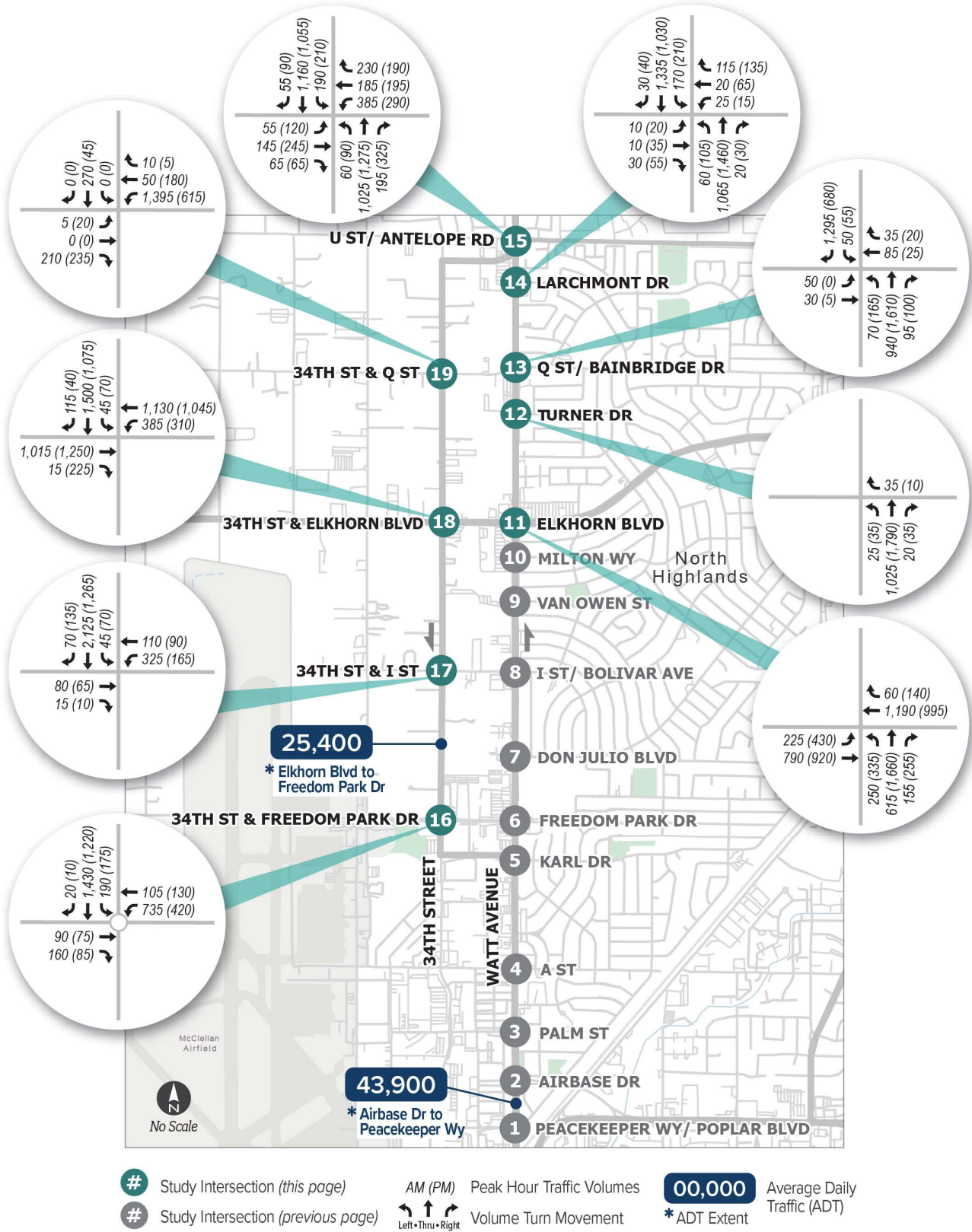


Figure 35: One-Way Couplet Alternative Future Traffic Volumes (continued)

Study Intersection (this page) AM (PM) Peak Hour Traffic Volumes 00,000 Average Daily Traffic (ADT)
 # Study Intersection (next page) Left • Thru • Right Volume Turn Movement * ADT Extent

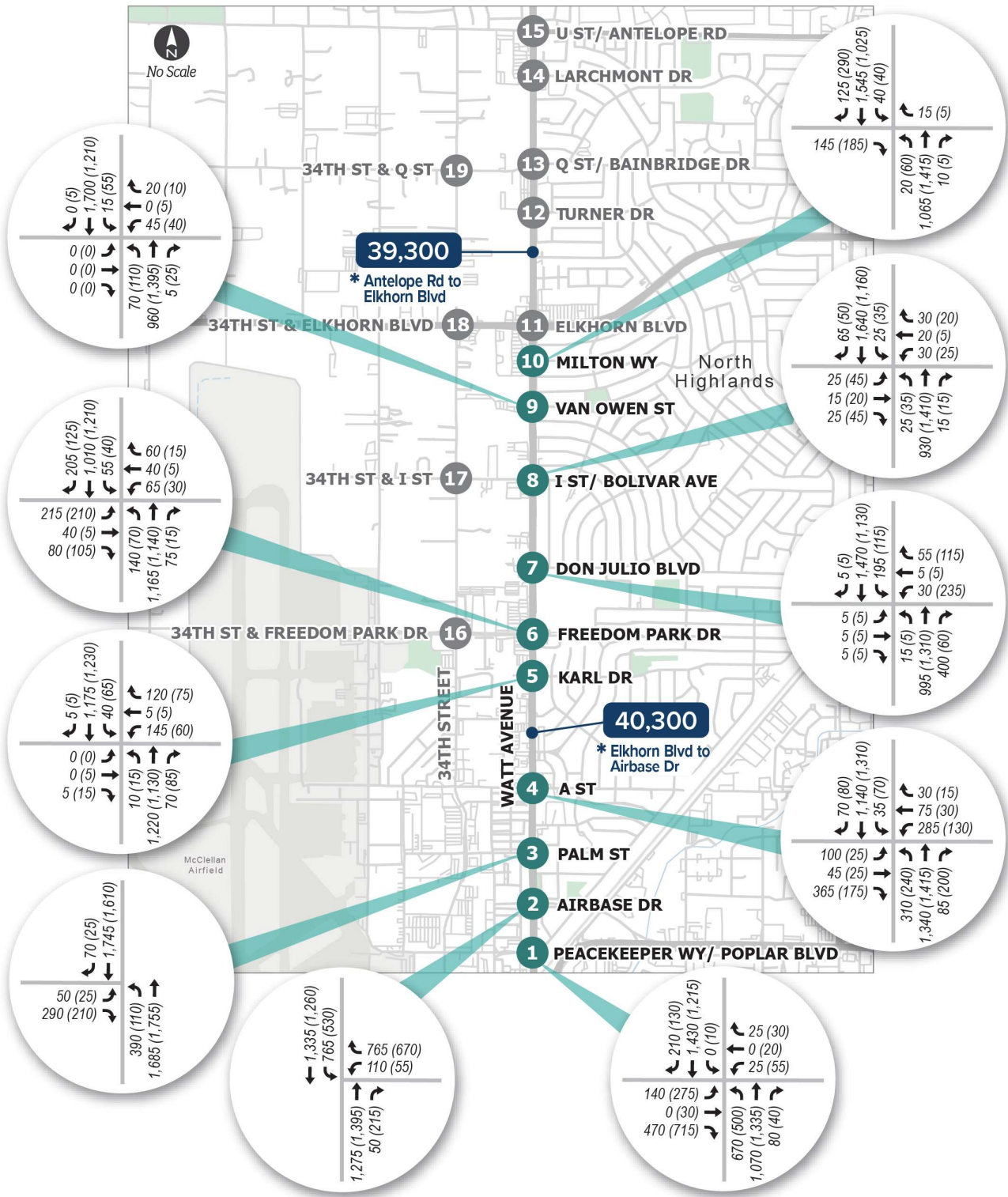


Figure 36: Lane Reduction Alternative Future Traffic Volumes

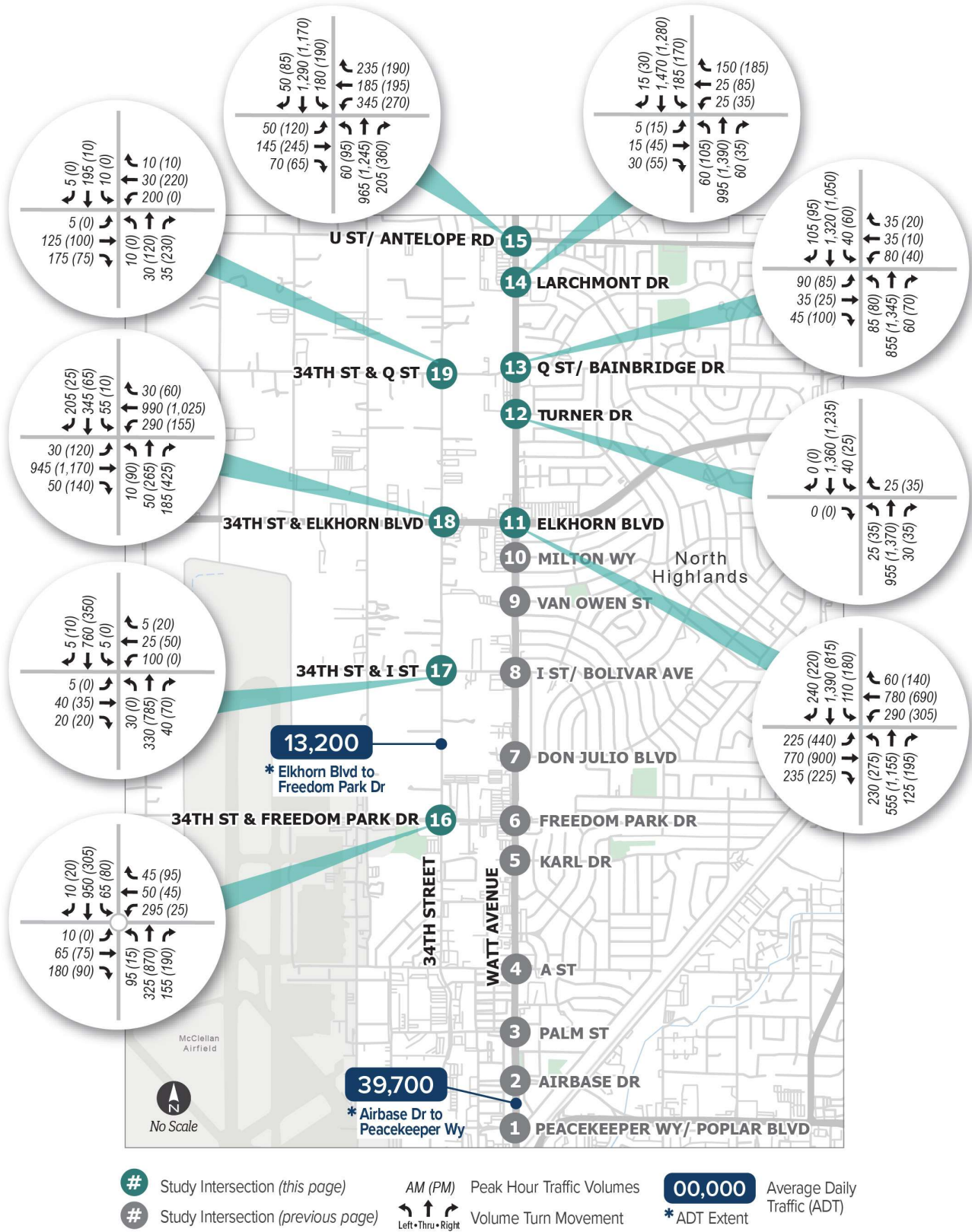


Figure 36: Lane Reduction Alternative Future Traffic Volumes (continued)

Study Intersection (this page) AM (PM) Peak Hour Traffic Volumes 00,000 Average Daily Traffic (ADT)
 # Study Intersection (next page) Left • Thru • Right Volume Turn Movement * ADT Extent

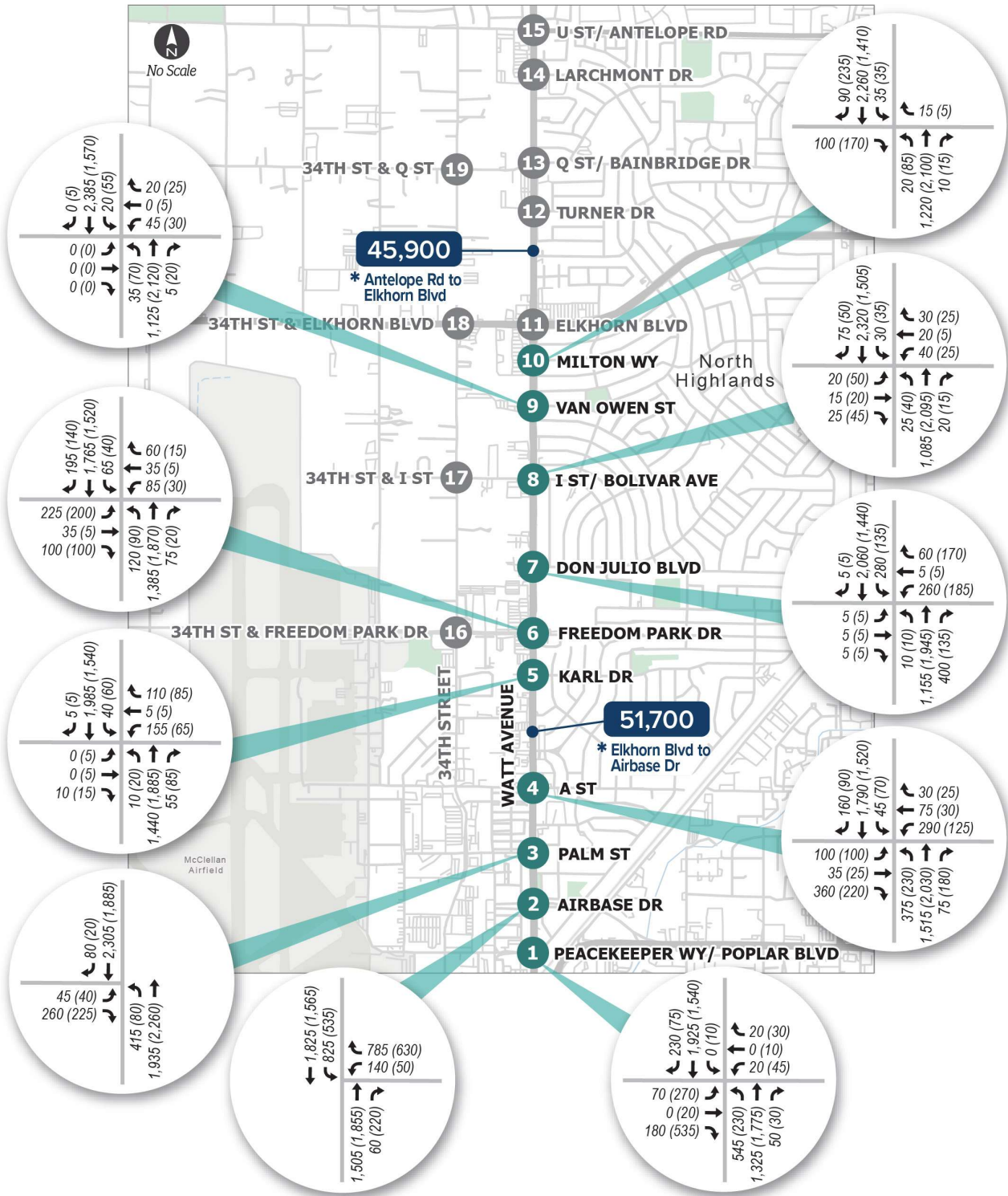


Figure 37: Six-Lane Alternatives Future Traffic Volumes

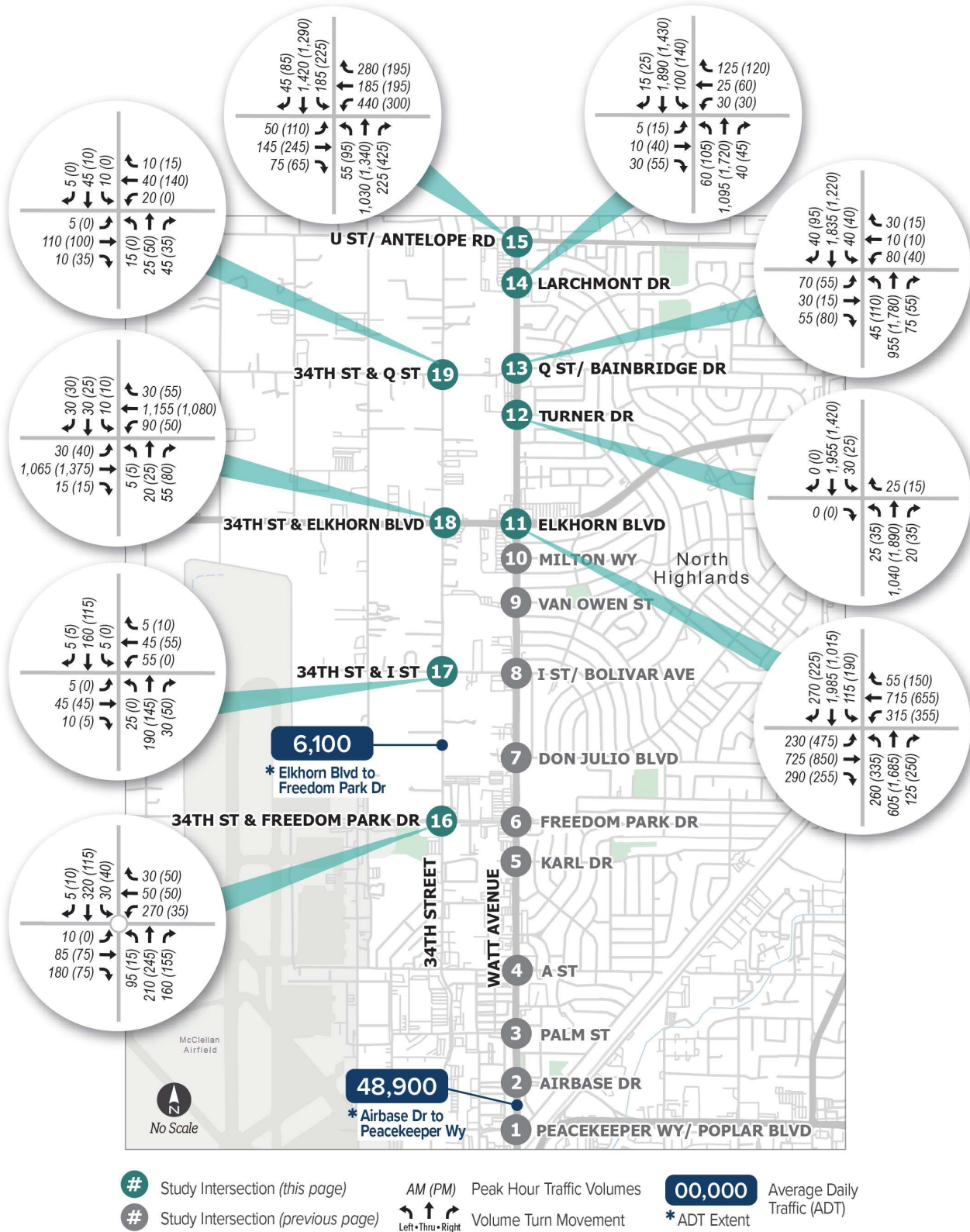


Figure 37: Six-Lane Alternatives Future Traffic Volumes (Continued)

Traffic Operations Analysis

Traffic operations analysis was performed for each alternative with the analysis for the Vehicle/Bicyclist Priority Improvement, Urban Boulevard, and Hybrid Urban Boulevard Alternatives combined as the “Six-Lane Alternatives”. Detailed output sheets supporting this analysis from the Synchro software can be found in **Appendix I**.

It should be noted that because of the corridor’s previous designation as a Smart Growth Street, it is exempt from the County’s policy of LOS E or better for intersections. However, intersections projected to operate at LOS F are highlighted in bold to identify locations that, while not required to be improved to comply with General Plan LOS standards, LOS F locations may be targeted for operational improvements, if those improvements are consistent with other County policy goals (i.e., traffic safety, transit operations, etc.).

Minimal Impact Alternative

The minimal impact alternative will support mobility by meeting the Sacramento County Accessibility Standards and Guidelines. This alternative would reduce sidewalk and pedestrian gaps while implementing supporting ADA compliant infrastructure such as curb ramps.

As shown in **Table 22**, this alternative maintains existing vehicle capacity, but with future travel demand would see LOS F on the segment north of Elkhorn Boulevard with LOS D for the remainder of the corridor.

Table 22: Minimal Impact Alternative Roadway Segment Level of Service

Roadway	Extent	Roadway Type/ Lanes	2045 Daily Traffic Volume	2045 LOS
Watt Avenue	Peacekeeper Way to Airbase Drive	Arterial Moderate 6 Lanes	47,600	D
	Airbase Drive to Elkhorn Boulevard	Arterial Moderate 6 Lanes	47,900	D
	Elkhorn Boulevard to Antelope Road	Arterial Moderate 4 Lanes	41,700	F
34 th Street	Elkhorn Boulevard to Freedom Park Drive	Residential Collector Without Frontage	6,400	B

Source: DKS Associates, 2025

Future intersection traffic operations under the Minimal Impact Alternative are summarized in **Table 23** on the next page. The intersections of Watt Avenue and A Street and 34th Street and Elkhorn Boulevard, which was assumed to remain as a side-street stop-controlled intersection, would exceed the County’s LOS policy standard.

Table 23: Minimal Impact Alternative Intersection Operations Analysis

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Watt Avenue & Peacekeeper Way/Poplar Boulevard	15.4	B	41.7	D
2. Watt Avenue & Airbase Drive	24.7	C	22.2	C
3. Watt Avenue & Palm Street	18.5	B	<10	A
4. Watt Avenue & A Street	98.6	F	39.7	D
5. Watt Avenue & Driveway/Karl Drive	20.9	C	22.7	C
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	28.8	C	27.6	C
7. Watt Avenue & Private Driveway/Don Julio Boulevard	22.2	C	29.9	C
8. Watt Avenue & I Street/Bolivar Avenue	12.3	B	16.8	B
9. Watt Avenue & Van Owen Street	<10	A	18.7	B
10. Watt Avenue & Commercial Driveway/Milton Way	<10 [34.4]	A [D]	<10 [34.9]	A [D]
11. Watt Avenue & Elkhorn Boulevard	49.5	D	48.3	D
12. Watt Avenue & Commercial Driveway/Turner Drive	<10 [12.5]	A [B]	<10 [16.6]	A [B]
13. Watt Avenue & Q Street/Bainbridge Drive	15.6	B	25.6	C
14. Watt Avenue & Commercial Driveway/Larchmont Drive	19.6	B	24.4	C
15. Watt Avenue & U Street/Antelope Road	28.9	C	43.5	D
16. 34th Street & Freedom Park Drive	10.2	B	<10	A
17. 34th Street & I Street	10.2	B	<10	A
18. 34th Street & Elkhorn Boulevard	128 [300]	F [F]	>150 [300]	F [F]
19. 34th Street & Q Street	<10	A	<10	A

Source: DKS Associates, 2025

For two-way-stop-controlled intersections, delay and LOS for the intersection average and for worst movement are reported: Average [Worst Movement]

Bold cells indicate intersections that operate at **LOS F**.

95th percentile queues were estimated for plan intersections and compared to available storage lengths. **Table 24** shows turning movements with peak hour 95th percentile queues that exceed available storage. Seven intersections have 95th percentile queues that exceed storage for at least one turning movement in either the AM or PM peak hours. There are ten individual turning movement queues that exceed storage in the AM peak hour and eight individual turning movement queues that exceed storage in the PM peak hour.

Table 24: Minimal Impact Alternative Intersection Queuing Analysis

INTERSECTION	TURNING MOVEMENT	AVAILABLE STORAGE LENGTH (FT)	95TH PERCENTILE QUEUE (FT)	
			AM PEAK HOUR	PM PEAK HOUR
2. Watt Avenue & Airbase Drive	SBL	330	350	260
4. Watt Avenue & A Street	WBL	100	225	155
	NBL	205	560	320
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	EBL	180	315	245
	WBL	40	115	65
7. Watt Avenue & Private Driveway/Don Julio Boulevard	SBL	215	250	210
11. Watt Avenue & Elkhorn Boulevard	EBL	210	175	250
	EBR	175	250	120
14. Watt Avenue & Commercial Driveway/Larchmont Drive	SBL	180	185	135
15. Watt Avenue & U Street/Antelope Road	EBL	130	110	180
	WBL	210	465	390
	SBL	190	285	255

Source: DKS Associates, 2025

Bold and shaded cells indicate 95th percentile queues exceed available storage.

One-Way Couplet Alternative

The future daily forecast and segment LOS are shown in **Table 25**. The alternative would exceed segment capacity between Elkhorn Boulevard and Airbase Drive and operate at LOS E north of Elkhorn Boulevard.

Table 25: One-Way Couplet Alternative Roadway Segment Level of Service

Roadway	Extent	Roadway Type/ Lanes	2045 Daily Traffic Volume	2045 LOS
Watt Avenue	Peacekeeper Way to Airbase Drive	Arterial Moderate 6 Lanes	43,900	D
	Airbase Drive to Elkhorn Boulevard	Arterial Moderate 3 Lanes (One-way)	30,600	F
	Elkhorn Boulevard to Antelope Road	Arterial Moderate 3 Lanes (One-way)	25,100	E
34 th Street	Elkhorn Boulevard to Freedom Park Drive	Arterial Moderate 3 Lanes (One-way)	25,400	E

Source: DKS Associates, 2025

Future intersection traffic operations under the One-Way Couplet Alternative are summarized in **Table 26** on the next page. All plan intersections along Watt Avenue would operate acceptably under the City's LOS Policy, but intersections on 34th Street at Freedom Park Drive and Elkhorn Boulevard would exceed the County's LOS policy.

Table 26: One-Way Couplet Alternative Intersection Operations Analysis

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Watt Avenue & Peacekeeper Way/Poplar Boulevard	18.9	B	48.8	D
2. Watt Avenue & Airbase Drive	29.0	C	18.9	B
3. Watt Avenue & Palm Street	13.1	B	9.3	A
4. Watt Avenue & A Street	24.7	C	26.8	C
5. Watt Avenue & Driveway/Karl Drive	28.4	C	29.9	C
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	35.3	D	33.9	C
7. Watt Avenue & Private Driveway/Don Julio Boulevard	31.2	C	32.7	C
8. Watt Avenue & I Street/Bolivar Avenue	13.6	B	<10	A
9. Watt Avenue & Van Owen Street	11.8	B	17.3	B
10. Watt Avenue & Commercial Driveway/Milton Way	<10 [15.1]	A [C]	<10 [23.9]	A [C]
11. Watt Avenue & Elkhorn Boulevard	29.9	C	35.8	D
12. Watt Avenue & Commercial Driveway/Turner Drive	<10 [14.3]	A [B]	<10 [20.9]	A [C]
13. Watt Avenue & Q Street/Bainbridge Drive	18.0	B	11.0	B
14. Watt Avenue & Commercial Driveway/Larchmont Drive	21.7	C	51.1	D
15. Watt Avenue & U Street/Antelope Road	33.9	C	44.4	D
16. 34th Street & Freedom Park Drive	89.7	F	23.5	C
17. 34th Street & I Street	32.8	C	22.7	C
18. 34th Street & Elkhorn Boulevard	61.5	E	42.1	D
19. 34th Street & Q Street	32.0	C	25.3	C

Source: DKS Associates, 2025

For two-way-stop-controlled intersections, delay and LOS for the intersection average and for worst movement are reported: Average [Worst Movement]

Bold cells indicate intersections that operate at **LOS F**.

95th percentile queues were estimated for plan intersections and compared to available storage lengths. **Table 27** shows turning movements with peak hour 95th percentile queues that exceed available storage. Eight intersections have 95th percentile queues that exceed storage for at least one turning movement in either the AM or PM peak hours. There are nine individual turning movement queues that exceed storage in the AM peak hour and eight individual turning movement queues and PM peak hour.

Table 27: One-Way Couplet Alternative Intersection Queuing Analysis

INTERSECTION	TURNING MOVEMENT	AVAILABLE STORAGE LENGTH (FT)	95TH PERCENTILE QUEUE (FT)	
			AM PEAK HOUR	PM PEAK HOUR
2. Watt Avenue & Airbase Drive	SBL	330	360	225
	EBR	215	405	5
4. Watt Avenue & A Street	WBL	100	230	75
	NBL	205	325	135
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	EBL	180	280	285
	NBL	190	195	70
11. Watt Avenue & Elkhorn Boulevard	EBL	210	130	245
13. Watt Avenue & Q Street/Bainbridge Drive	SBR	120	10	180
14. Watt Avenue & Commercial Driveway/Larchmont Drive	SBL	180	180	195
	EBL	130	85	180
15. Watt Avenue & U Street/Antelope Road	WBL	210	495	410
	SBL	190	215	265
18. 34th Street & Elkhorn Boulevard	WBL	205	325	345

Source: DKS Associates, 2025

Bold and shaded cells indicate that 95th percentile queues exceed available storage.

Lane Reduction Alternative

As shown in **Table 28**, this alternative reduced the six-lane portions of Watt Avenue to four travel lanes. With future travel demand each segment would operate at LOS F.

Table 28: Lane Reduction Alternative Roadway Segment Level of Service

Roadway	Extent	Roadway Type/ Lanes	2045 Daily Traffic Volume	2045 LOS
Watt Avenue	Peacekeeper Way to Airbase Drive	Arterial Moderate 4 Lanes	39,700	F
	Airbase Drive to Elkhorn Boulevard	Arterial Moderate 4 Lanes	40,300	F
	Elkhorn Boulevard to Antelope Road	Arterial Moderate 4 Lanes	39,300	F
34 th Street	Elkhorn Boulevard to Freedom Park Drive	Residential Collector Without Frontage	13,200	F

Source: DKS Associates, 2025

Future intersection traffic operations under the Lane Reduction Alternative are summarized in **Table 29** on the next page. Under this alternative, 34th Street is widened to four lanes and all intersections that are currently stop-controlled were assumed to be signalized within the plan area to help accommodate traffic demand diverted from the lane reduction on Watt Avenue.

Intersections on Watt Avenue at Peacekeeper Way/Poplar Boulevard, A Street, and Freedom Park Drive as well as the intersection of 34th Street and Elkhorn Boulevard, would exceed the County's LOS policy standard.

Table 29: Lane Reduction Alternative Intersection Operations Analysis

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Watt Avenue & Peacekeeper Way/Poplar Boulevard	66.9	E	69.4	E
2. Watt Avenue & Airbase Drive	27.8	C	28	C
3. Watt Avenue & Palm Street	23.2	C	11.3	B
4. Watt Avenue & A Street	58.2	E	62.0	E
5. Watt Avenue & Driveway/Karl Drive	34.0	C	24.7	C
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	63.0	E	33.2	C
7. Watt Avenue & Private Driveway/Don Julio Boulevard	36.1	D	30.8	C
8. Watt Avenue & I Street/Bolivar Avenue	36.3	D	21.9	C
9. Watt Avenue & Van Owen Street	21.4	C	21.0	C
10. Watt Avenue & Commercial Driveway/Milton Way	<10 [33.9]	A [D]	<10 [26.4]	A [D]
11. Watt Avenue & Elkhorn Boulevard	48.1	D	42.6	D
12. Watt Avenue & Commercial Driveway/Turner Drive	<10 [12.3]	A [B]	<10 [14.4]	A [C]
13. Watt Avenue & Q Street/Bainbridge Drive	13.3	B	28.0	C
14. Watt Avenue & Commercial Driveway/Larchmont Drive	10.7	B	36.1	D
15. Watt Avenue & U Street/Antelope Road	32.1	C	41.3	D
16. 34th Street & Freedom Park Drive	19.6	C	<10	A
17. 34th Street & I Street	13.8	B	<10	A
18. 34th Street & Elkhorn Boulevard	41.5	D	57.6	E
19. 34th Street & Q Street	24.4	C	21.4	C

Source: DKS Associates, 2025

For two-way-stop-controlled intersections, delay and LOS for the intersection average and for worst movement are reported: Average [Worst Movement]

Bold cells indicate intersections that operate at **LOS F**.

95th percentile queues were estimated for plan intersections and compared to available storage lengths. **Table 30** shows turning movements with peak hour 95th percentile queues that exceed available storage. Eight intersections have 95th percentile queues that exceed storage for at least one turning movement in either the AM or PM peak hours. There are twelve individual turning movement queues that exceed storage in the AM peak hour and seven individual turning movement queues that exceed storage in the PM peak hour.

Table 30: Lane Reduction Alternative Intersection Queuing Analysis

INTERSECTION	TURNING MOVEMENT	AVAILABLE STORAGE LENGTH (FT)	95TH PERCENTILE QUEUE (FT)	
			AM PEAK HOUR	PM PEAK HOUR
2. Watt Avenue & Airbase Drive	SBL	330	390	305
	EBR	215	305	60
4. Watt Avenue & A Street	WBL	100	225	150
	NBL	205	520	320
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	EBL	180	320	285
	WBL	40	90	65
	NBL	190	235	125
7. Watt Avenue & Private Driveway/Don Julio Boulevard	SBL	215	240	175
11. Watt Avenue & Elkhorn Boulevard	EBL	210	140	230
14. Watt Avenue & Commercial Driveway/Larchmont Drive	SBL	180	190	145
	EBL	130	80	165
15. Watt Avenue & U Street/Antelope Road	WBL	210	440	365
	SBL	190	205	125
18. 34th Street & Elkhorn Boulevard	WBL	205	300	190

Source: DKS Associates, 2025

Bold and shaded cells indicate that 95th percentile queues exceed available storage.

Six-Lane Alternatives

As shown in **Table 31**, these alternatives widen the four-lane portions of Watt Avenue to six travel lanes. With future travel demand, most of the corridor would operate at LOS E with the segment between Elkhorn Boulevard and Antelope Road operating at LOS D.

Table 31: Six-Lane Alternatives Roadway Segment Level of Service

Roadway	Extent	Roadway Type/ Lanes	2045 Daily Traffic Volume	2045 LOS
Watt Avenue	Peacekeeper Way to Airbase Drive	Arterial Moderate 6 Lanes	48,900	E
	Airbase Drive to Elkhorn Boulevard	Arterial Moderate 6 Lanes	51,700	E
	Elkhorn Boulevard to Antelope Road	Arterial Moderate 6 Lanes	45,900	D
34 th Street	Elkhorn Boulevard to Freedom Park Drive	Residential Collector Without Frontage	6,100	B

Source: DKS Associates, 2025

Future intersection traffic operations under the Six-Lane Alternatives are summarized in **Table 32** on the next page. The six-lane alternatives have the highest traffic demand of the alternatives considered, and two signalized intersections would exceed the County's LOS policy: Watt Avenue and A Street and Watt Avenue and Elkhorn Boulevard. Two side-street-stop-controlled intersections would also exceed the County's LOS standard: Watt Avenue and Milton Way and 34th Street and Elkhorn Boulevard.

Table 32: Six-Lane Alternatives Intersection Operations Analysis

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Watt Avenue & Peacekeeper Way/Poplar Boulevard	19.5	B	41.3	D
2. Watt Avenue & Airbase Drive	31.0	C	26.0	C
3. Watt Avenue & Palm Street	14.8	B	<10	A
4. Watt Avenue & A Street	100.1	F	32.7	C
5. Watt Avenue & Driveway/Karl Drive	24.4	C	21.6	C
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	31.2	C	26.5	C
7. Watt Avenue & Private Driveway/Don Julio Boulevard	27.0	C	24.8	C
8. Watt Avenue & I Street/Bolivar Avenue	<10	A	23.7	C
9. Watt Avenue & Van Owen Street	<10	A	18.0	B
10. Watt Avenue & Commercial Driveway/Milton Way	<10 [61.3]	A [F]	<10 [38.0]	A [E]
11. Watt Avenue & Elkhorn Boulevard	65.8	E	53.4	D
12. Watt Avenue & Commercial Driveway/Turner Drive	<10 [14.2]	A [B]	<10 [22.6]	A [C]
13. Watt Avenue & Q Street/Bainbridge Drive	10.4	B	20.2	C
14. Watt Avenue & Commercial Driveway/Larchmont Drive	<10	A	21.9	C
15. Watt Avenue & U Street/Antelope Road	48.2	D	50.4	D
16. 34th Street & Freedom Park Drive	<10	A	<10	A
17. 34th Street & I Street	<10	A	<10	A
18. 34th Street & Elkhorn Boulevard	29 [>300]	D [F]	<10 [>300]	A [F]
19. 34th Street & Q Street	<10	A	<10	A

Source: DKS Associates, 2025

For two-way-stop-controlled intersections, delay and LOS for the intersection average and for worst movement are reported: Average [Worst Movement]

Bold cells indicate intersections that operate at **LOS F**.

95th percentile queues were estimated for plan intersections and compared to available storage lengths. **Table 33** shows turning movements with peak hour 95th percentile queues that exceed available storage. Six intersections have 95th percentile queues that exceed storage for at least one turning movement in either the AM or PM peak hours. There are ten individual turning movement queues that exceed storage in the AM peak hour and nine individual turning movement queues that exceed storage in the PM peak hour.

Table 33: Six-Lane Alternatives Intersection Queuing Analysis

INTERSECTION	TURNING MOVEMENT	AVAILABLE STORAGE LENGTH (FT)	95TH PERCENTILE QUEUE (FT)	
			AM PEAK HOUR	PM PEAK HOUR
2. Watt Avenue & Airbase Drive	SBL	330	500	345
4. Watt Avenue & A Street	WBL	100	280	155
	NBL	205	670	270
6. Watt Avenue & Freedom Park Drive/Commercial Driveway	EBL	180	380	275
	WBL	40	140	65
7. Watt Avenue & Private Driveway/Don Julio Boulevard	SBL	215	365	205
11. Watt Avenue & Elkhorn Boulevard	EBL	210	160	285
	EBR	175	220	135
	WBL	240	245	235
15. Watt Avenue & U Street/Antelope Road	EBL	130	85	150
	WBL	210	605	450
	SBL	190	230	310

Source: DKS Associates, 2025

Bold and shaded cells indicate that 95th percentile queues exceed available storage.

Vehicle Miles Traveled (VMT) Analysis

One regionwide metric used for CEQA (California Environmental Quality Act) impact analysis to help indicate wholistic (i.e., regionwide) impacts of a project is network-based vehicle miles traveled (VMT) of vehicles using the collective roadways of the region. While this report does not include formal CEQA environmental impact analysis, it is useful to report the regional changes in travel associated with the project alternatives. This analysis is based on using the travel demand model outputs to estimate the total vehicle miles of travel on each roadway link (i.e., number of vehicles multiplied by the length of the link) as well as the total estimated daily VMT divided into "speed bins" (five mile per hour increments between 0 and typically 65 or 70 miles per hour). This VMT by Speed Bin analysis helps educate other environmental studies including greenhouse gas (GHG) emissions analysis. **Table 34** summarizes regional changes in VMT associated with each alternative when compared to the currently adopted One-Way Couplet Alternative. Additionally, for information purposes, total regional VMT is provided for the base year model. The table shows that all alternatives result in a relatively small reduction (less than one tenth of a percent regionwide) in VMT regionwide. More detailed tables showing VMT by speed bin can be found in **Appendix K**.

Table 34: Vehicle Miles Traveled Analysis

Roadway Types	Existing	One-Way Couplet Alternative	Minimal Impact Alternative	Lane Reduction Alternative	Six-Lane Alternatives
Urban Streets	23,863,188	35,483,770	35,473,508	35,460,788	35,486,155
Freeways & Rural Streets	34,451,532	42,763,043	42,715,384	42,726,589	42,725,859
All Streets	58,314,721	78,246,812	78,188,892	78,187,377	78,212,013
Change vs Minimal Impact Alternative			-57,920 (-0.07%)	-59,435 (-0.08%)	-34,799 (-0.04%)

Source: DKS Associates, 2025

Land Use Sensitivity

As discussed previously in this report, land uses in the North Watt area have been modeled to be consistent with the 2012 North Watt Corridor Plan, and these land uses differ substantially from the land uses assumed by SACOG in the area. Specifically, land uses were modified for a number of traffic analysis zones (TAZs) that comprise the North Watt Corridor, including the following changes:

- Change in Land Use
 - Residential Dwelling Units
 - Increase by 3,825
 - approximately 35% in North Watt TAZs
 - approximately 0.3% Regionwide

- Population
 - Increase by 11,521
 - approximately 39% in North Watt TAZs
 - approximately 0.3% Regionwide
- Employment
 - Increase by 3,129
 - approximately 31% in North Watt TAZs
 - approximately 0.2% Regionwide
- Resultant Change in Network Based VMT
 - 0.1% regionwide

Additionally, under certain scenarios North Watt Avenue is projected to have excess capacity that could potentially accommodate additional land use. Under the Hybrid Alternatives (with North Watt Avenue having six lanes through the study area) the roadway's lanes have spare capacity of approximately 5,100 more daily vehicles at the south end of the corridor and 8,100 more daily vehicles at the north end of the corridor. This spare capacity could potentially accommodate between 300 and 1,200 additional multi-family units within the corridor, based on ITE (Institute of Transportation Engineers) trip generation rates for multi-family residential (ITE Code 220). It should also be noted that daily segment capacities are a surrogate for intersection analysis, and since most intersections operate well within capacity, there is likely potential to absorb even more units and maintain adequate traffic operations.

Pedestrian Infrastructure Analysis

Pedestrian Level of Traffic Stress (PLTS) analysis was used to compare the project alternatives for their effectiveness in improving pedestrian infrastructure throughout the corridor. This analysis was conducted after a number of alternatives had been screened through the review process with the local community and public stakeholders. Quantitative analysis is only provided for the Minimal Impact Alternative and the Hybrid Urban Boulevard Alternative. The other alternatives are evaluated qualitatively in this section based on the general improvements they recommended. Calculations for the PLTS analysis can be found in **Appendix L**.

Minimal Impact Alternative

The Minimal Impact Alternative would preserve the existing roadway while improving accommodations for pedestrians. This alternative would primarily consist of closing sidewalk gaps, improving accessibility and mobility issues. The existing configuration consists of sidewalk gaps and reduced sidewalk widths due to utility poles, driveways, and pavement condition. Due to the ROW constraints for this alternative, sidewalk width will not be increased and will be 5 feet throughout the corridor. Compared to the existing approximately 6-foot buffer from travel lanes, this alternative would provide pedestrians with an 8-16-foot buffer from vehicles consisting of a 6-foot buffer provided by the bike lane, a 2-foot buffer from the curb and gutter, and a 0-8 foot landscaping buffer. **Table 35** summarizes the pedestrian level of traffic stress scores of the Minimal Impact Alternative. The pedestrian level of traffic stress scores are illustrated by segment in **Figure 38**.

Table 35: Minimal Impact Alternative Pedestrian Level of Traffic Stress

	PEACEKEEPER WAY TO DON JULIO BOULEVARD	DON JULIO BOULEVARD TO VAN OWEN STREET	VAN OWEN STREET TO ELKHORN BOULEVARD	ELKHORN BOULEVARD TO ANTELOPE ROAD
STREET WIDTH (THROUGH LANES PER DIRECTION)	3	2	3	2
BUFFER TYPE	Landscaped: NB/SB Airbase Dr to wings Wy, Haven Dr to Karl Dr	Landscaped: SB Larry Wy to Van Owen St	Landscaped: SB Van Owen to Milton	Landscaped: SB Plymouth Dr to Antelope Dr
TOTAL BUFFER WIDTH (FT)	0-16	0-16	0-16	0-8
SIDEWALK WIDTH (FT)	5-8	5-8	8	8
SPEED LIMIT OR PREVAILING SPEED (MPH)	35	35	35	45
EXISTING PLTS SCORE	4	4	4	3
PLTS SCORE	3	3	3	3

Source: DKS Associates, 2025

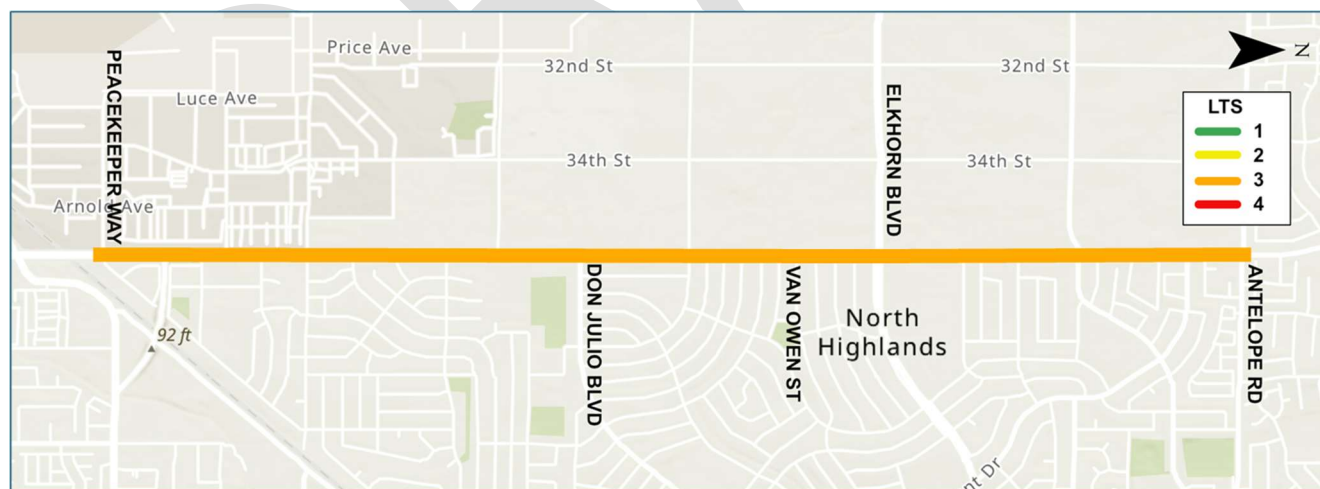


Figure 38: Minimal Impact Alternative Pedestrian Level of Traffic Stress

Hybrid Urban Boulevard Alternative

The Hybrid Urban Boulevard Alternative would support the Sacramento County accessibility standards and design guidelines for pedestrians and implement a preferred 8-foot sidewalk where

feasible with a minimum sidewalk width of five feet. Additionally, a minimum 5-foot sidewalk would be maintained/added along the frontage roads. This sidewalk would be adjacent to on-street parking and lower speed traffic providing a lower stress walking environment. Compared to the existing approximately 6-foot buffer from travel lanes, this alternative would provide pedestrians with a 10-18-foot buffer from vehicles generally consisting of a 2-foot raised buffer between the travel lane and bicycle lane, a 5-foot bicycle lane, a 3-foot curb and gutter, and a 0-8 foot landscaping buffer. The Hybrid Urban Boulevard Alternative would also provide consistent sidewalks on the frontage roads which provide a lower stress walking environment. **Table 36** summarizes the pedestrian level of traffic stress scores of the Hybrid Urban Alternative. The pedestrian level of traffic stress scores are illustrated by segment in **Figure 39**.

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Table 36: Hybrid Urban Boulevard Alternative Pedestrian Level of Traffic Stress

	PEACEKEEPER WAY TO DON JULIO BOULEVARD	DON JULIO BOULEVARD TO VAN OWEN STREET	VAN OWEN STREET TO ELKHORN BOULEVARD	ELKHORN BOULEVARD TO ANTELOPE ROAD
STREET WIDTH (THROUGH LANES PER DIRECTION)	3	3	3	3
BUFFER TYPE	None: SB Freedom Park Dr to Don Julio Blvd Landscaped	Landscaped	Landscaped	Landscaped: NB/SB Elkhorn Blvd to Larchmont Dr None: NB/SB Larchmont Dr to Antelope Rd
TOTAL BUFFER WIDTH (FT)	18	18	18	18
SIDEWALK WIDTH (FT)	5-8	5-8	5-8	8
SPEED LIMIT OR PREVAILING SPEED (MPH)	35	35	35	45
EXISTING PLTS SCORE	4	4	4	3
FRONTAGE ROAD LTS SCORE	N/A	2	2	N/A
ALTERNATIVE PLTS SCORE	2	2	2	2

Source: DKS Associates, 2025

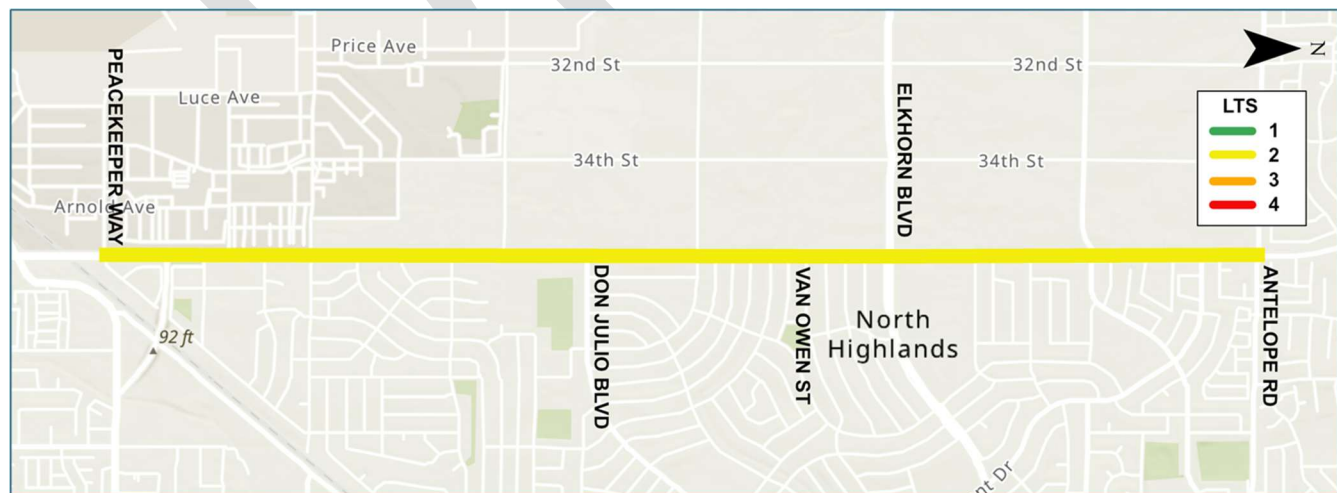


Figure 39: Hybrid Urban Boulevard Alternative Pedestrian Level of Traffic Stress

One-Way Couplet Alternative

This currently adopted alternative would use a portion of the ROW reclaimed from the vehicle lane reduction of Watt Avenue to provide additional space for pedestrians both in the form of wider sidewalks and landscaped buffers. This alternative also has the option to include a shared use Class I trail along Watt Avenue. The level of traffic stress for this alternative would be an improvement from existing conditions and similar to or better than the Hybrid Urban Boulevard Alternative.

Lane Reduction Alternative

This alternative would use a portion of the ROW reclaimed from the vehicle lane reduction of Watt Avenue to provide additional space for pedestrians both in the form of wider sidewalks and landscaped buffers. In the segments where lanes are reduced, the level of traffic stress would be improved from existing conditions similarly to the Hybrid Urban Boulevard Alternative. On segments where the roadway is already four lanes, walking facilities would be improved to the same standard as the Minimal Impact Alternative and would show the same level of improvement.

Vehicle/Bicyclist Priority Improvement Alternative

Pedestrian improvements and level of traffic stress for this alternative would be similar to the Hybrid Urban Boulevard Alternative.

Urban Boulevard Alternative

This would construct a consistent 8-foot sidewalk with a variable width planted buffer between the sidewalk and the main corridor. It would additionally include a 5-foot curb side sidewalk along the one-way frontage roads separated from the traveled way by a parking lane. These two walking facilities on each side of the corridor would be connected using high visibility crossings of their respective frontage roads. This would provide a lower stress walking environment than the Hybrid Urban Boulevard Alternative.

Bicycle Infrastructure Analysis

Bicycle Level of Traffic Stress (BLTS) analysis was used to compare the project alternatives for their effectiveness in improving bicycling infrastructure throughout the corridor. This analysis was conducted after a number of alternatives had been screened through the review process with the local community and public stakeholders. Quantitative analysis is only provided for the Minimal Impact Alternative and the Hybrid Urban Boulevard Alternative. The other alternatives are evaluated qualitatively in this section based on the general improvements they recommended. Calculations for the BLTS analysis can be found in **Appendix L**.

Minimal Impact Alternative

The Minimal Impact Alternative will improve existing bicycle infrastructure along Watt Avenue, closing bike lane gaps, and providing bi-directional travel. This alternative would maintain the existing Class II bike lanes on the corridor and not provide any physical barrier between bicyclists and vehicles. However, this alternative would increase bike lane width by approximately one foot and consist of lane striping. This alternative would improve the BLTS from 4 to 3 between Elkhorn

Boulevard and Don Julio Boulevard where there are gaps in the existing Class II bike lanes. BLTS would remain at 4 north of Elkhorn Boulevard. Due to the high volume and high speed of Watt Avenue, this alternative would not reduce the level of traffic stress enough for more than confident and skilled bicyclists to be comfortable traversing the corridor. **Table 37** summarizes the bicycle level of traffic stress scores of the Minimal Impact Alternative. The bicycle level of traffic stress scores are illustrated by segment in **Figure 40**.

Table 37: Minimal Impact Alternative Bicycle Level of Traffic Stress

	PEACEKEEPER WAY TO DON JULIO BOULEVARD	DON JULIO BOULEVARD TO VAN OWEN STREET	VAN OWEN STREET TO ELKHORN BOULEVARD	ELKHORN BOULEVARD TO ANTELOPE ROAD
STREET WIDTH (THROUGH LANES PER DIRECTION)	3	2	3	2
BIKE LANE WIDTH (INCLUDING BIKE LANE, BUFFER, AND GUTTER) (FT)	6	6	6	6
SPEED LIMIT OR PREVAILING SPEED (MPH)	35	35	35	45
PHYSICALLY SEPARATED BIKE LANE?	No	No	No	No
EXISTING BLTS SCORE	3	4	4	4
ALTERNATIVE BLTS SCORE	3	3	3	4

Source: DKS Associates, 2025

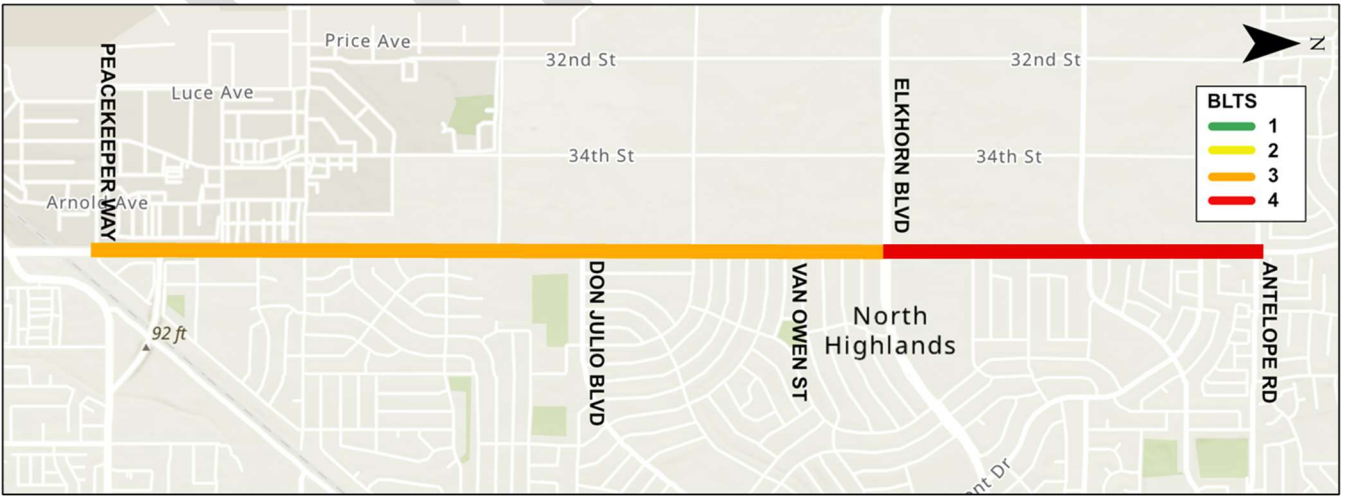


Figure 40: Minimal Impact Alternative Bicycle Level of Traffic Stress

Hybrid Urban Boulevard Alternative

Currently, Watt Avenue consists of disjointed Class II bike lanes; the hybrid urban alternative would implement Class IV protected bi-directional bicycle lanes. The Class IV lanes would improve bicyclists' safety by providing a physical barrier and improve accommodation for all ages and rider skills. Creating a physical barrier between vehicles and bicyclists would improve a sense of safety and improve visibility of bicyclists to drivers. Along the Watt Avenue frontage road, Class III bicycle boulevard would be implemented to provide continued bicycle access throughout the corridor.

Table 38 summarizes the bicycle level of traffic stress scores of the Hybrid Urban Alternative. The bicycle level of traffic stress scores are illustrated by segment in **Figure 41**.

Table 38: Hybrid Urban Boulevard Alternative Bicycle Level of Traffic Stress

	PEACEKEEPER WAY TO DON JULIO BOULEVARD	DON JULIO BOULEVARD TO VAN OWEN STREET	VAN OWEN STREET TO ELKHORN BOULEVARD	ELKHORN BOULEVARD TO ANTELOPE ROAD
STREET WIDTH (THROUGH LANES PER DIRECTION)	3	3	3	3
BIKE LANE WIDTH (INCLUDING BIKE LANE, BUFFER, AND GUTTER) (FT)	10	10	10	10
SPEED LIMIT OR PREVAILING SPEED (MPH)	35	35	35	45
PHYSICALLY SEPARATED BIKE LANE?	Yes	Yes	Yes	Yes
EXISTING BLTS SCORE	3	4	4	4
ALTERNATIVE BLTS SCORE ^A	1	1	1	1

Source: DKS Associates, 2025

^A Bicycle lanes with any form of physical separation from vehicle travel lanes are generally classified as LTS 1. However, bicyclists may experience increased level of stress due to adjacent vehicle speeds.

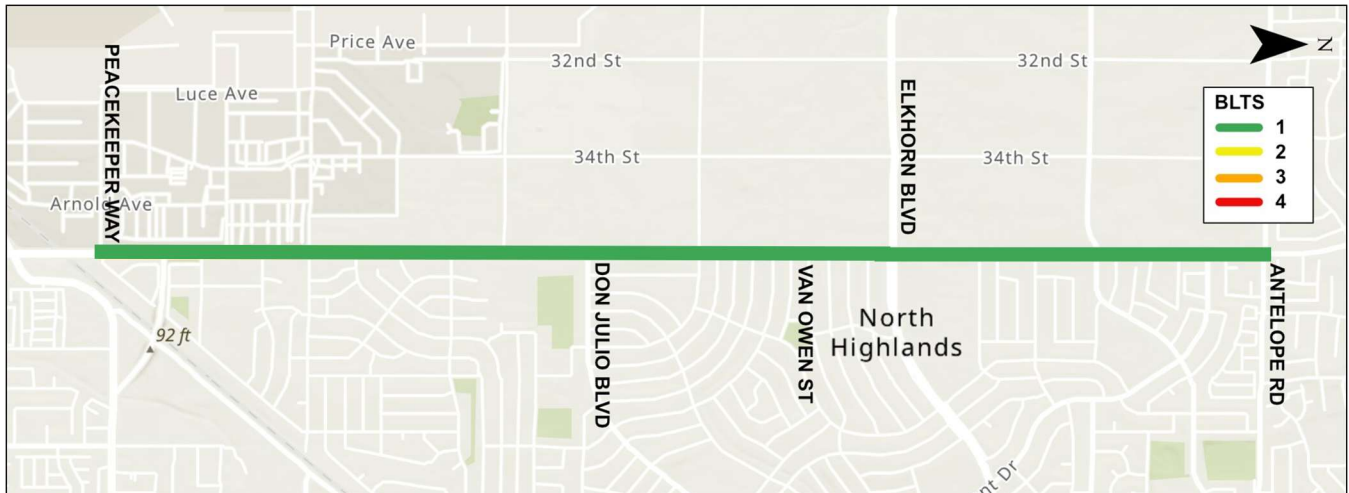


Figure 41: Hybrid Urban Boulevard Alternative Bicycle Level of Traffic Stress

One-Way Couplet Alternative

The One-Way Couplet Alternative would provide a Class IV two-way cycle track along Watt Avenue providing a low level of bicycle traffic stress (BLTS 1). However, intersections should be carefully designed to safely accommodate southbound bicyclists traveling contra-flow to northbound-only vehicular traffic.

Lane Reduction Alternative

This alternative has opportunity to provide reduced traffic stress for bicyclists where Watt Avenue is reduced from six to four lanes as street width is shifted from vehicular traffic to bike and pedestrian facilities. Directional Class IV protected bike lanes would provide BLTS 1.

Vehicle/Bicyclist Priority Improvement Alternative

Bicycle improvements and BLTS for this alternative would be similar to the Urban Hybrid Boulevard.

Urban Boulevard Alternative

Bicycle improvements and BLTS for this alternative would be similar to the Urban Hybrid Boulevard.

Transit Analysis

Transit improvements such as improved bus stops, and additional pullouts are consistent across all alternatives.

According to the SACSIM travel demand model used for forecasting in this document, there will be five bus routes traveling through the corridor on Watt Avenue, including SacRT Route 19, SacRT Route 84E, SacRT Route 84R, route ZF_NS09, and Route ZF_QP01. Figure 42 shows the extents of the routes that travel and have stops along the Project corridor. The figure shows that there are

multiple stops (19 in total) along Watt Avenue between Antelope Road and Peacekeeper Way and that no bus routes are assumed along 34th Street. **Table 39** shows a number of transit ridership metrics that can be obtained from transit assignments generated by the model and compared between project scenarios. As with other analyses in this document, results for the Minimal Impact, Lane Reduction, and Six-Lane Alternatives are all compared back to the currently adopted One-Way Couplet Alternative. The table shows that changes for the selected metrics range from approximately a seven percent decrease to approximately a five percent increase. These changes fall within a reasonable margin of error and really do not indicate any major trends in transit ridership between the four alternatives.

Table 39: Transit Ridership Analysis

	Transit Ridership Metric	One-Way Couplet Alternative	Minimal Impact Alternative	Lane Reduction Alternative	Six-Lane Alternatives
BUS ROUTES THAT USE PROJECT CORRIDOR	Total Daily Boardings (Change vs Minimal Impact Alt)	21,916	22,190 (+1.3%)	22,142 (+1.0%)	22,225 (+1.4%)
	Average Trip Time in Minutes	16.9	16.8	16.9	17.0
	Average Trip Distance in Miles	4.1	4.2	4.2	4.2
BUS STOPS ALONG PROJECT CORRIDOR	Boarding Total (Change vs One-Way Couplet Alt)	1,811	1,919 (+6.0%)	1,932 (+6.7%)	1,958 (+8.1%)
	Alighting Total (Change vs One-Way Couplet Alt)	1,858	1,956 (+5.3%)	1,996 (+7.4%)	2,051 (+10.4%)
	Maximum Passenger Volume on Bus (Change vs One-Way Couplet Alt)	4,201	4,518 (+7.5%)	4,609 (+9.7%)	4,737 (+12.8%)

Source: DKS Associates, 2025

While there is potential for future BRT facilities on the corridor, BRT evaluation is outside the current scope of this Plan. It is recommended that a future separate feasibility study be conducted should the County and SacRT wish to pursue BRT implementation.

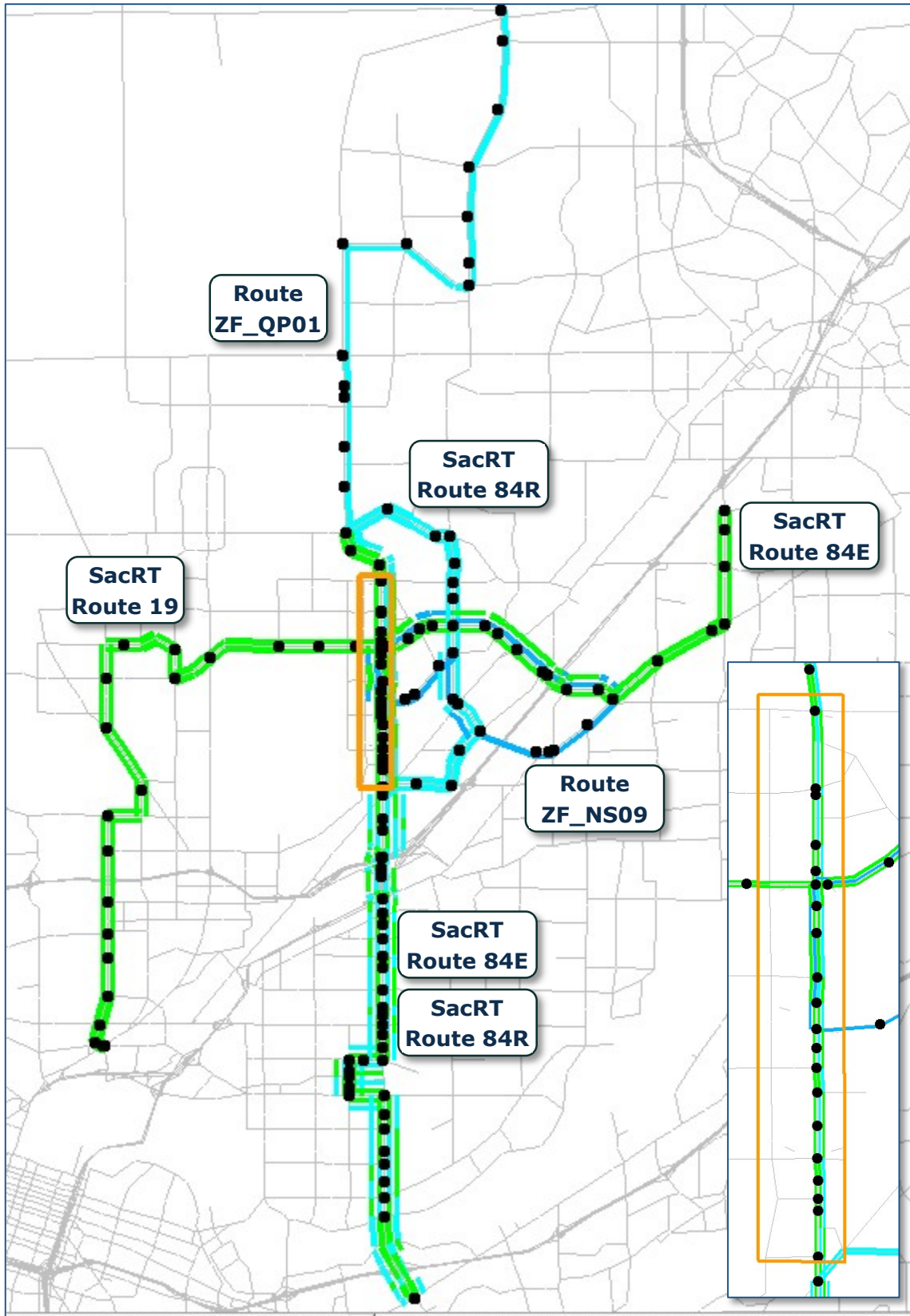


Figure 42: SACSIM Transit Routes and Stops Along Project Corridor

Displacement Analysis

A comprehensive displacement analysis was performed and documented for this plan by Urban Economics, entitled *Re-Imagine North Watt Corridor Plan Displacement & Loss of Use Analysis*. The purpose of this analysis and documentation was to quantify the potential for displacement from acquisition of an entire parcel or loss of use from partial acquisition associated with right-of-way acquisition for the Re-Imagine North Watt Corridor Plan. The memorandum (**Appendix M**) recommends policies and mitigation measures to minimize associated negative economic impacts. Economic impacts are of particular concern for the plan because the plan area includes disadvantaged communities. For example, the southern part of the corridor ranks in the 83rd percentile of census tracts in the state based on a composite measure of pollution burden and household income (CalEnviroScreen 4.0) as shown in **Figure 43**.

The study area includes 185 parcels with frontage on Watt Avenue. Displacement estimates for the Minimum Impact alternative and the Hybrid Urban alternative are summarized in **Table 40**.

Under the Hybrid Urban Alternative, displacement would occur from the acquisition of four single family parcels. Federal law requires compensation based on fair market value plus reimbursement for moving and related expenses and any price differential associated with the replacement property. There would be no full parcel acquisitions under the Minimum Impact Alternative.

The Minimum Impact and Hybrid Urban alternatives would also result in the partial acquisition of 13 and 52 parcels, respectively, resulting in some loss of use for the associated businesses. In addition to compensation for the fair market value of the partial loss of property, the County should have a policy of compensating businesses for one-time costs associated with property improvements to mitigate impacts on business operations. If the associated mitigation measures are insufficient, the County should compensate for documented loss of business income.

The Minimum Impact and Hybrid Urban alternatives would also require the partial acquisition of 84 and 81 additional parcels, respectively, with no loss of use. In these cases, the County would only compensate for the fair market value of the partial loss of property.

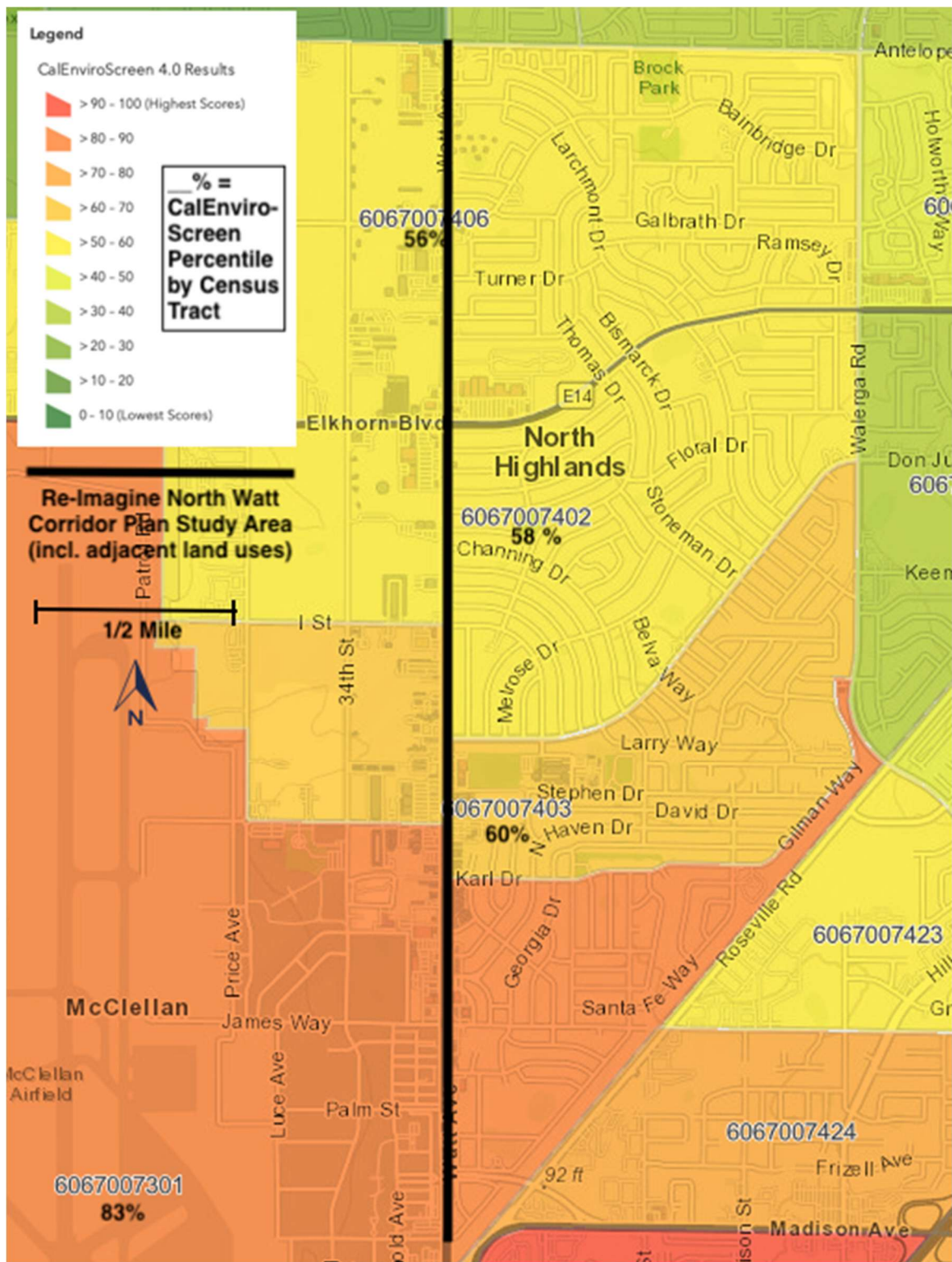


Figure 43: Study Area and CalEnviroScreen 4.0

Table 40: Displacement & Loss of Use from Right-of-Way Acquisition

District	Land Use	Minimum Impact Alternative		Hybrid Urban Alternative	
		Number of Parcels	Share of Parcels	Number of Parcels	Share of Parcels
Loss of Use from Partial Acquisition of Nonresidential Parcels	Parking, 10 or more Spots	1	1%	10	5%
	Parking, 5 to 9 Spots	3	2%	15	8%
	Parking, Less than 5 Spots	4	2%	6	31%
	Subtotal – Parking	8	4%	31	17%
	Circulation & Operations	5	3%	21	11%
	Subtotal – Loss of Use	13	7%	52	28%
Displacement from Full Acquisition of Residential Parcels	Single Family Dwelling	0	0%	4	2%
No Economic Impact from Loss of Use or Displacement	Partial Acquisition of Parcel with No Loss of Use	84	45%	81	44%
	No Property Acquisition	88	48%	48	26%
Total		185	100%	185	100%

Source: DKS Associates, Urban Economics, 2025

The displacement analysis focused on direct impacts of right-of-way acquisition. The effect of longer-term forces that may generate displacement, such as gentrification caused by public investment and private property development in the corridor, are the subject of a separate study for the County and are not addressed in this analysis. As described in **Appendix M**, research on displacement from gentrification caused by active transportation improvements have found the effects to be small and dependent upon income levels and local conditions¹⁵.

¹⁵ Karen Chapple, et al., “Examining the Unintended Effects of Climate Change Mitigation A New Tool to Predict Investment-Related Displacement”, Institute of Governmental Studies, University of California, Berkeley (research brief).

Additional Qualitative Considerations

The alternatives were additionally reviewed for the opportunities they created for improvements not explicitly designed in this planning process. This includes the plan adaptability for future bus rapid transit facilities and opportunities created for the placemaking strategies identified in the project improvements toolbox.

Adaptability to Future Bus Rapid Transit (BRT) Improvements

Watt Avenue was identified in SacRT's 2021 *High-Capacity Bus Study* and 2023 *Transit Stop Improvement Plan* as a high priority corridor for future enhancements including potentially bus rapid transit. In order to support these planning efforts, Sacramento Regional Transit (SacRT) has provided feedback that the adopted alternative should not preclude the following elements:

- Bus only rights-of-way (ROW) and/or bus queue jumps at points of major congestion
- Curb side space for enhanced stops which include amenities such as real-time arrival information, maps, and ticket vending machines for prepaid boarding. This may also include raised platforms for level loading
- Traffic signal priority which can extend green-light time or actuation of a green light upon detection of an approaching transit vehicle

Based on the forecasting and traffic operations analysis completed for this plan, Watt Avenue cannot be reduced below two general purpose travel lanes per direction without causing significant congestion along the corridor which ultimately also impact transit. However, converting a general-purpose lane to a BRT lane would be assumed to have similar traffic redistribution as the One-Way Couplet alternative evaluated in this Plan, therefore requiring some level of improvement to 34th Street such as roadway shoulders, a center turn lane, or widening to four lanes.

While there is potential for future BRT facilities on the corridor, BRT evaluation is outside the current scope of this Plan. It is recommended that a future separate feasibility study be conducted should the County and SacRT wish to pursue BRT implementation. **Table 41** shows a summary of the future adaptability of all of the alternatives considered to include BRT facilities.

Table 41: Evaluation of Future Adaptability to Bus Rapid Transit

Element	Minimal Impact	One-Way Couplet	Lane Reduction	Vehicle/Bicycle Priority Improvement	Urban Boulevard	Hybrid Urban Boulevard
Accommodates Future Bus Only ROW and/or Bus Queue Jumps	Partial, Requires additional ROW	Yes	No	Yes	Yes	Yes
Accommodate Future Enhanced Bus Stops	Requires Additional ROW Take	Yes	Yes	Requires Additional ROW Take	Yes	May Require Additional ROW Take at some stops
Accommodate Future Traffic Signal Priority	Yes	Yes	Yes	Yes	Yes	Yes

Source: DKS Associates, Sacramento Regional Transit, 2025

Creation of Placemaking Opportunities

The placemaking toolkit discussed in the previous chapter has been strategically applied to both the Minimum Impact and Hybrid Urban Boulevard alternatives, demonstrating varying degrees of implementation based on spatial constraints and design flexibility.

The Minimum Impact alternative, while maintaining the existing right-of-way, offers limited opportunities to introduce green corridor strategies due to constrained sidewalk widths and the absence of space for significant landscape enhancements. However, key placemaking elements such as identity markers, public art, and targeted pedestrian improvements have been integrated within the available space to enhance the street's character and walkability.

In contrast, the Hybrid Urban Boulevard alternative provides greater flexibility to incorporate both green corridor and active corridor strategies outlined in the placemaking toolkit. With additional right-of-way space, this alternative allows for enhanced urban greening, including tree-lined medians, expanded planting zones, and green infrastructure elements such as bioswales and permeable surfaces. Additionally, improved pedestrian and curbside activation strategies—such as wider sidewalks, outdoor seating, and active frontage enhancements—create a more dynamic and engaging streetscape.

The following graphics illustrate how these strategies have been applied across both alternatives, highlighting the spatial and design differences that contribute to the overall placemaking vision.

Figure 44 showcases the application of Minimum Impact alternative strategies at the Don Julio and Watt Avenue Intersection. Key elements include placemaking and street furnishings, such as street lighting and seating, as well as universal accessibility features like pedestrian ramps and high-visibility crosswalks. The multi-modal corridor integrates bike and bus facilities, supporting active transportation, while landscaping strategies, including rain gardens and landscaped strips, enhance the corridor's green appeal. These interventions collectively improve pedestrian safety, connectivity, and environmental resilience within the constrained right-of-way.

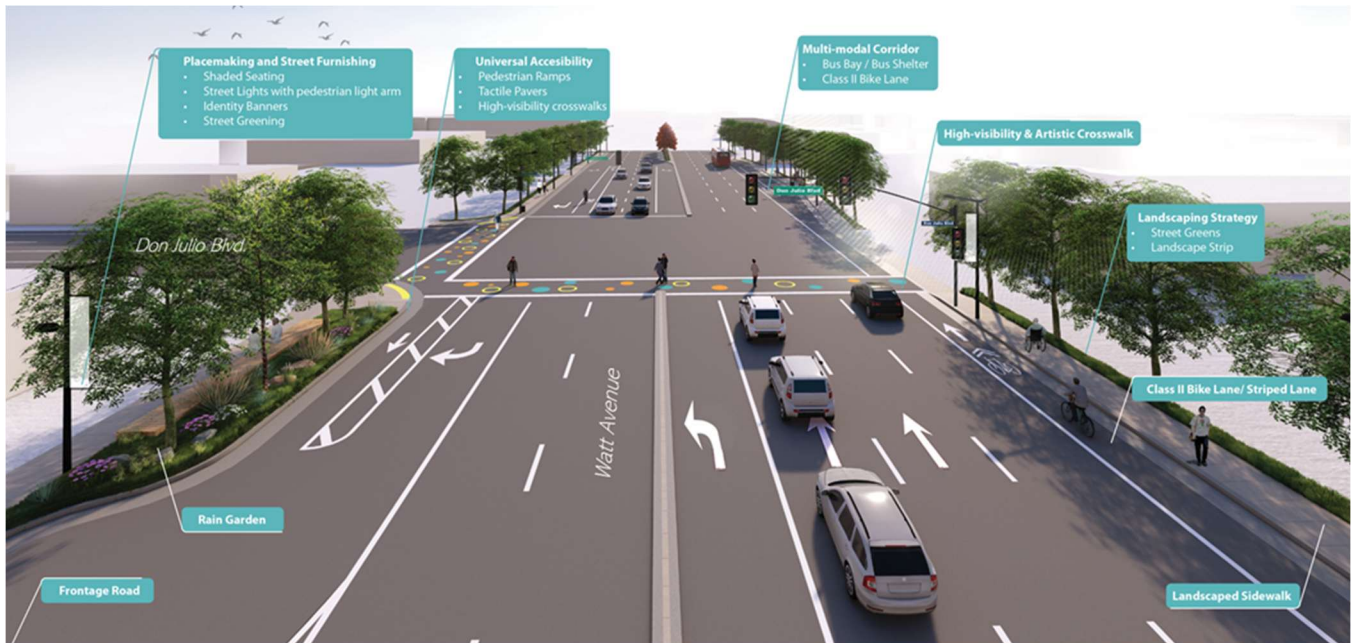


Figure 44. Illustration of Application of Minimum Impact Alternative Strategies (Don Julio Boulevard/North Watt Avenue)

Figure 45 highlights the Bus Stop and Bike Lane interface near Freedom Park Drive and Watt Avenue Intersection, emphasizing enhanced landscaping strategies, including street trees and landscaped strips, which contribute to a shaded and comfortable environment. The design incorporates placemaking and identity markers, such as pedestrian-scale lighting and branded signage, reinforcing corridor character. Additionally, bus shelters, seating areas, and wayfinding elements improve the user experience for transit riders, while bike facilities, including parking and dedicated lanes, promote sustainable mobility. These strategies, despite spatial limitations, foster a more inviting and functional streetscape.



Figure 45. Illustration of Bus Stop and Bike Lane Application of Minimum Impact Alternative Strategies (Freedom Park Drive/North Watt Avenue)

Figure 46 illustrates the application of Hybrid Urban Boulevard alternative at the Don Julio and Watt Avenue Intersection. It leverages additional right-of-way to create a more inviting and pedestrian-friendly streetscape. Compared to the Minimum Impact alternative, this design incorporates a Class IV protected bike lane, providing a safer and more comfortable experience for cyclists. Wider landscaped sidewalks and additional street greening enhance the corridor's visual appeal while offering shaded walking environments. Placemaking elements such as street lighting, wayfinding signage, and pedestrian-scale furnishings further contribute to a welcoming public realm. The enhanced multi-modal corridor, including designated bus bays and improved crosswalks, ensures better connectivity and accessibility for all users.



Figure 46. Illustration of Hybrid Urban Boulevard Alternative Strategies (Don Julio Boulevard/North Watt Avenue)

Figure 47 showcases a scenario near the Freedom Park Drive and Watt Avenue Intersection, the expanded right-of-way enables the integration of wider sidewalks, increasing space for pedestrian movement and curbside activities. Additional street trees and landscaped strips contribute to a more comfortable, shaded environment, reinforcing the corridor's green identity. Transit facilities are also significantly improved, with bus shelters offering seating, shade, and wayfinding elements, enhancing the experience for transit riders. Dedicated bike facilities ensure safe cycling infrastructure, further promoting active transportation. The additional space allows for future development opportunities, supporting ground-floor activation and long-term corridor vitality. Together, these improvements create a more engaging, accessible, and sustainable urban streetscape.



Figure 47. Illustration of Bus Stop and Bike Lane Interference Application of Hybrid Urban Boulevard Alternative (Freedom Park Drive/North Watt Avenue)

Public Comments on Project Alternatives

Preliminary Alternatives and Screening

As part of the screening process, the preliminary alternatives, in the form of cross-sections, infrastructure toolbox, and placemaking toolbox, were presented to the public during an in-person workshop on April 20, 2024, with opportunities given to comment and rank the different components of each preliminary alternative. The slides, boards, and toolboxes shown at the in-person workshop were also provided online for public comment and ranking. The scores for the alternatives ranking are shown in **Figure 48** and the summary for all ranking surveys and all comments are provided in **Appendix B** and **Appendix C** respectively.

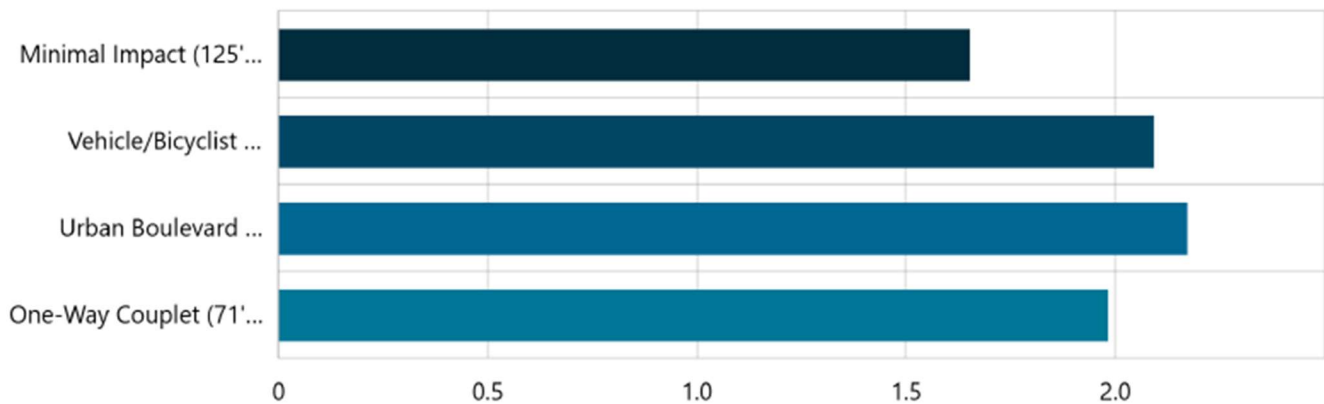


Figure 48: Public Ranking Scores of Preliminary Alternatives

The weighted ranking scores for all alternatives showed the Urban Boulevard alternative with the highest score, followed by the Vehicle/Bicycle Priority alternative. The most popular components identified through the survey were:

- Placemaking
 - Gateway monument
 - Mural walls
 - Special paving patterns
- Transit Improvements
 - Floating bus stops with sidewalk grade bikeways
 - Bus pullouts
 - Amenities at bus stops
- Landscaping Options
 - Buffered Sidewalks
 - Stormwater runoff capture
 - Greenway
- Pedestrian Improvements
 - Underground utilities
 - Implement leading pedestrian intervals

In general, most of the improvements were received positively. The primary comments that were received during the workshop were concerns about right-of-way take impacting local businesses and houses adjacent to Watt Avenue, and improved amenities encouraging an influx of criminal behavior. The primary comments received from the online survey referred to people feeling unsafe on Watt Avenue, either from crime or from insufficient pedestrian and bicycle facilities, and to the significant number of potholes and low quality of the pavement along the corridor.

Selected Project Alternatives for Consideration

After completing the quantitative and qualitative reviews of the corridor concepts and vetting the concepts with the local community and stakeholders, two concepts were chosen to move forward for consideration:

Minimal Impact Alternative:

Upgrading the corridor only to the extent required by pedestrian and bicycle facility gap closure and meeting County Standards, resulting in the least significant changes to the existing conditions.

The Minimal Impact alternative was developed due to concerns identified by local community members and stakeholders that the amount of ROW required for other alternatives would result in the loss of local businesses and removal of residences along the corridor and would not be worth the tradeoff of improved facilities.

Hybrid Urban Boulevard Alternative:

Combining the Urban Boulevard and the Vehicle/Bicyclist Priority alternatives, utilizing the frontage road where it currently exists while bringing it to current County standards, and upgrading pedestrian and bicycle facilities to meet Caltrans all-ages-and-abilities guidance for low stress facilities.

The Hybrid Urban Boulevard alternative was developed due to concerns identified by local community members and stakeholders that the amount of ROW required for the concept would not be supported by the community due to the effect on local businesses and residences. There were elements of the alternative that community members liked, but they were concerned about the impact that the project could have on local businesses. Similarly, elements of the Vehicle/Bicyclist Priority Alternative were well received, but the option did not go far enough in improving the corridor for all users. Elements of both alternatives were combined in order to address the community concerns and develop a concept which provided significant improvements while minimizing the required ROW takes.

Screened Out Alternatives

The One-Way Couplet and Lane Reduction alternatives had similar issues which caused them to be screened out. Both options required that 34th Street be fully redesigned and expanded to handle traffic diverted from Watt Avenue. The One-Way Couplet Alternative would also require significant new ROW for the transition points between one-way and two-way operations, as well as reduce pass-by traffic for local businesses. The Lane Reduction Alternative was screened out before reaching the public engagement stage of the plan because it would have resulted in traffic diversion to 34th Street, requiring dozens of full property takes along 34th Street to widen the roadway to an appropriate level while also providing minimal benefits for people driving, walking, biking, or taking transit along Watt Avenue. **Table 42** shows a summary comparison of the analysis completed across all alternatives.

Alternative Evaluation Results

Table 42: Comparison of Alternatives

Measure of Effectiveness	Minimal Impact	One-Way Couplet	Lane Reduction	Vehicle/Bicyclist Priority	Urban Boulevard	Hybrid Urban Boulevard
Mobility						
Number of Intersections Not Meeting LOS Targets	2	2	3	3	3	3
Number of Queues Exceeding Storage	12	13	14	12	12	12
Average Level of Traffic Stress						
Pedestrian	3.0	2.0	N/A	2.0	2.0	2.0
Bicycle	3.3	1.0	N/A	1.0	1.0	1.0
Adaptability for Transit Improvements						
Placemaking Opportunities (Parcels)			N/A			
Community Feedback			N/A			
Right of Way Impacts						
Number of Parcels						
Full Parcels Taken	0	¹⁶	N/A	N/A	N/A	4
Loss of Function	13	¹⁶	N/A	N/A	N/A	52

Based on the plan analysis conducted and the feedback received from the local community, the Minimal Impact and Hybrid Urban Boulevard Alternatives were selected as the plan alternatives for

¹⁶ The One-Way Couple impacts every parcel along 34th street as well as parcels along the connecting routes between Watt Avenue and 34th Street. There would be minimal impacts along Watt Avenue. The exact impact was not evaluated in full in the previous plan.

further development. Draft layouts for the Minimal Impact Alternative and the Hybrid Urban Boulevard Alternative are provided in **Appendix N** and **Appendix O** respectively.

In the development of these draft layouts, a few overarching principles were applied based on the plan purpose, feedback received from the local community, and coordination with County staff:

- Impacts to residential parcels were to be kept to a minimum, this generally resulted in any required roadway widening to occur to the western side of the corridor
- The Minimal Impact Alternative would include targeted widening of the Right of Way to more closely align with County policies and standards if that widening would not cause displacement or a loss of use that would require extensive changes to the parcel
- The Hybrid Urban Boulevard Alternative would include targeted reductions in the project improvements (e.g. reduced landscaping and/or sidewalk widths) if the inclusion of the improvement would result in a major displacement

These draft layouts are concepts and do not reflect the final design of the corridor. Also of note, these plans do not reflect driveway consolidations and did not review all opportunities for transit stop improvements. Additionally, these concept plans do not reflect the placemaking strategies that this plan recommends be implemented in the final design.

Public Town Hall

The selected project alternatives were presented to the public in an in-person town hall on December 11, 2024. The two alternatives were presented through a slide presentation, 3D rendered flyby videos, full corridor concept alignments, and summary boards. Attendees were given a chance to ask questions regarding each alternative and give their preferences between the two. All materials presented at the in-person town hall were uploaded to the plan website.

General preference from attendees was given to the Hybrid Urban Boulevard Alternative and the focus on minimizing additional right-of-way needs was recognized and appreciated by community members.

Project Costs

Project planning level cost estimates were prepared for the Minimal Impact and Hybrid Urban Boulevard alternatives by Mark Thomas & Co. Project design and construction management soft costs were assumed to be a percentage of the hard costs for the project. A summary of the estimated 2028 project costs are presented in **Table 43**. Detailed cost estimates are included in **Appendix O**.

Table 43: Project Alternative Cost Estimates

	MINIMAL IMPACT ALTERNATIVE	HYBRID URBAN BOULEVARD ALTERNATIVE
TOTAL CONSTRUCTION COST	\$64,191,000	\$87,208,000
TOTAL RIGHT OF WAY COST	\$1,693,000	\$4,137,000
TOTAL CAPITAL OUTLAY COSTS	\$65,884,000	\$91,345,000
PA/ED (10%)	\$6,430,000	\$8,730,000
PS&E (15%)	\$9,640,000	\$13,100,000
RIGHT OF WAY (2%)	\$1,290,000	\$1,760,000
CONSTRCTON (12%)	\$7,720,000	\$10,480,000
TOTAL DELIVERY COST	\$25,080,000	\$34,070,000
TOTAL PROJECT COST	\$91,000,000	\$126,000,000

Source: Mark Thomas & Co. 2025

Project Recommendations

The following sections provide a summary of the recommendations resulting from this analysis and plan:

Plan Recommendations

Based on the analysis of the Minimal Impact and Hybrid Urban Boulevard alternatives, it is recommended that the County pursue the Hybrid Urban Boulevard alternative. While the Hybrid Urban Boulevard consists of higher project costs and additional ROW acquisition, this alternative best meets the needs of the Plan and surrounding community. The Hybrid Urban Boulevard alternative supports improved safety for pedestrians and bicyclists, potential BRT, placemaking, and landscaping opportunities.

Operational Recommendations

Based on the operational, delay, and queueing analysis of the Minimal Impact and Hybrid Urban Boulevard alternatives, the following operational and intersection configuration changes are recommended to allow for efficient and safer operations consistent with County guidelines:

- Addition of a second northbound left-turn lane to the intersection of Watt Avenue & A Street
- Signalization of Elkhorn Boulevard and 34th Street
- Conversion of the two-way center turn-lane on the westbound approach of Antelope Road at Watt Avenue into an extension of the left turn lane to Caballero Lane

Policy and Strategy Recommendations

The following section lists policies related to the plan corridor and those that will support the implementation and intent of the recommended infrastructure components. The policy recommendations include those relevant to the design and operations of the corridor, as well as displacement compensation strategies for those who may be affected by this plan. Each section is broken down into policies which are carried forward from prior planning efforts and policies which are newly recommended as part of the Re-Imagine North Watt Corridor Plan.

Design and Operation of Roadway Facilities

Policies Carried Forward from Prior Planning:

Pol-1. *The County should implement traffic calming measures to the greatest extent possible throughout the corridor including but not limited to raised medians, streetscaping, speed feedback signs, or road diets.*

Pol-2. *The County should consider driveway consolidation to the greatest extent possible between adjacent properties to minimize conflict points.*

Pol-3. *The County should consider new traffic flows and potential hazards created by driveway consolidation.*

Pol-4. *Where feasible, the County should consider minimum through lane widths of 11 feet and 10 feet for turning lanes.*

Project Specific Policies:

Pol-5. *The County should seek opportunities to consolidate driveways for commercial land use and parking lots, especially where multiple access points are provided for the same or connected facilities.*

Pol-6. *The County should seek to improve the visibility of signalized intersections through improved signage and retroreflective backplates for signal heads, and implement collision avoidance systems such as advanced dilemma zone detection.*

Design of Pedestrian Facilities

Policies Carried Forward from Prior Planning:

Pol-7. *To the greatest extent possible, the County should consider minimum sidewalk width of 5 feet throughout the corridor and adjacent frontage roads.*

Pol-8. *Where feasible, the County should implement landscape buffers between the sidewalk and vehicle travel lanes.*

Pol-9. *The County should provide safe crossing opportunities at all intersections.*

Pol-10. *To the greatest extent possible, the County should consider implementing pedestrian scale lighting, pedestrian hybrid beacons, and pedestrian crossing signs.*

Pol-11. *The County should minimize conflicts between pedestrians and bicyclists, particularly at and near bus stops.*

Project Specific Policies:

Pol-12. *The County should coordinate with the Sacramento Municipal Utility District (SMUD) to underground utilities along Watt Avenue, especially where utilities poles present reduce the available width of the sidewalk.*

Pol-13. *The County should incorporate universal accessibility in design of pedestrian facilities where possible, including curb ramps, high-visibility crosswalks, level and smooth sidewalks of appropriate width, raised tactile surfaces providing guidance when needed, and audible and visual signals at crosswalks indicating direction and when it is safe to cross.*

Pol-14. *The County should incorporate improved pedestrian and curbside activation strategies where possible — such as wider sidewalks, outdoor shaded seating, and active frontage enhancements.*

Design of Bicycle Facilities

Policies Carried Forward from Prior Planning:

Pol-15. *To the greatest extent possible, the County should consider implementing hardscape physical buffers between Class IV bike lanes and vehicle travel lanes.*

Pol-16. *The County should consider a minimum bike lane width of five feet.*

Pol-17. *The County should implement green bike paint to the greatest extent possible on Class IV bike lanes.*

Pol-18. *The County should minimize conflicts between bicyclists and bus stop locations.*

Project Specific Policies:

Pol 16b. *The County should consider a minimum bike lane width of five feet exclusive of the curb and gutter*

Pol-17b. *The County should provide conflict zone striping at all driveways and intersections where vehicle pathing crosses the Class II or Class IV bike lanes.*

Design of Transit Facilities

Policies Carried Forward from Prior Planning:

Pol-19. *The County should consider a lasting partnership with Sacramento Regional Transit (SacRT) to engage in project happenings and engage in joint projects.*

Pol-20. *The County should coordinate with SacRT on identified bus stops and improvements.*

Pol-21. *Through coordination with SacRT, the County should prioritize disadvantaged communities' needs through bus stop improvements and improvement funding.*

Pol-22. *The County should consider partnerships with SacRT for funding opportunities including but not limited to, local and regional, state, and federal funding.*

Pol-23. *Through a partnership with SacRT, the County should consider a maintenance agreement to provide maintenance and clean bus stop facilities.*

Pol-24. *The County should consider potential bus stop improvements and follow the SacRT bus stop amenity design guidelines, if feasible.*

Project Specific Policies:

Pol-24b. *The County should implement shaded seating, universal access, and wayfinding at bus stops with the highest demand along the corridor.*

Pol-25. *The County should coordinate with SacRT on best design practices when improving bus stops that are located along Class II or Class IV bike lanes.*

Placemaking Policies

Pol-26. *The County should consider an agreement with property owners along the corridor, for incorporating planting, trees, and/or stormwater management systems such as bio-swales, rain gardens, etc. within a landscape strip of minimum 5 feet width, within their property that interfaces with public right-of-way to increase shade, introduce green infrastructure, and create a comfortable and attractive street environment.*

Pol-27. *The County should consider incorporating bulb-outs at intersections to integrate green infrastructure elements such as rain gardens, street trees, and landscaped planters. These enhancements will improve stormwater management, expand pedestrian space, and contribute to placemaking by creating more inviting and visually distinctive street environments.*

Pol-28. *The County should prioritize planting native tree species in medians and along sidewalks to enhance the corridor's ecological resilience, provide shade, and improve air quality. Native trees should be selected for their adaptability to local climate conditions, low water requirements, and ability to contribute to a cohesive and visually appealing streetscape.*

Displacement Mitigation Policies

Existing Policies

Pol-29. *Engaging community stakeholders early in the process and designing project alternatives to minimize displacement.*

Pol-30. *During the design phase of the project, incorporate solutions to reduce potential impacts as much as feasible while still achieving the plan objectives.*

Project Specific Policies

Pol-31. *Compensate property owners (and tenants, if applicable) for full parcel acquisition or residential properties, potentially including fair market value, moving expenses, price differential payment, mortgage differential payment, incidental expenses, rent differential for 42 months or conversion to a down payment.*

Pol-32. *Compensate nonresidential property owners for partial acquisition of properties*

Pol-33. *Provide additional compensation and other mitigation measures for business owners that would experience loss of use from partial acquisition of non-residential properties.*

Pol-34. *Provide compensation and/or support during and for impacts due to construction.*

Pol-35. *The County should monitor and evaluate the effectiveness of mitigation measures, including customer patterns, revenue changes, and parking utilization.*

Additional detail and information on displacement mitigation strategies and policies can be found in **Appendix M.**

APPENDIX



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Appendix A: Stakeholder Engagement Summary Memo

DRAFT



DRAFT STAKEHOLDER ENGAGEMENT SUMMARY MEMO

DATE: December 17, 2024

TO: Cameron Shew | Sacramento County

FROM: Josh Pilachowski | DKS Associates
Kendall Flint | DKS Associates
Crystal Chavez | DKS Associates

SUBJECT: Re-Imagine North Watt Corridor Plan

Project # 23110-000

INTRODUCTION

DKS Associates has been collaborating with Sacramento County to gather public input for the *Re-imagine North Watt Corridor Plan*. This outreach effort utilized a multi-faceted approach to engage diverse groups and stakeholders. The engagement strategy included the formation of a **Corridor Advisory Team (CAT)**, focus group discussions, and stakeholder interviews.

Engagement Approach

1. **Corridor Advisory Team (CAT):**

The CAT was established as a representative group comprising members from local and regional organizations. This team played a central role in advising and supporting the outreach process.

2. **Focus Group Sessions:**

DKS Associates facilitated focus group meetings with representatives from local community organizations. These discussions were designed to explore strategies for enhancing engagement by leveraging existing meetings and networks within the project area.

3. **Stakeholder Interviews:**

Individual and group interviews were conducted with key stakeholders and committee members. These sessions aimed to raise awareness of the project, foster dialogue, and ensure active participation from influential stakeholders.

Purpose of the Memorandum

This document serves as a summary of outreach efforts for the three key engagement components under Task 2 deliverables:

- Corridor Advisory Team Meetings Summary
- Stakeholder Interviews Memorandum
- Focus Group Meetings Memorandum

By integrating the findings and feedback from all three groups, this memorandum provides a comprehensive overview of outreach strategies and outcomes, highlighting the collaborative efforts to engage the community in the development of the *Re-imagine North Watt Corridor Plan*.

CORRIDOR ADVISORY TEAM (CAT) MEETINGS SUMMARY

OVERVIEW

As part of the *Re-Imagine North Watt Corridor Plan*, the project team established the **Corridor Advisory Team (CAT)**, a diverse group of representatives from local and regional organizations. Members included business owners, law enforcement officials, transportation and planning agencies, and other key stakeholders across Sacramento County.

The CAT played a vital role in the project by:

- **Providing targeted feedback** on behalf of the communities and organizations they represent.
- **Ensuring the project addresses the needs of vulnerable groups**, fostering equitable outcomes for all corridor users.
- **Identifying potential needs and opportunities for improvement** along the corridor to enhance safety, accessibility, and economic vitality.

By leveraging the insights and expertise of the CAT, the project team ensured a more inclusive and informed approach to reimagining the North Watt Corridor.

The organizations and members were as follows:

ORGANIZATION	REPRESENTATIVE
80 Watt District	Jhason Wint
Watt PBID	Emily Briggs & Rebekah Evans
North Sacramento Chamber of Commerce	Rebekah Evans
Slavic Chamber of Commerce	Sergey Terebkov

ORGANIZATION	REPRESENTATIVE
California Department of Transportation	Alex Padilla - Branch Chief
Center Unified School District	Scott Loehr - Superintendent
McClellan Business Park	Trey Gundlach
Mercy Housing	Doug Shoemaker - President
North Highlands Recreation & Park District	Larry Mazzuca - Administrator
North Highlands/Foothill Farms Community Planning Advisory Council	Benjamin Rady- Associate Planner
Placer County Transportation Planning Agency	Matt Click - Executive Director
Sacramento Area Bicycle Advocates	Debra Banks - Executive Director
Sacramento Area Council of Governments	Victoria Cacciatore - Transportation Analyst
Sacramento County Bicycle Advisory Committee	Sue Schooling
Sacramento County Disability Advisory Committee	Cheryl Bennett - County Disability Compliance Officer
Sacramento County Sheriff's Office	James Hicks - Sheriff Records Officer II
Sacramento Housing and Redevelopment Agency	La Shelle Dozier - Executive Director
Sacramento Metropolitan Fire District	Angela Hampton - Supervising Inspector
Sacramento Regional Transit District	Kevin Schroder - Senior Planner
Twin Rivers Unified School District	Heriberto Soto - Coordinator, Family and Community Engagement (FACE)
Walk Sacramento - Now Civic Thread	Kiara Reed - Executive Director

CAT MEETING #1

PURPOSE

The first CAT meeting served as an opportunity to introduce the project background, purpose, need, and expectations of the members. The main purpose of this meeting was to introduce the members of the CAT to the project and utilize their knowledge of the corridor to better inform the existing conditions analysis for the project. The project team also provided a status update for the project and presented the existing conditions analysis that had already been performed.

To raise awareness of the project to the broader community, the CAT was encouraged to share information about the project and upcoming public workshops and stakeholder interviews to their relevant committees and agencies.

FEEDBACK

Overall, the CAT was excited and interested in the project. Several members provided insight from experience with the corridor and highlighted areas for potential improvements. Members were extremely supportive of improving safety, particularly for bicyclists and pedestrians. The SacRT representative was interested in the potential for Bus Rapid Transit (BRT). It was mentioned during the CAT meeting that the corridor has growth potential due to the unique businesses and adjacent land use, which would influence the need for transit improvements. Among the CAT, there was interest in potentially undergrounding utility lines to provide improved space within sidewalks.

CAT MEETING #2

PURPOSE

The second CAT meeting was focused on presenting the alternative analysis and included components for review. The project team presented four alternatives to the CAT for feedback: Minimum Improvements, One-Way Couplet (currently programmed), Vehicle/Bicyclists Priority Improvement, Urban Boulevard. The project team also promoted additional upcoming outreach events including the upcoming community workshop.

FEEDBACK

The group provided feedback regarding the alternatives and any concerns or reservations they may have about each alternative or included components. Feedback received primarily focused on the urban boulevard alternative concept, several members were concerned about potential impacts to adjacent businesses and right of way constraints. Additional comments regarding improving accessibility for all in project materials such as presentations, public comment methods, and infrastructure. The project team informed the CAT that comments received on the proposed alternatives will be considered in the development of a preferred alternative and presented to the CAT at the 3rd meeting. The project team presented project next steps including developing an in-depth review of the preferred alternative, displacement analysis, and promoting the preferred alternative for public comment.

CAT MEETING #3

PURPOSE

During the third CAT meeting, the project team presented the two final alternatives (Minimal Impact, Hybrid Urban) to the group and allowed for comments. The project team presented an alternatives analysis matrix of project purpose and need met by each alternative. The project team also reminded the CAT members of an upcoming in-person outreach meeting for additional public comment. Additionally, the project team provided a project status update, including any remaining analysis and the expected schedule leading to the plan report being adopted by the County Board of Supervisors in February 2025.

FEEDBACK

The two alternatives were presented to the CAT members, all of whom were receptive and supportive, but asked the project team clarifying questions. Primary concerns from members included confirming the inclusion of access improvements for all users, BRT feasibility, and how the alternatives would be evaluated quantitatively and with what data. The representative from the Sheriff's office provided insight into how shifting parking to the rear of a business may decrease safety due to reduced line of sight and the potential impacts to businesses. The project team confirmed that the plan is only providing high level recommendations for cross-sections and components, and that specific details will be further established during future feasibility and design projects. The project team clarified that the two alternatives will be presented to the Board of Supervisors and the Board would suggest which alternative to move forward with for inclusion in the report.

SACRAMENTO COUNTY COMMITTEE PRESENTATIONS

Project status, findings, and recommendations were also regularly communicated to the Bicycle Advisory Committee (SacBAC) and the Disability Advisory Committee Physical Access Subcommittee (DAC-PASC), two active Sacramento County advisory committees. The committees were updated on project status at meetings over the course of the project that covered the following topics:

- SacBAC (January 17, 2024) – Existing conditions and needs review
- DAC-PASC (February 20, 2024) – Existing conditions and needs review
- SacBAC (May 9, 2024) – Project toolbox and alternatives review
- SacBAC (November 14, 2024) – Final alternatives and evaluation
- DAC-PASC (November 19, 2024) – Final alternatives and evaluation

Each meeting involved an update of project status, a review of the analysis and current recommendations, a request for feedback on the recommendations, and a feedback period where the committee members could ask questions about the project.

FOCUS GROUP MEETINGS SUMMARY

OVERVIEW

DKS facilitated a focus group session with attendees representing local community groups and organizations, as part of the effort to plan improvements that will make the North Watt corridor safer and easier to access for all. The DKS team also reached out to all focus group members to discuss strategies to increase engagement by partnering with existing meetings in the project area. This was very successful and resulted in identifying several “pop up/community groups” holding meetings which DKS attended. This section summarizes the key issues and outcomes expressed by participants of the focus group as well as the presentations and meetings with local community groups and organizations.

FOCUS GROUP SESSION: NOVEMBER 14, 2023

The session was attended by eight representatives from local community groups and organizations and lasted approximately 90 minutes in length. Participants were asked questions focused around four main topics of discussion designed to encourage discussion and the exploration of the subject matter in depth. Attendees were also given the opportunity to introduce their own avenues of discussion regarding current barriers and proposed improvements along the corridor.

The room layout and associated collateral materials were designed to give attendees a greater understanding of the project goals, the project limits, and aid in the discussion. Collateral materials included map handouts of the project area, showing transit stops and signalized intersections. The live Social Pinpoint site was shown on screen as a visual aid, followed by a walkthrough of the platform at the end of the session to encourage participants to leave their feedback using the online tool. The total number of participants was 8.

QUESTION 1

Do you feel safe walking in this corridor and if not - why? What areas do you think need to be improved and what kind of improvements would you like to see?

FEEDBACK

The consensus of the group is that the corridor needs improvements to increase the safety of pedestrians, including the maintenance of current infrastructure, improvements to lighting, and the addition of safe walkways where none currently exist.

- There are areas along the corridor, many undeveloped, that need improvement and maintenance –
 - No sidewalks – near Van Owen Street till south to Don Julio Boulevard.
 - Install or improve sidewalks along the corridor at intersections near schools.
 - Certain areas along the corridor have uneven and/or damaged pavement.
 - Need to check and improve ADA compliance at intersections.
- There are a few intersections with large crossing gaps that provide limited time for pedestrians to cross.
- Lighting along the corridor definitely needs improvement, especially at main intersections.
 - I Street and Don Julio Boulevard – it can be hard for drivers to see pedestrians crossing the street at night.
- It would be nice to beautify the corridor with colorful plants and trees and provide more shade along the corridor, again with greenery as well as infrastructure improvements.

QUESTION 2

Do you or anyone you know ride bikes in this area? Do you feel safe biking in this corridor and if not - why? What areas do you think need to be improved and what kind of improvements would you like to see?

FEEDBACK

The corridor needs improvements to increase the safety of those riding bikes, e-bikes, and scooters. This includes improvements to lighting, and the addition of bike lanes where none currently exist and improving current bike lanes. Generally, the corridor seems underutilized by bike, e-scooter/e-bike users. The area is not conducive to these modes of transportation.

- Bike lanes are hit or miss along the corridor and at some locations, it is hard to tell if the white paint line denotes a bike lane or not.
- In some areas garbage and debris litter bike lanes. They are also impeded by transit, homeless encampments.
- East Watt near Highlands Community Sports Complex – there are safety concerns regarding this area where young adults often ride bikes.
 - Lack of bike lanes and other safety measures
- Improvements should include
 - speed measures/traffic calming, especially at intersections,
 - clean up and maintenance of existing infrastructure,
 - better lighting and reflective paint, and signage. There is a big need for signage improvements [reflective, flashing].
 - Adding bike facilities near buildings for commuters who bike to work.
- One attendee mentioned planned improvements such as the addition of mobility hubs –
 - coming soon to some locations near the corridor – GreenTech is the consultant.

QUESTION 3

Let's talk about buses. How would you improve bus service in this area? Are the stops in the right places? Do you feel safe using the bus system? Why or why not?

FEEDBACK

Many people use the bus system along the corridor but there are some safety and service concerns that need to be addressed.

- Apart from vehicles, the second most used mode of transportation is the fixed route bus.
 - Some bus routes have been terminated or re-routed.
 - Alternatives include SmartRide, through SacRT, that allows users to request stops in advance.
 - Fleet is made up of different types of vehicles.
 - SmartRide is constrained to a specific area and needs to be expanded.
 - The service is no longer available in the north area of the study corridor previously covered by Bus Route 80 before it was rerouted.
- Students K-12 currently ride free. Not sure if this extends to university and community colleges.
 - Need to increase awareness for this program as it would increase ridership [this mode of transportation].
- Improvements should focus on multimodal infrastructure –
 - Bus turnouts to mitigate traffic congestion [currently nonexistent]
 - Bus stops should be moved away from intersections. Many of those stops are too close or are located at intersections, causing collision concerns and impacts to traffic.

- Protected bus stops/hubs – plants, benches, shade trees
- Mobility hubs – to connect bikers/e-scooters, pedestrians, Zipcar, transit, and on-demand services.
- Bike lanes and walkways should be installed away from the road and integrated with transit stops – protected bike lanes and crosswalks in addition to those at intersections.
- Greenery and beautification and other potentially traffic calming measures along the entire corridor.

QUESTION 4

What are some of your overall concerns in this area? Where can we make improvements and what type of improvements would make this area better for walking, biking and driving?

FEEDBACK

The concerns in addition to pedestrian, bike and transit, included beautification of the zone and making it a “walkable” corridor through the promotion of business and other, mainly housing element, measures.

- New developments and packed commercial retail near some schools make the corridor less safe for students to walk or bike without significant improvements to the infrastructure.
- Business owners need to clean up around their store fronts, green spaces, sidewalks and parking areas. Call 311 to help with that.
- New business development should be encouraged to make the corridor attractive to current residents:
 - Businesses should not be chain retailers and fast food.
 - Local eateries and cafes with similar or themed looks to exteriors.
 - People working along the corridor will not be forced to drive out of the area to eat.
 - There is also a concern that adding this will impact the residential/housing choices in the area – “gentrification.” There should be a balance/is there such a thing as “too much” improvement/development?
- Currently the corridor is a ‘pass through’ area. Much of the vehicle traffic comes from outside the area.
 - This needs to change through the development of a business corridor.
 - People will take more pride and care in their community with improvements.

QUESTION 5

Open discussion.

FEEDBACK

The main topic of discussion was safety for students and residents along and adjacent to the corridor. Some of the concerns were speeding traffic, poor existing infrastructure, and homeless encampments, especially near or at school sites. This last was a big concern and some participants cited calling the non-emergency police number and/or 311 to clear out encampments. There were

issues of drug paraphernalia found strewn on school grounds when people break in to use external power sources and restroom facilities.

Some of the participants asked about the corridor's inclusion in previous plans (2022 ATP), the budget and the timeline for Re-imagine North Watt, and opportunities for the public to engage, including a walk/bike along the corridor. They also mentioned the desire for future opportunities for engagement, including updates on the project and liaisons with community groups that currently meet up to discuss concerns and improvements to the area.

STAKEHOLDER INTERVIEW SUMMARY

OVERVIEW

DKS Associates held various meetings with committee members to raise awareness about the *Re-imagine North Watt Corridor Plan* and engage stakeholders. The project team provided an overview of the project and highlighted examples from similar projects in the past. The attendance at these meetings was limited, however, the team was able to open the discussion with the members, fostering support and increasing interest for the upcoming public workshops and open houses. DKS distributed project information cards in English, Spanish, and Mandarin. These cards contained a QR code linking the project website, where stakeholders could read through frequently asked questions and share their feedback through the social pinpoint site. The website also includes tailored surveys on specific topics such as pedestrian safety, cycling infrastructure, transit options, and more.

MEETINGS WITH LOCAL SCHOOLS-IDEA GENERATION

The DKS team met onsite with teachers, administrators, and students at the Community Collaboration Charter Schools campuses in the project area. These are two facilities serving Grade school and middle/high school students. We discussed ideas for outreach and identified several viable options:

Locations

- ELICA Health Center
- Bus Stops
- Welfare office
- Post Office
- North Highlands Recreation and Parks Center/Community Center
- Commissary of military base
- Churches
- Schools
- Many other high-traffic commercial sites.
- Smaller fliers to place on car windshields during local church services.

Strategies

- Create and distribute bilingual fliers at high traffic sites around the corridor.
- Brief presentations at local school board meetings.
- Plan and facilitate a “class” for high school students describing the civic engagement process and letting them weigh in on potential corridor improvements. They were also encouraged to take materials home to their family/friends.

LOCAL MEETING ATTENDANCE AND PRESENTATIONS

As a strategy to increase engagement DKS partnered up with existing meetings in the project area. DKS presented at the following events, providing information about the study, sharing project resources and soliciting feedback in person and via the social pinpoint site. In total six meetings were held with unique committees to help further the project engagement efforts. The committee meetings held were with the following stakeholders and community groups:

1. Tri Communities Lunch Bunch Meeting, March 7, 2024
2. North Watt Avenue Business Watch - March 11, 2024
3. McClellan Business Watch - March 14, 2024
4. North Highlands Round Table - March 25, 2024
5. Community Collaborative Charter School - April 2, 2024
6. North Highlands Recreation and Parks District - April 11, 2024

SUMMARY/KEY TAKEAWAYS

The main intent of the meeting attendance was to raise awareness of the project and the upcoming workshop, direct people to the website to fill out the survey and interactive map, and to engage community members directly. The following topics were highlighted as important to the community:

- Current lack of shade along the corridor.
- Popup tents and utility poles blocking portions of the sidewalks.
- Improved safety for people walking and biking along the corridor.
- Potential impacts to businesses and residences from any road widening.
- Increasing the unhoused presence by improving bus stop amenities.
- Reducing speeds along the corridor.

Appendix B: Community Survey Results

DRAFT

P1 Q2 - 1. What modes of transportation do you currently use along project corridor? - Walk/Jog	P1 Q2 - 1. What modes of transportation do you currently use along project corridor? - Bike	P1 Q2 - 1. What modes of transportation do you currently use along project corridor? - Vehicle	P1 Q2 - 1. What modes of transportation do you currently use along project corridor? - Transit	P1 Q2 - 1. What modes of transportation do you currently use along project corridor? - Other	P1 Q3 - 2. How frequently do you travel along the project corridor?	P1 Q4 - 3. Are there locations along the project corridor where you feel unsafe traveling?
		Vehicle			A few times a year	I would like to use public transit on this road, particularly to get up to West Roseville, but I would not feel safe waiting for bus stops by myself in this part of town, and it would take me a lot longer using transit than by driving a car.
		Vehicle			Daily	
		Vehicle			Daily	The road is in terrible shape before you spend money on making it look better you need to fix the pavement to make it safe to drive on.
		Vehicle			Weekly (roughly 1-3 times/week)	entire No. Watt is overwhelmed with crime
		Vehicle			Weekly (roughly 1-3 times/week)	Between Fair Oaks and Arden Way, the road narrows, has too much heavy truck traffic, and the road is in very poor condition (potholes, patches, uneven surface, noise pollution).
	Bike	Vehicle			Weekly (roughly 1-3 times/week)	most of the street has subpar bike lanes, not protected from traffic, and speeding drivers that don't obey the right of way.
		Vehicle			Daily	Yes, just about all of it from Antelope to Auburn is unsafe. People drive like maniacs. Pedestrians dart into moving traffic. Bike riders ignore the traffic rules.
	Bike	Vehicle			Daily	Both direction needs a bike lane - from Auburn to Peacekeeper. North of Peacekeeper to Elkhorn the bike lane is too narrow, feels dangerous.
		Vehicle			Daily	Whenever a lane ends it is unsafe. People have to be upfront and cut everyone off. Pretty much there needs to be more traffic enforcement. The speed is crazy but I have to say the last few weeks it has calmed down some.
		Vehicle			Weekly (roughly 1-3 times/week)	I live just off Watt and do not walk in or near my neighborhood because of safety concerns. I only walk with my partner and we carry a taser. We have been injured by off-leash dogs outside our home, reports of vehicle vs. ped. accidents are concerning, and in many places the sidewalk itself provides hazards. With rampant and highly visible prostitution being practiced nearby, I also fear being approached by men with a sexual agenda.
		Vehicle			A few times a year	I will say driving along the corridor, it would be very unsafe as a biker or pedestrian. I wouldn't bike it as someone who is a hardy bicyclist, let alone someone like thier mom bringing thier kids to school on bike or someone getting groceries, or commuting.
		Vehicle			Daily	All of it. The street lights are so dim. Maybe so you cannot see the potholes.
Walk/Jog	Bike	Vehicle			Daily	Bicycling on North Watt ave is not safe. Bike lanes are not wide enough for a road as busy as Watt, and numerous potholes often make it difficult to stay in the bike lane. Additionally, there are very few bike racks in the area. While I would enjoy biking on Watt the area if the bike lanes were wider, we need more bike racks close to restaurants, grocery stores and retail businesses.
		Vehicle			Weekly (roughly 1-3 times/week)	Lots of people speed in this region. Red lights are often not respected. Bike riders are often at risk. Lots of children near Freedom Park (school right there).
		Vehicle			Daily	The only thing that is unsafe is walking due to unsafe people walking the corridor

P1 Q5 - 4. Are there locations along the project corridor (e.g. signals, turn lanes, bus stops, bike lanes) that cause challenges to your travel?	P1 Q6 - 5. What areas of the project corridor work well today?	P1 Q7 - 6. Do you have any other suggested improvements or concerns for the project corridor?
The Watt/Roseville Road intersection is always extremely congested for car traffic. At the light on Watt and Van Owen. People coming on Watt don't always stop. Going on the underpass at Watt and Peacekeeper. People wait to get out of the turn left lane at the last minute and pull over		I always support safer, cleaner transit stops and set-aside bike lanes/pedestrian sidewalks.
All of these things slow you down but if it were possible to redirect some of the side streets to make larger intersections and less stop signs that would help.	Because of the unsafe pavement condition and potholes there are no areas working well.	To me it seems silly to be spending money on focus groups and projects to make watt ave more pretty when it is more important to fix the pavement.
see #3 above	Walmart near Roseville Rd since they have security on site.	Deal with the pockets of drug manufactors and dealers from No. Highlands, Rio Linda, Elverta and Antelope. They use to hide, now it's all in the open and public especially in rural areas.
The intersection at Hurley has motorists taking risky right turns into traffic. The camera light at Fair Oaks causes motorists to take evasive action- either stopping short or rushing through intersection. The light should have a digital board showing seconds remaining to pass intersection. Additionally, the narrow bridge over the river can results in near collisions.	Intersection at El Camino works well.	Discourage heavy truck through traffic. I recognize there isn't a good North-South route between highways 50 and 80, but the trucks are very hard on Watt Ave. Consider walls like the updates to Hazel Ave.
	Most of the section from Elkhorn to Baseline.	
More signals are needed. If it were up to me I would ban bike lanes, as the bike riders ignore the traffic rules, sometimes cutting across traffic.	None.	More highway patrol ticketing people.
The train under crossing is a challenge for walking and cycling. I know about the detour route - but that is a scary route during the day (I would not use) so who is going to use it at night?	At the south end - it does have wide bike lanes, so that works for me.	Increase road maintenance. The area needed a big increase in regular road and shoulder maintenance. The shoulder (bike lanes) are not getting patched, smoothed out when it needs it.
Trying to avoid the numerous pot holes. After every rain it is so bad. I see the county trying but unless the entire road is repaved they just appear again when it rains. Having the lights force you to stop on every corner in North Highlands just makes people try to speed to catch the next light. I get that your trying to control the speed through there but only those of us that obey the law care.	Between Ardentale and Folsom Blvd. seem to be good now.	The timing of the lights in North Highlands and anywhere you lose a lane is just horrible with people trying to be ahead and cutting others off. Especially heading north at Roseville road.
There is an intersection that could use a "no right on red" or similar sign. The layout of the road drives many u-turns to this intersection and I've had at least 3 near misses there where cross traffic attempts to turn right and doesn't account for u-turns. The intersection of Watt v. Roseville Road is a major danger for pedestrians.	I like the trees outside McClellan.	I don't know if the sex work is in the purview of this project--however, it's deeply distressing to me and I feel the way it is currently being practiced is dangerous. I tried to turn around in a parking lot the other night and struggled to get in and out of the parking lot because my vehicle was immediately approached by sex workers--clearly this was "their" parking lot after dark. I don't have a solution, but I can't imagine it's safe for these women to be in the places they are, and it's one more safety concern that adds to the overall downtrodden and risky feel of living here.
North of Fair oaks boulevard, bike lanes end, wide lanes for cars allow for higher speeds than the speed limits. re-stripe the lanes to be just wide enough for the appropriate LOS and speed limit. Add a class IV bike lane buffer along the right side of the car lanes, if there is extra space, planting trees to the right of the travel lanes and the class IV buffer would make for an attractive place to bike especially during hot summers.	The american river bridge and the hwy 50 interchange are the best parts of watt avenue with BRT and separated class I bike lanes.	Work with SacRT to possibly make a BRT line. Definitely reduce traffic lane widths, install class IV bike lanes that connect throughout the corridor and that connect well through each intersection as well as adjacent commercial or employment areas. Having consistent bike lanes, connectivity with each intersection, and things like separated bike parking lots for shopping centers would make a drastic impact. This would reduce local traffic but also employees who can use the Watt avenue light rail station to hop off and bike a few miles to thier employment area. With the low floor trains coming in, E-bikes becoming more affordable/popular, this can work really well. The issue is the Class I bike path basically ends past the american river, but if this connected nicely for a few miles up even to different shopping areas and employment areas, it would work well.
Some turning lane signals are very long.	As for me travelling daily on Watt. There is nothing that works well for me. I need a better road.	A security car that rides through the neighborhoods.
Not really. There are peak times as with any major roadway. More lanes will not fix this. It will only add an additional headache.	Aside from any potholes being filled in a timely manner, NONE. Any additions/expansions to the road will inevitably compromise or destroy the small business environment that is present. There is no place for these businesses to go. The jobs and livelihoods of hundreds depend on everything staying put. Furthermore, this will only make is worse for youth to travel to School at F.C. Joyce (assuming the school can even stay there). Any additional lanes of any kind here will mean destroying a low-income school with a heavy first generation migrant population.	Fix potholes. Coordinate with CHP enforce traffic laws. There is little to no law enforcement presence in the region anymore. Leave the small businesses and local alone!
No	the small businesses that are in danger of removal by a company from out of the area that has no idea what this community is about	Don't impact small business by adding additional lanes

Appendix C: Public Comments

DRAFT

Created on	Type	Comment	Sentiment
12/13/2023 18:43	Safety Concern	Please fix the roads so it is safe to drive for cars and walk for pedestrians	MIXED
1/25/2024 15:24	Pedestrian Conc	needs a wider cross walk and bigger crosswalk entrance	NEGATIVE
1/25/2024 16:00	Transit Concern	A future investment into BRT along Watt Avenue to help connect North Highlands with Arden and East Sacramento	NEUTRAL
1/25/2024 16:12	Other Comment	It would be nice to partner up with whomever owns the wall located here too as mural.	POSITIVE
2/6/2024 13:22	Bike Concern	Test Comment.	NEUTRAL
2/6/2024 13:34	Bike Concern	This is a test comment.	NEUTRAL
2/6/2024 13:44	Bike Concern	Place your desired comment here.	NEUTRAL
2/9/2024 15:29	Bike Concern	I would love to see bike lanes running south from Baseline to the Dry Creek bike trail.	POSITIVE
2/10/2024 16:32	Bike Concern	For a truly bike and pedestrian friendly corridor, the bike lane should be wholly separated with a physical barrier for the entirety of this stretch of road (all the way up to Walerga). Without this, there will always be a significant likelihood of collisions. Barring that, wider painted bike lanes and no right on red would help at least somewhat.	MIXED
2/10/2024 16:36	Transit Concern	Ideally, every single transit stop on the entirety of this stretch would have a shade/rain shelter, a bench, and a recycle bin/trash can that can't be rummaged through (please see the 2023 San Diego MTS equity study that found safe trash cans as the #1 requested item for stops). Transit stops should also have enough setback for accessibility by wheelchair/mobility device users which I know is not the case for all stops on this stretch.	NEUTRAL
2/10/2024 16:37	Transit Concern	I would support a bus priority lane for all or part of this stretch of Watt to help transit stay on time here.	NEUTRAL
2/11/2024 12:15	Transit Concern	From Roseville road to Antelope road, PAVE IT! FIX IT! DO SOMETHING!! I've had to replace 3 wheels from pothole/crator damage. It's ridiculous.	NEGATIVE
2/11/2024 15:24	Pedestrian Conc	You Need to make a Sidewalk in this Underpass There's no way for pedestrians to walk without being in the Street. But to walk in the side in the fields were the Rail road tracks are the walk into a small tunnel were one could get killed. I almost got killed walking to work in 4am homeless man was at the end of the tunnel. So make a walkway in the underpass on both sides So we can get to Roseville rd and cross over to jack in the box or Panda Express. I marked with red	NEGATIVE
2/12/2024 10:21	Transit Concern	pits	NEUTRAL
2/13/2024 9:42	Safety Concern	Eliminate 1 left turn lane from northbound watt to westbound peacekeeper. Take outside turn lane and make it go straight on northbound watt to eliminate late mergers and make watt 3 lanes at peacekeeper.	NEUTRAL
2/13/2024 10:20	Bike Concern	Bike lanes too small for the speed of facility. Suggest protected Class IV bike lanes throughout, and remove trees growing into power lines.	NEGATIVE
2/13/2024 10:30	Pedestrian Conc	The pedestrian bridge here is in bad shape and is not ADA accessible. The slope is really steep and there is a disruption in the pavement to get onto the bridge, which limits wheelchair access. Additionally, non-motorized wheelchairs would have a tough time getting up this slope because it is so steep. It is hard enough for average cyclists who often have to walk their bikes. Children would also struggle. I suggest recommending a more ADA friendly bridge for people of all ages and abilities.	NEGATIVE
2/13/2024 10:31	Bike Concern	There are several frontage roads along Watt that could potentially serve as separated cycling facilities. They do not have to be cyclist only, but could be class III boulevards with traffic calming to help aid in getting cyclists off watt.	NEUTRAL
2/13/2024 10:34	Bike Concern	Bicycling along Watt is incredibly dangerous. Class IIs are not sufficient along this corridor. Class IVs would be great, but reviewing and measuring myself indicated that Class IVs may be a challenge along this stretch. I would recommend expanding the sidewalks to be Class I paths with vegetated buffers for both cyclists and pedestrians. If not, there's a fantastic example of raised class IV connected to sidewalks for an XL 12' path in Davis. I think this could be a viable option along Watt.	MIXED
2/13/2024 10:47	Other Comment	Many homeless people that do drugs and leave trash right by the elementary school	NEGATIVE
2/13/2024 10:59	Transit Concern	I second the comment about BRT and/or bus only lanes along Watt, especially because there is already a bus only lane closer to the University/south Watt. I also second the comments about bus shelters (Watt can be sweltering in the summer). Would love to see transit become a viable option along this corridor and servicing the university. It's unacceptable for so many local students to be commuters. CSUS shouldn't be a "commuter school" for the local community. It's a huge, missed opportunity.	NEGATIVE
2/13/2024 11:09	Safety Concern	The road on Watt needs to be new NOT fixed. It's impossible to drive here!	NEGATIVE

2/13/2024 11:15	Safety Concern	Road on Watt is not just bad but dangerous to drive there anymore. This has to be the priority to completely make a new road and not just fix up the holes.	NEGATIVE
2/13/2024 11:17	Safety Concern	Doesn't work! Please spend money on this!	NEGATIVE
2/13/2024 12:45	Transit Concern	Worst roads on Watt! Most of the money needs to be spent on new road!	NEGATIVE
2/13/2024 12:45	Transit Concern	Need a longer left turn pocket to turn onto James. Traffic is high, especially during drop off and pick up hours for school.	NEGATIVE
2/13/2024 14:05	Other Comment	It would be nice to have all the overhead utilities re-routed underground.	NEGATIVE
2/13/2024 14:26	Pedestrian Conc	No sidewalk. Pedestrian and handicap accessible concerns	NEUTRAL
2/15/2024 8:29	Safety Concern	South of this point needs all new road, without potholes. Other citizens and myself have had countless car suspension and steering problems caused from road deterioration.	NEGATIVE
2/15/2024 8:32	Transit Concern	Potholes and the road itself are a HUGE problem. Sidewalks where there is just dirt paths would be great.	NEGATIVE
2/15/2024 8:39	Other Comment	Entire Watt Avenue needs serious road pavement repairs...rough road, potholes drivers to avoid damage to cars. It's long overdue. Add more reflectors; reflective white paint lines (including to islands so drivers can see the islands when turning or driving straight on Watt); add white pylons (like 12th street near loaves & fishes) add yellow borders around lights like other streets in Sac. Adding sidewalks/extend curbs where pedestrians walk, add fences to island to prevent run a cross roads etc	NEUTRAL
2/15/2024 11:16	Other Comment	What about South Watt? This is a major artery from the south area and Elk Grove. Between Florin Road and Jackson Hwy, it is a two lane road. There seems to be plenty of room for an expansion to a 6 lane road, as there are plenty of homeless camps on what looks to be county property. Also, the road itself is terrible. Full of pot holes and cracks. Widen South Watt please!!	NEGATIVE
2/15/2024 11:19	Safety Concern	All along No. Watt the critical issue is crime from drug dealing, theft and prostitution. Other improvements will not induce shopping, enjoyment or improved quality of life unless crime is reduced. No. Watt is a thru-fare so bus routes and road repair will assist those traveling through and is a good thing, but does not address those wishing to shop closer to home or live without fear.	MIXED
2/15/2024 14:50	Other Comment	Need a flyover from hwy 50 to I-80 that thru trucks must use & pay a toll 2 finance it. 1 lane each way 2 minimize intrusion 2 residences. Right now it is not uncommon 4 trucks blocking all 3 lanes. This would put noise & smog pollution above ground level. Light rail gondolas could hang on the underside 2 connect Butterfield to I-80 bus term., eliminating many bus runs on Watt. Pass. cars could use flyover if paying toll. Arch supports should be spaced far apart to minz impact to sidewalk areas.	NEGATIVE
2/15/2024 16:29	Safety Concern	The two biggest issues facing Watt Avenue in its entirety are the ridiculously-damaged roads, and the crime. Without fixing these two, there is no point in doing anything else, as it will have no effect, and will be a waste of money. Fix these first before anything else!	NEGATIVE
2/15/2024 16:50	Safety Concern	this area needs a light. It is bad and the new housing will make it intolerable	NEGATIVE
2/15/2024 16:57	Other Comment	Less Traffic lights. Over passes for cross walks along with walk ways completely separated from the road with barriers to keep pedestrians off the streets. To many times I have almost hit people because they don't use the sidewalk or cross walk.	NEGATIVE
2/15/2024 17:04	Other Comment	I think the first step is getting rid of all the homeless people camped out on sidewalks and corners. Otherwise we'll be making more room and better accommodations for the already huge problem. That whole area is sketchy and no amount of county improvements will change the type of people and crime riddled in that area. It actually starts at the freeway exit. I've had people knocking on my car door window asking for money. I don't go in that area unless I have to.	MIXED
2/15/2024 17:23	Other Comment	Move the Towe Auto Museum to this corner lot on the same block as the air museum. It will bring in more commerce into the area.	NEUTRAL
2/15/2024 18:28	Other Comment	how about securing the lot south create a park \soccer \baseball and shacks or shipping container style covers for street vendors food vendors As thir is already very popular in this area now	NEUTRAL
2/15/2024 18:35	Other Comment	The roads in this area (all of Watt) but especially this part are awful. There are large potholes and the roads have not been maintained in a long time. Right at the freeway access a ton of traffic gets built up at the set of three lights.	NEGATIVE
2/15/2024 23:38	Safety Concern	There are constantly people speeding and running red lights at this intersection. A red light camera and increased police patrol would be recommended.	NEGATIVE
2/15/2024 23:45	Safety Concern	Potholes, potholes, and more potholes. It is unacceptable the amount of potholes this entire corridor gets. We all know the county is aware of the issue because after rain every storm the potholes reappear and the county just sends crews to fill them in with a short term fix that will just be wiped out during the next rain. It's dangerous for not only vehicles, but also motorcyclists and bicyclists. A new road should be priority #1.	NEGATIVE

2/16/2024 5:32	Safety Concern	I avoid driving on Watt due to the amount of congestion and pot holes on the roadway. Some of these pot holes have damaged my car. I suggest a way to decrease the size and/or limit the amount of large heavy trucks and fix the roadway to help make it more friendly for local drivers. It appears it's a shortcut for large trucks traversing between highways 50 and 80.	NEGATIVE
2/16/2024 10:49	Pedestrian Conc	Pedestrians (walkers and bikers) regularly walk on the road here as there isn't any sidewalk or alternate direct route to use for connecting Madison to Watt. This is near a school, so families walking to and from school use this connector. As the connector is elevated and turning, it is extremely unsafe for pedestrians. Due to traffic flow, I wouldn't suggest repurposing any of the lanes. Instead add a separate pedestrian route on the north side of the connector.	NEGATIVE
2/16/2024 10:52	Safety Concern	This area is too heavily trafficked to have a business entrance/exit here. They have existing entrances off of Longview. Consider removing this driveway on Watt to improve safety and flow for pedestrians and cars.	NEGATIVE
2/16/2024 11:02	Safety Concern	There is an unnecessary lane reduction and immediate lane addition on Watt northbound at leading into the intersection of Peacekeeper. This results in needless merging and lane shifts that results in traffic flow problems which causes accidents. Please considered keeping all three lanes northbound (remove the exit only left hand turn lane onto peacekeeper). Keep the bulb out left hand turn lane and return the other lane to through traffic (thus removing the lane merging problem).	MIXED
2/16/2024 11:09	Other Comment	Is there a way to add shade trees or some natural shade at the elevated transit station on Watt? During the summer, this is in the beating sun and very unpleasant. I'm not suggesting adding more concrete to the concrete jungle - but create a more park like atmosphere to improve the environment for a major public transportation hub. It's currently over a huge highway and on a 6+ wide main artery (Watt). How can we make this feel softer, inviting, and comfortable for people using this area?	NEUTRAL
2/16/2024 12:30	Transit Concern	The pot holes on Watt Ave are ridiculous. Cars are constantly getting damaged from them. There needs to be bus pull-outs all along Watt so the congested traffic isn't stopped during commuting times, which is also when greatest bus use is. And, put in sidewalks for safety! Finally, can you be clear in what section is Watt Ave. is a part of this project. . . not that all of Watt Ave. doesn't need attention. It is shameful what this main North/South thoroughfare through the county has become.	NEGATIVE
2/16/2024 12:35	Bike Concern	There needs to be bike lanes and a sidewalk here on both sides of watt ave just north of Roseville Rd.	NEUTRAL
2/16/2024 14:55	Safety Concern	The intersection of Watt Avenue, and Kings is very dark at night. It's very difficult to see the traffic lines and pedestrians. There are a number of restaurants and a Starbucks in the shopping center. A street light is desperately needed at this corner	NEGATIVE
2/16/2024 14:56	Pedestrian Conc	There is a lot of pedestrian traffic as there is restaurants in a grocery store on The west side of Watt and gas stations and convenient stores on the east side of Watt and Whitney. There's some sidewalk that are very narrow or nonexistent in this area. I believe widening the sidewalk and increasing the street lighting, would help.	NEUTRAL
2/16/2024 14:57	Other Comment	Traffic constantly is backed up that is trying to turn right from Watt Avenue eastbound left onto Marconi. If a small, right hand turn lane could be created here. I believe it helped alleviate a lot of the back up on Watt Avenue..	MIXED
2/16/2024 14:59	Other Comment	Again, this Intersection of El Camino and Watt on the south west corner could desperately use a right hand turn lane. There is a massive empty parking lot. Plenty of room for a turn lane.	NEUTRAL
2/16/2024 15:17	Transit Concern	The right N bound lane of Watt gets backed up all the way to Whitney Ave (sometimes to Marconi) daily. Drivers getting on 80 E. need to be in that lane but folks who are getting on I 80 west, 3/4 of a mile past the E bound on-ramp, feel the need to gravitate to this lane miles away. If somehow with either signage or lanes, folks getting on I 80 W. could be funneled into the center lane until after they cross Auburn would help alleviate a lot of congestion at this intersection.	NEUTRAL
2/16/2024 15:25	Transit Concern	I exit the south bound Watt Avenue exit from Cap City on my work commute. Not a day goes by that I don't see folks getting off on the same exit but then immediately getting in the left-hand turn lane to go north onto Watt Avenue. For some reason they do not stay on the fwy for an eighth of a mile and get off on the north Watt Ave offramp. I'm not sure if that's a Caltrans issue but I see it daily. Drivers getting off on the S Watt off-ramp then immediately are turning to onto north bound Watt.	NEUTRAL
2/16/2024 15:27	Pedestrian Conc	This area of Watt Avenue from Arden Way until about Buitano. There are little to no sidewalks or any sort of bike lanes heading north bound.	NEUTRAL

2/16/2024 15:32	Other Comment	There are large medians on Watt Avenue from Marconi Ave to Auburn Blvd that have a few sparse trees planted but plenty of room for many more trees. What would it take to get more trees planted in the existing medians? There are numerous benefits to having a green canopy, reduced air & noise pollution, reduced asthma rates, etc etc.	POSITIVE
2/16/2024 16:00	Safety Concern	Speed bump, no one stops at this stop sign	POSITIVE
2/16/2024 16:00	Other Comment	Street lights	NEUTRAL
2/16/2024 17:25	Bike Concern	Sidewalks stop after Gibbons. There are no sidewalks on the east side of Edison from Gibbons to Cypress. . Speed bumps also do not continue after gibbons. It is unsafe to walk or ride a bike.	NEGATIVE
2/16/2024 20:17	Other Comment	Need better exit off of 80 W for those going North on Watt. In the past you could take the bridge and get on Watt further. High concentration on panhandling at this intersection, not safe for them.	NEGATIVE
2/16/2024 20:22	Safety Concern	Difficult merge on to cap city freeway after just crossing Auburn. Right turn lane for Auburn means people stay left and try to quickly cut right across traffic. Other option is getting in right turn lane for Auburn and then going through the intersection.	NEGATIVE
2/16/2024 20:26	Other Comment	Left turn lane from Watt to Marconi is too short. Cars turning block the left lane of Watt when it backs up.	NEGATIVE
2/16/2024 20:31	Safety Concern	Need to complete the sidewalk between Watt and Devonshire for the middle school kids who walk to Arden Middle school from the Arden Oaks Vista neighborhood. It is a very short distance but they now walk on the shoulder with their backs to traffic which is traveling at a high rate of speed.	NEUTRAL
2/16/2024 22:22	Safety Concern	Fast driving, narrow bridge. Feels unsafe for not only drivers but also bikers, pedestrians	MIXED
2/17/2024 5:20	Safety Concern	There is a hill right before a pedestrian crossing at a preschool. It is impossible to see people in that crosswalk before the hill, especially children. Also, most of Watt needs to be repaved. Having to dodge potholes is a hazard.	NEGATIVE
2/17/2024 9:36	Other Comment	The potholes need to be fix.	NEGATIVE
2/17/2024 9:37	Other Comment	There are potholes up and down this street that needs to be fix.	NEGATIVE
2/17/2024 9:39	Transit Concern	It would be nice to have a bus line only along Watt Ave on both sides of the bus so the bus does not interfere with traffic as the bus stops along Watt Ave.	NEGATIVE
2/17/2024 12:34	Safety Concern	The entire north corridor of Watt Ave. Needs pothole repair. The county is neglecting this area compared to other parts of the same road that is under other cities' maintenance.	NEGATIVE
2/19/2024 9:13	Bike Concern	The south bound bike lane on Watt seems to end a few hundred feet to the north of Fair Oaks. The auto traffic lanes are very wide, so lots of room for a bike lane.	NEUTRAL
2/19/2024 9:16	Bike Concern	When the light on at Fair Oaks turns red, autos will typically use the bike lane to pass cars in the two car lanes.	NEUTRAL
2/19/2024 11:19	Bike Concern	South bound lane needs a wide bike lane - currently very rough narrow shoulder.	NEUTRAL
2/19/2024 12:04	Bike Concern	this north/south area needs a bike lane - from Auburn to Peacekeeper.	NEUTRAL
2/19/2024 12:04	Bike Concern	this north/south area needs a bike lane - from Auburn to Peacekeeper.	NEUTRAL
2/19/2024 12:05	Bike Concern	this north/south area needs a bike lane - from Auburn to Peacekeeper.	NEUTRAL
2/19/2024 12:06	Bike Concern	this north/south area needs a bike lane - from Auburn to Peacekeeper.	NEUTRAL
2/19/2024 13:07	Bike Concern	this north/south area needs a bike lane - from Auburn to Peacekeeper.	NEUTRAL
2/19/2024 13:12	Bike Concern	while there is a narrow "bike" lane from peacekeeper to "I" street - it is in very bad shape, pot holes, dips, ruts, cracks. and it is too narrow. vehicles pass you way to close.	NEGATIVE
2/19/2024 13:13	Safety Concern	the shoulder from peacekeeper to "I" street is too narrow. vehicles pass you way to close.	NEGATIVE
2/19/2024 14:41	Other Comment	There is a lot of debris on the shoulder, makes cycling hard on tires. especially in the 80 to 80 area.	NEGATIVE
2/19/2024 15:00	Safety Concern	This under pass is impossible walking (the detour is a joke - scary) and on a bike its challenging for the average cyclist, no space to share. It needs to be widened for bike/pedestrian use.	NEGATIVE
2/20/2024 4:39	Pedestrian Conc	Sidewalk ends. Nowhere to walk or roll wheelchair except next to fast moving traffic.	NEGATIVE
2/20/2024 17:18	Pedestrian Conc	Heavy pedestrian traffic. Prostitutes on foot are constantly at risk of being struck by vehicles due to undersized sidewalks, sidewalks with poles, electrical boxes, signs, and garbage cans built into the sidewalk. Additionally, the lighting here is extremely poor at night, making visibility even more difficult.	NEGATIVE

2/20/2024 17:21	Safety Concern	This underpass is extremely dangerous. Vehicles are forced into a sudden merge (from 3 lanes to 2), storm drains back up and this area floods whenever there is moderate rainfall, and pedestrians are literally risking their lives to try and walk under the underpass because there is no legitimate detour for pedestrians or bicyclists to get from northern watt ave to auburn blvd	NEGATIVE
2/20/2024 17:24	Pedestrian Conc	This area moving north is VERY dark at night or in the rain. It is dangerous for pedestrians (even with sidewalks) because they are at risk of attack & assault or being accidentally struck by a vehicle. Highly suggest lighting this area all the way to Roseville Road really well.	POSITIVE
2/20/2024 17:26	Transit Concern	You should consider closing off the east side of longview drive. It takes extra time on the traffic light (which slows down traffic on the watt avenue bridge over business 80) and is a very dark area prone to violence and nefarious activity.	MIXED
2/20/2024 17:28	Pedestrian Conc	There is a crosswalk here on a high-speed on-ramp, and it is difficult to see the pedestrians waiting to cross before being right up on them (at which point it's too late to slow down). I would suggest considering a button on each side to flash the crosswalk or a sign more north in the southbound lane indicating pedestrians ahea	NEGATIVE
2/20/2024 17:30	Pedestrian Conc	Sidewalks are undersized in this area and often have park benches and other obstructions. Need clear access for individuals with mobility disabilities. Also, 24/7 prostitutes walking the area and unsafe if they git hit by cars.	NEGATIVE
2/20/2024 18:13	Safety Concern	Drivers approaching this turn lane from N Watt can't see pedestrians until you're almost on them, and people frequently use the crosswalk without looking. Better sidewalks and signaling would help reduce risk.	NEUTRAL
2/20/2024 18:18	Safety Concern	This underpass is crazy dangerous--there's no extra space but pedestrians still walk there because there's no other way around, it's dark, and it floods like you wouldn't believe. During the 2023 atmospheric rivers there was so much water in this underpass that only one lane was passable and drivers still had to go through at least a foot of standing water--and there's no way to detour once you're through the intersection.	NEGATIVE
2/20/2024 18:25	Safety Concern	Consider no right on red from James onto Watt Southbound. This is the first place for a legal u-turn from Airbase, and there's typically a fair amount of traffic turning making a u-turn here. Drivers on James frequently pull out in front of me as I turn here.	NEUTRAL
2/20/2024 18:28	Accessibility Cor	The sidewalks are unsafe for able-bodied walking, and are definitely not ADA accessible. Near this location there is a huge metal pin/spike near a telephone pole that is a major trip hazard, plus the sidewalks aren't wide enough to navigate around the obstacles that are often built into them.	NEGATIVE
2/20/2024 18:34	Safety Concern	Sex work being practiced here is dangerous for the workers and ensures many locals don't patronize nearby businesses after dark.	NEGATIVE
2/20/2024 18:39	Safety Concern	This loop does not provide much space to decelerate before the steep curve, and vehicles frequently fly off and through the chain-link fence that separates the road from the brush. Until the exit pattern can be changed, can a more secure barrier be erected here? Guard rails? There has to be a better solution than just replacing the chain link every few months	MIXED
2/21/2024 9:12	Other Comment	the entire Watt Ave. corridor needs repaving. Very unsafe to drive. Additionally, why not set up traffic lanes to flow with communte traffic? For example, instead of 3 lanes, have 4 lanes when traffic is heaviest. Then, when commute hours are done, lanes go back to 3. Also, maybe have the #1 lane designated for vehicles that just need to get across town (e.g. from N.Highlands to Hwy 50 and vice versa.	NEGATIVE
2/22/2024 8:08	Pedestrian Conc	The intersection at Watt/Cottage Way/Winding Creek only allows one to cross three ways. This is ridiculous! You shouldn't have to cross three ways to get from one side to the other. It's also unsafe for cyclists coming from Winding Creek and crossing Watt to Cottage Way.	NEGATIVE
2/22/2024 9:00	Other Comment	Lavendar and olive trees are low maintenance and require little water and remain green year-round and furthermore they don't lose their leaves. Please plant Lavendar and olive trees the middle divide.	NEUTRAL
2/22/2024 9:03	Other Comment	Please bury the telephone lines in the ground. The telephone poles are an eyesore.	NEUTRAL
2/26/2024 17:41	Safety Concern	There are too many car lanes and not enough space for bike lanes and sidewalks. A separated biking and walking facility would benefit this stretch of roadway, and would be the only way that I would feel comfortable biking. Adding pedestrian highway beacons would be a big improvement to the corridor. Additionally I believe that the entirety of the Watt corridor should have a small fence installed on the median to deter pedestrians from crossing the street except in designated crosswalks.	MIXED
2/26/2024 17:46	Safety Concern	I second pedestrian hybrid beacons for midblocks. There are many destinations along this corridor where people cross between crosswalks. It would be great if you could study the places people are actually crossing and install PHBs and high visibility crosswalks.	NEUTRAL
2/26/2024 17:50	Accessibility Cor	The pedestrian bridge has no landings. It needs landings for accessibility for all users. Adding bridges could be a good way to connect watt where crosswalks are not feasible.	MIXED

2/27/2024 8:52	Pedestrian Conc	I agree with the comment about the sidewalks not being ADA accessible. They are very narrow for such a high stress road. Please consider greatly widening the sidewalks and/or making multi-use paths that separate bicyclists and pedestrians completely from vehicular traffic.	NEGATIVE
2/27/2024 8:56	Safety Concern	It's disheartening to see so many comments about potholes and right of way for vehicles. I understand this is a major corridor for vehicles, but I truly hope that there is a shift towards multi-modality on Watt. So many people walk and bike this corridor and it is extremely unsafe. Improving transit and transit amenities along this corridor would also be a huge improvement towards moving people more efficiently and providing more sustainable transportation options. Thank you for doing this plan.	MIXED
2/27/2024 18:05	Other Comment	You might consider beautifying the pedestrian bridge announcing entrance and exiting the area and add coordinating flags and posts along Watt reasonably spaced out.	NEUTRAL
3/9/2024 10:40	Safety Concern	People use the right turn lane for Don Julio to go straight and cut off cars.	NEUTRAL
3/9/2024 10:49	Safety Concern	People run the red lights constantly at this intersection. Photo enforcement would be helpful. Blinking lights on the crosswalks for pedestrians throughout the whole corridor. Many pedestrians choose not to use the crosswalks at the lights and will cross wherever it's easiest to get to the businesses.	NEUTRAL
3/9/2024 10:54	Safety Concern	Red light enforcement cameras to prevent so many people running red lights.	NEUTRAL
3/9/2024 10:55	Pedestrian Conc	Blinking lights on crosswalks to warn drivers of people crossing.	NEUTRAL
3/19/2024 11:02	Safety Concern	Way too many potholes to where you can't ignore, highly impedes traffic because no one wants to drive over a pothole so they'll move right in to the next lane over and I get it but it's dangerous for other drivers.	NEGATIVE
3/19/2024 11:03	Accessibility Cor	A lot of the sidewalks are very inaccessible for our disabled neighbors and it's dangerous with how there are very narrow points to where they actually have to come off the sidewalk in order to keep moving to where they're going.	NEGATIVE
4/2/2024 13:33	Other Comment	To address this person's concern, I am one of the people who gets off on the Watt S exit and turns north. The Watt N offramp merge is TERRIBLE. I've been driving it nearly daily for 16 years, and I've had/seen many near accidents because of the limited visibility of the merge over the bridge hill. People speed over the hill to race to the next traffic signal, and the angle and slope make it difficult for people exiting the freeway to gauge others' speed. It's safer to take Watt S and turn left!	MIXED
4/3/2024 15:46	Other Comment	Going NORTHBOUND, the far Right Lane becomes a RIGHT TURN LANE ONLY (onto Don Julio). Frequently (everyday), drivers are unaware or use it believing they can continue on Watt. This creates a very dangerous traffic situation at that intersection	NEGATIVE
4/3/2024 15:47	Other Comment	Could the median be beautified and the lanes replaced? Maybe even get rid of the Watt Ave frontage road, add a small green space with trees and landscaping, with a separated sidewalk to protect pedestrians that use the bus stop or walk to and from school? Attached is an example. My two neighbors would need access to their side yards, but a full frontage road causes issues on the part of Watt. Something like the attached.	NEGATIVE
4/3/2024 16:00	Safety Concern	It is INSANELY dangerous during morning commutes merging from Watt heading south under the railroad overpass!! There is a significant number of commuters (myself included every morning), who must strategically maneuver into that right lane which backs up often times as far back north of Peacekeeper and then merge onto Roseville road, competing with fast on-coming traffic who cross across Watt, eastbound on Roseville Rd.	NEGATIVE
4/3/2024 16:10	Safety Concern	Add a stop light here with adequate turn lanes going into the Arbors and new neighborhood being built. Sometimes traffic gets backed up here blocking lanes.	NEUTRAL
4/3/2024 16:10	Safety Concern	Merging onto Watt from the 80 freeway North is risky. That would be more safe if traffic merging onto watt had its own lane.	NEGATIVE
4/3/2024 16:13	Transit Concern	Repave the entirety from McClellan to Antelope Road. The patch work of pot holes is not working and is causing damage to tires.	NEGATIVE
4/3/2024 16:36	Transit Concern	All along Watt in this area, Buses should have their own pit to pick up/drop off passengers without impacting traffic and creating potential accidents.	NEUTRAL
4/3/2024 20:29	Safety Concern	The most important safety concern is the poor condition of the road - residents are dodging potholes all along Watt Ave. to get to work, shopping, etc. The roadway must be fixed.	NEGATIVE
4/4/2024 11:16	Safety Concern	This part of frontage has loose gravel from 1952 and never permanently improved . The pavement is severely cracked on watt frontage here and has only filled many potholes it needs full resurface. . There should also be a sound and crash barrier between frontage and Main Street here on watt it is so LOUD AND DANGEROUS to residential at this spot.	NEGATIVE

4/8/2024 20:22	Other Comment	There should be a sound wall here. The sound of the traffic resonates off of the McClellan business park wall. They put the wall I have asked numerous times for this issue to be resolved. There are several sound wall built on Watt but not where we need it.	NEGATIVE
4/8/2024 20:29	Pedestrian Conc	There is a tunnel that goes underneath to cross the Watt and Roseville Rd train tracks. No one wants to go thru the tunnel. It's dark, scary and dirty. You do not know what your walking on. I would like a walk over like the one on Peacekeeper and Watt. The walkover works great there. People walk on the edge of the road to not go thru the tunnel.	MIXED
4/8/2024 20:36	Safety Concern	There is an empty lot that is used by the homeless and for people to dump their trash is there a any way to close this off. We the neighbors end up picking up the trash. The county does the best they can. This is an ongoing issue. Hence, please put a fence around it so no one can dump anymore. It is a huge fire hazard.	MIXED
4/8/2024 20:37	Safety Concern	More lights on the streets.	POSITIVE
4/9/2024 19:30	Other Comment	Watt avenue from North Highlands to Arden Way roads needs to be fixed immediately . The roads are in need of repairs and not just putting tar in the potholes patching it up. Watt is a very busy road thousandof people travel on a daily basis. To much tax dollars going towards highway 50 and Watt is just important as highway 50.Too many repairs on tax payers car for tires and oil pans, mufflers etc due to watt ave being so raggedy.	NEUTRAL
4/10/2024 6:06	Pedestrian Conc	There is no pedestrian now, should be the pedestrian to walk on the other side on the bridge. It's impossible now. thanks	NEGATIVE
4/11/2024 14:45	Bike Concern	we have bike concern on U street , between 28 street and Tartan Drive. There is a great park on the corner of 28 street and bike trial , but it not safety bake lane to get there.	MIXED
4/15/2024 18:59	Other Comment	My concern is if you put more lanes it will effect the small business in the area North Highland is built by small businesses and it's the foundation of our small community. What we need to do is reconstruction of what we already have with the existing space, we need to redo the roads not add more lanes not purchase business that have been there for decades it's our culture we stand with our community	NEUTRAL
4/19/2024 4:51	Safety Concern	This entrance usually gets a lot of speeding cars that are trying to get in faster to Karl drive, there are usually a lot of kids at play around canary and Karen and it would be great to have a couple of speed bumps to avoid major concerns	NEUTRAL
4/19/2024 21:47	Safety Concern	The Road is extremely horrible on both sides & unsafe, there's pot holes everywhere & the entire street is damaged.	NEGATIVE
4/20/2024 22:37	Bike Concern	As a new resident of McClellan Park and a bicycle commuter, I am concerned with the complete lack of bicycle infrastructure, especially passing below the train tracks North of Roseville Rd. Watt does not need six lanes - it can be slimmed down to four lanes so that cyclists and pedestrians can pass safely, especially in choke points beneath the train tracks. This very afternoon, we saw a pedestrian walking in the far right lane because there was not even a shoulder.	NEUTRAL
4/26/2024 15:56	Safety Concern	Safety issues as cars swerve to avoid pot holes and cars for length of watt avenue. Cars are not staying centered the lane causing them to be in the adjacent lanes or too close to other cars. Additionally the wear and tear on our cars that we have to pay for even though we already pay registration and gas taxes to the states. The condition of the road for this long is unacceptable. The county/state should be held liable for damages and accidents on this road due to its negligence.	NEGATIVE
5/1/2024 23:44	Other Comment	I own a 60 year old business on the corner of Watt and Grattan Way that would be under the threat of removal if you widen to six lanes. We are the only health care facility in the area and have been a very active member of the community. We are part of what makes North Highlands.....North Highlands. Consider this when you devastate a community.	NEUTRAL
5/27/2024 1:34	Transit Concern	Would it be possible to make a lane in the middle where cars from the antelope ranch apartment can drive out to, when turning left ? Otherwise, I have to go to the larchmont light and make a u turn.	NEUTRAL
Jul 30, 2024, 02:17	Street Furnishing	Watt narrows to two lane at Black Eagle Dr. New developement in West Roseville North of Baseline Rd. has dramatically increased the traffic flow on Watt. There needs to be a traffic light at this intersection and the Watt roadway from Black Eagle Dr. North to Baseline needs to be four lanes as it is South of Black Eagle Dr. to eliminate the chokepoint. Speeds have crept upward with the increase in traffic flow and the merging of North bound lanes at that chokepoint increases the likelihood of collisions. I have owned my home on Black Eagle Dr. for 35 years and have seen the dangers created by the current configuration grow ever more hazardous. I avoid that intersection if at all possible during high traffic periods.	
Jul 30, 2024, 12:38	Transit Concern	Repave Watt to remove potholes.	

Jul 30, 2024, 12:37	Transit Concern	Repave North Watt to remove potholes.	
Jul 30, 2024, 12:36	Landscaping	Add a median with drought tolerant trees, like crepe myrtle, and flowers and shrubs. Examples would be Greenback Lane in Citrus Heights or Pleasant Grove in Roseville.	
Jul 30, 2024, 12:33	Landscaping	Remove the frontage street to create green space with for the area. This would make it safer for pedestrians and be a good transition to the transit stop. Allow the two neighbors on Quinn and Bainbridge to have right away access to their side yards, but remove public traffic.	
Jul 03, 2024, 03:59	Landscaping	Ed	
Jul 03, 2024, 11:52	Landscaping	Please also include this side of Watt . There's an elementary school and lots of residential neighborhoods with children and working families as well as retired folks. We are being bombarded with drug addicts, prostitution and terrible driving conditions. We would love to see our side of Watt be part of this project as us home owners are doing what we can to tend to our properties. Watt ave is a mess. Thank you.	

Appendix D: Bicycle Level of Traffic Stress Methodology

DRAFT

METHODOLOGY

The Bicycle LTS methodology is broken into three categories: segments (bike paths, lanes, or routes), intersection approaches (turn lanes), and intersection crossings (unsignalized intersections). Table-based criteria are applied separately for each category using the “worst case principle,” meaning the worst (or highest) score among the criteria considered governs the overall LTS score for that facility.

Depending on the community context and the detail level desired, the overall methodology may be simplified based on the general consistency of facility types, as certain elements (e.g., turn lanes, bike lanes, speed limits, etc.) may not exist in a particular community. If there are no turn lanes on an approach, then this portion of the methodology is skipped. Signalized intersections do not receive an LTS score. Signalized crossings usually do not create a barrier, as the signal provides a protected crossing, and are not considered in the methodology.

Segments

Table 1 through **Table 3** display the LTS scoring criteria utilized for analyzing the level of traffic stress for the various types of roadway segments, including segments within mixed traffic, segments with bicycle lanes alongside a parking lane, and segments with bicycle lanes not alongside a parking lane. Class I shared-use paths and Class IV separated bikeways, not shown in these tables, automatically receive an LTS score of 1, because of the increased level of comfort a facility separated from vehicular traffic provides a bicyclist. These tables were adapted from the criteria tables presented in the Mineta methodology, incorporating vehicle lanes as a surrogate for street width.

Bicycle LTS for roadway segments accounts for traffic volumes, speed, presence and width of a bicycle lane, presence, width of a parking lane, and bicycle lane blockage, which denotes the frequency at which a bicycle lane is blocked. There was no known data available for frequency at which bicycle lanes are blocked suggesting frequent blockage of bicycle lanes is rare. As such, bicycle lane blockage was assumed rare, which is consistent with the Mineta methodological approach.

Bicycle LTS criteria for analyzing segments in mixed traffic are shown in **Table 2**. Mixed traffic segments are roadway segments that do not have Class II bicycle lanes. Roadway segments with Class III bicycle routes are analyzed as mixed traffic segments.

Table 3 presents the LTS analysis criteria for segments with bicycle lanes. As shown, some criteria result in “no effect.” No effect denotes that when other variables are accounted for there is no impact, or no effect, on the LTS score at that traffic stress level. For example, **Table 3** shows “no effect” for two of the four criteria considered at LTS 4—the combined width of the adjacent bicycle and parking lanes and bicycle lane blockage. In this example, this means that a roadway segment featuring a bicycle lane alongside a parking lane, two or more through lanes per direction, and/or speeds at or higher than 40 mph, the width of the bicycle and parking lane will have no impact on the LTS score. If the sum of the bicycle and

parking lane width is below 14 feet, considering only these criteria would result in LTS 3 score. When through lanes per direction and speeds are also considered and surpass two or more lanes and 40 mph speed thresholds shown in **Table 3**, the overall traffic stress of the segment would result in LTS 4. In this case, the combined bicycle/parking lane width and bicycle lane blockage would have no bearing on the overall score.

TABLE 1: BICYCLE LTS CRITERIA FOR SEGMENTS WITHIN MIXED TRAFFIC

BIKEWAY CLASS	EXISTING MILES		
	2-3 lanes	4-5 lanes	6+
UP TO 25 MPH	LTS 1 or 2	LTS 3	LTS 4
30 MPH	LTS 2 or 3	LTS 4	LTS 4
35 MPH OR MORE	LTS 4	LTS 4	LTS 4

TABLE 2: BICYCLE LTS CRITERIA: SEGMENTS (BIKE LANES ALONGSIDE A PARKING LANE)

	LTS 1	LTS 2	LTS 3	LTS 4
THROUGH LANES PER DIRECTION	1	No effect	2 or more	No effect
SUM OF BICYCLE LANE WIDTH AND PARKING LANE WIDTH ¹	15 feet or more	14 to 15 feet	Less than 14 feet	No effect
SPEED LIMIT OR PREVAILING SPEED	Up to 25 mph	30 mph	35 mph	40 mph or more
BICYCLE LANE BLOCKAGE	Rare	No Effect	Frequent	No Effect

TABLE 3: BICYCLE LTS CRITERIA: SEGMENTS (BIKE LANES NOT ALONGSIDE A PARKING LANE)

	LTS 1	LTS 2	LTS 3	LTS 4
THROUGH LANES PER DIRECTION	1	No effect	2 or more	No effect
SUM OF BICYCLE LANE WIDTH AND PARKING LANE WIDTH ¹	6 feet or more	Less than 6 feet	No effect	No effect
SPEED LIMIT OR PREVAILING SPEED	Up to 30 mph	No effect	35 mph	40 mph or more
BICYCLE LANE BLOCKAGE	Rare	No Effect	Frequent	No Effect

Approaches

Based on the Mineta methodology, only approaches with right turn markings were included in the LTS analysis. Right turn lanes at intersection approaches can “challenge a cyclist’s normal position and create a weaving conflict” (Mineta 2012). Intersection approach scoring criteria for approaches are displayed in **Table 4** and **Table 5**.

Table 4 presents the scoring criteria for right-turn approaches to an intersection that are adjacent to a bicycle lane, and **Table 5** presents the scoring criteria for approaches adjacent to mixed traffic segments (i.e., travel lanes that include Class III or Sharrows). These criteria include length of the right turn lane, configuration of the bicycle lane in relation to the right turn lane, and the estimated speed associated with the curb radius at the intersection turn.

The length of the turn lane accounts for the time a bicyclist is exposed to right-turning vehicles—longer turn lanes result in greater exposure and increased traffic stress. The curb radius accounts for the speed of a turning vehicle. A smaller curb radius will result in a tighter turn and slower turning speeds, while a larger curb radius will allow a vehicle to make a turn at greater speeds and result in higher traffic stress.

The bicycle lane configuration at an intersection approach also greatly influences traffic stress. At approaches where bicycle lanes exist along the adjacent roadway segment and a right turn lane is introduced, bicycle lanes are often configured to shift to the left so the bicycle lane is configured to the left of the right turn pocket. In these cases, either the bicycle lane abruptly veers to the left, or the bicycle lane disappears for roughly 100 feet then reappears closer to the intersection at the left of the right turn lane. Both of these scenarios require a bicyclist to merge to the left against vehicles entering the right turn lane. This increases traffic stress given that bicyclists must look over their shoulder to navigate the potential conflict with right-turning vehicles potentially traveling at high speeds and increases user priority ambiguity.

An approach featuring a free right movement, more than one turn lane, a trapped bicycle lane or a through-right lane will also result in increased traffic stress. According to the Mineta methodology, an approach configuration where the bicycle lane continues straight will result in the lowest traffic stress, because this type of configuration will result in an unambiguous priority placed on the bicyclist and cars merge across the bicycle lane rather than vice versa.

TABLE 4: BICYCLE LTS CRITERIA FOR APPROACHES ALONGSIDE BICYCLE LANES

CONFIGURATION	LTS
SINGLE RIGHT-TURN LANE UP TO 150 FT LONG STARTING ABRUPTLY WHILE BICYCLE LANE CONTINUES STRAIGHT AND INTERSECTION ANGLE/CURB RADIUS SUCH THAT TURNING SPEED IS ≤ 15 MPH	LTS ≥ 2
SINGLE RIGHT-TURN LANE LONGER THAN 150 FT STARTING ABRUPTLY WHILE BICYCLE LANE CONTINUES STRAIGHT AND INTERSECTION ANGLE/CURB RADIUS SUCH THAT TURNING SPEED IS ≤ 15 MPH	LTS ≥ 3
SINGLE RIGHT-TURN LANE WITH BICYCLE LANE THAT SHIFTS TO THE LEFT AND INTERSECTION ANGLE/CURB RADIUS SUCH THAT TURNING SPEED IS ≤ 15 MPH	LTS ≥ 3
SINGLE RIGHT-TURN LANE WITH ANY OTHER CONFIGURATION OR DUAL RIGHT-TURN LANES OR RIGHT-TURN LANE ALONG WITH A COMBINED THROUGH/RIGHT LANE	LTS ≥ 4

TABLE 5: BICYCLE LTS CRITERIA FOR APPROACHES ALONG MIXED TRAFFIC SEGMENTS

CONFIGURATION	LTS
SINGLE RIGHT-TURN LANE UP TO 75 FT LONG AND INTERSECTION ANGLE/CURB RADIUS SUCH THAT TURNING SPEED IS ≤ 15 MPH	No effect
SINGLE RIGHT-TURN LANE BETWEEN 75 FT AND 150 FT LONG AND INTERSECTION ANGLE/CURB RADIUS SUCH THAT TURNING SPEED IS ≤ 15 MPH	LTS ≥ 3
ANY OTHER CONFIGURATION	LTS ≥ 4

Crossings

Only crossings at unsignalized intersections are considered in the LTS methodology. Unsignalized intersections with median refuges of at least six feet and those without a median refuge are analyzed separately, as shown in **Table 6** and **Table 7**.

According to the Mineta methodology, signalized crossings are generally not analyzed as these crossing control types generally do not create a barrier to connectivity. In most cases, signalization provides adequate protection when crossing an intersection. An exception to this scoring criteria is roadways that are exceptionally wide (i.e., more than eight travel lanes), or where data exists to suggest that signal timings do not provide adequate crossing time for cyclists.

Crossings at intersections between two roadways classified as local/residential that received LTS 1 (low-stress) scores, are also assumed to be low-stress due to low volumes and speed.

TABLE 6: BICYCLE LTS CRITERIA FOR CROSSINGS WITH A MEDIAN REFUGE OF AT LEAST 6 FEET

SPEED LIMIT OF STREET BEING CROSSED	EXISTING MILES		
	Up to 3 Lanes	4-5 Lanes	6+ Lanes
UP TO 25 MPH	LTS 1	LTS 1	LTS 2
30 MPH	LTS 1	LTS 2	LTS 3
35 MPH	LTS 2	LTS 3	LTS 4
40 MPH OR MORE	LTS 3	LTS 4	LTS 4

TABLE 7: BICYCLE LTS CRITERIA FOR CROSSINGS WITHOUT A MEDIAN

SPEED LIMIT OF STREET BEING CROSSED	EXISTING MILES		
	Up to 3 Lanes	4-5 Lanes	6+ Lanes
UP TO 25 MPH	LTS 1	LTS 1	LTS 2
30 MPH	LTS 1	LTS 2	LTS 3
35 MPH	LTS 2	LTS 3	LTS 4
40 MPH OR MORE	LTS 3	LTS 4	LTS 4

Appendix E: Pedestrian Level of Traffic Stress Methodology

DRAFT

METHODOLOGY

The Pedestrian Level of Traffic Stress (LTS) methodology was developed by the Oregon Department of Transportation (ODOT). It is broken into two categories: segments (sidewalks, paths, and multi-use paths) and intersection crossings (unsignalized intersections). Table-based criteria are applied separately for each category using the “worst case principle,” meaning the worst (or highest) score among the criteria considered governs the overall LTS score for that facility.

Depending on the community context and the detail level desired, the overall methodology may be simplified based on the general consistency of facility types, as certain elements (e.g., median islands, buffer type and width, sidewalk ramps, etc.) may not exist in a particular community. If there are no sidewalk ramps on a crossing, then this portion of the methodology is skipped. Signalized intersections generally do not receive an LTS score. Signalized crossings usually do not create a barrier, as the signal provides a protected crossing, and are not considered in the methodology.

SEGMENTS

Table 1 through **Table 4** display the LTS scoring criteria utilized for analyzing the level of traffic stress based on varying criteria such as sidewalk condition and total buffering width. There are four tables used to classify sidewalk segments, and the methodology follows a “worst case principle” meaning the lowest score assigned through the table criteria is applied to the segment. These tables are the criteria tables presented in the ODOT methodology.

Table 3 presents the LTS analysis criteria for segments where there is a buffer between the sidewalk and adjacent traffic. As shown, some criteria do not change across changing conditions. This denotes that when other variables are accounted for there is no impact, or no effect, on the LTS score at that traffic stress level. For example, **Table 3** shows no change in LTS when total buffering width increases from 10 to 25 feet on a two-lane roadway. In this example, a 10-foot buffer has been found sufficient to facilitate a low stress experience on a two-lane road. This begins to change as more travel lanes are introduced and facilitate higher speeds with more traffic volume.

TABLE 1: PEDESTRIAN LTS CRITERIA FOR SEGMENT SIDEWALK CONDITION

Actual/Effective Sidewalk Width (ft) ²		Sidewalk Condition				
		Good	Fair	Poor	Very Poor	No Sidewalk
Actual	<4	PLTS 4	PLTS 4	PLTS 4	PLTS 4	PLTS 4
	≥4 to <5	PLTS 3	PLTS 3	PLTS 3	PLTS 4	PLTS 4
	≥5	PLTS 2	PLTS 2	PLTS 3	PLTS 4	PLTS 4
Effective	≥6 ⁴	PLTS 1	PLTS 1	PLTS 2	PLTS 3	PLTS 4

TABLE 2: PEDESTRIAN LTS CRITERIA: SEGMENT PHYSICAL BUFFER TYPE

Physical Buffer Type				
Buffer Type ¹	Prevailing or Posted Speed			
	≤25 MPH	30 MPH	35 MPH	≥40 MPH
No Buffer (curb tight)	PLTS 2	PLTS 3	PLTS 3	PLTS 4
Solid surface	PLTS 2 ²	PLTS 2	PLTS 2	PLTS 2
Landscaped	PLTS 1	PLTS 2	PLTS 2	PLTS 2
Landscaped with trees	PLTS 1	PLTS 1	PLTS 1	PLTS 2
Vertical				

¹Combined buffers: If two or more of the buffer conditions apply, use the most appropriate, typically the lower stress level

TABLE 3: PEDESTRIAN LTS CRITERIA: SEGMENT TOTAL BUFFERING WIDTH

Total Number of Travel Lanes (both directions)	Total Buffering Width (ft) ¹				
	<5	≥5 to <10	≥10 to <15	≥15 to <25	≥25
2	PLTS 2	PLTS 2	PLTS 1	PLTS 1	PLTS 1
3	PLTS 3	PLTS 2	PLTS 2	PLTS 1	PLTS 1
4 - 5	PLTS 4 ²	PLTS 3	PLTS 2	PLTS 1	PLTS 1
6	PLTS 4 ²	PLTS 4 ²	PLTS 3	PLTS 2	PLTS 2

¹Total Buffering Width is the summation of the width of buffer, width of parking, width of shoulder and width of the bike lane on the same side of the roadway as the pedestrian facility being evaluated.

TABLE 4: PEDESTRIAN LTS CRITERIA: SEGMENT GENERAL LAND USE

PLTS	Overall Land Use	HDM Land Use Context
PLTS 1	Residential, central business districts (CBD), neighborhood commercial, parks and other public facilities, governmental buildings/plazas, offices/office parks	Traditional Downtown/CBD Urban Mix Residential Corridor
PLTS 2	Low density development, rural subdivisions, un-incorporated communities, strip commercial, mixed employment	Suburban Fringe Rural Community
PLTS 3	Light industrial, big-box/auto-oriented commercial	Commercial Corridor
PLTS 4	Heavy industrial, intermodal facilities, freeway interchanges	

CROSSINGS

Pedestrian Crossing LTS is assessed based on the criteria presented in **Tables 5** through **9**. There are 5 criteria tables, and the lowest score assessed is applied to the crossing. Crossings at signalized intersections generally receive an LTS of 1 unless engineering judgement necessitates adjustments based on factors such as illumination and crossing distance. Unsignalized intersections with median refuges and those without a median refuge are analyzed separately, as shown in **Table 5** and **Table 8**.

According to the ODOT methodology, signalized crossings are generally not analyzed as these crossing control types generally do not create a barrier to connectivity. In most cases, signalization provides adequate protection when crossing an intersection. An exception to this scoring criteria is roadways that are exceptionally wide (i.e., more than eight travel lanes), where data exists to suggest that signal timings do not provide adequate crossing time for pedestrians, or where limited sight lines on conflicting movements are insufficiently marked or illuminated.

Crossings at intersections between two roadways classified as local/residential receive an LTS 1 (low-stress) score and are assumed to be low-stress due to low volumes and speed.

TABLE 5: PEDESTRIAN LTS CRITERIA ON COLLECTOR & LOCAL UNSIGNALIZED CROSSING^{1,2,3,4}

Prevailing Speed or Speed Limit (mph)	No Median Refuge		Median Refuge Present
	Total Lanes Crossed		Maximum One Through/Turn Lane Crossed per Direction
	1 Lane	2 Lanes	
≤ 25	PLTS 1	PLTS 1	PLTS 1 ⁵
30	PLTS 1	PLTS 2	PLTS 1
35	PLTS 2	PLTS 2	PLTS 2
≥ 40	PLTS 3	PLTS 3	PLTS 3

¹For street being crossed.

²Minimum PLTS 3 when crossing lacks standard ramps.

³Use Table 9 for one-way streets, when ADT exceeds 5,000, or total number of lanes exceeds 2.

⁴Street may be considered a one-lane road when no centerline is striped and when oncoming vehicles commonly yield to each other.

⁵Refuge should be at least 10 feet for PLTS 1, otherwise use PLTS 2 for refuges 6 to <10 feet.

TABLE 6: PEDESTRIAN LTS CRITERIA ON ARTERIAL UNSIGNALIZED CROSSING WITHOUT A MEDIAN REFUGE^{1,2}

Prevailing Speed or Speed Limit (mph)	Total Lanes Crossed (Both Directions) ³					
	2 Lanes			3 Lanes		
	<5,000 vpd	5,000-9,000 vpd ⁴	>9,000 vpd	<8,000 vpd	8,000-12,000 vpd ⁴	>12,000 vpd
≤ 25	PLTS 2	PLTS 2	PLTS 3	PLTS 3	PLTS 3	PLTS 4
30	PLTS 2	PLTS 3	PLTS 3	PLTS 3	PLTS 3	PLTS 4
35	PLTS 3	PLTS 3	PLTS 4	PLTS 3	PLTS 4	PLTS 4
≥ 40	PLTS 3	PLTS 4	PLTS 4	PLTS 4	PLTS 4	PLTS 4

¹For street being crossed.

²Minimum PLTS 3 when crossing lacks standard ramps.

³Use Table 9 for one-way streets. Use PLTS 4 for crossings of four or more lanes.

⁴Use these columns when ADT volumes are not available.

TABLE 7: PEDESTRIAN LTS ADJUSTMENTS FOR ARTERIAL CROSSWALK ENHANCEMENTS¹

Treatment ²	Adjustment	Treatment	Adjustment
Markings ³	-0.5	In-street signs	-1.0
Roadside signage ³	-0.5	Curb extensions	-0.5
Illumination	-0.5	Raised crosswalk	-1.0
PAB (e.g. RRFB)	-1.0	Standard 12" flashing beacon	-0.5

¹2.0 Maximum reduction or PLTS 2. Not intended for application at roundabouts.

²Pedestrian hybrid beacons (PHB) are equivalent to signalized crossings.

³Not applicable for roadways with pedestrian median refuges as crosswalk markings and roadside signage assumed as part of the basic installation.

TABLE 8: PEDESTRIAN LTS CRITERIA FOR ARTERIAL UNSIGNALIZED INTERSECTION CROSSING (1 TO 2 LANES) WITH A MEDIAN REFUGE^{1,2}

Prevailing Speed or Speed Limit (mph)	Maximum Through/Turn Lanes Crossed per Direction			
	1 Lane	2 Lanes		
	Any	<5,000 vpd	5,000-9,000 vpd ⁴	>9,000 vpd
≤ 25	PLTS 1 ³	PLTS 1 ³	PLTS 2	PLTS 2
30	PLTS 2	PLTS 2	PLTS 2	PLTS 2
35	PLTS 2	PLTS 2	PLTS 2	PLTS 3
≥ 40	PLTS 3	PLTS 3	PLTS 3	PLTS 4

¹For street being crossed.

²Minimum PLTS 3 when crossing lacks standard ramps.

³Refuge should be at least 10 feet for PLTS 1, otherwise use PLTS 2 for refuges 6 to <10 feet.

⁴Use these columns when ADT volumes are not available.

TABLE 9: PEDESTRIAN LTS CRITERIA FOR ARTERIAL UNSIGNALIZED INTERSECTION CROSSING (3 OR MORE LANES) WITH A MEDIAN REFUGE^{1,2}

Prevailing Speed or Speed Limit (mph)	Maximum Through/Turn Lanes Crossed per Direction			
	3 Lanes			4+ Lanes
	<8,000 vpd	8,000-12,000 vpd ⁴	>12,000 vpd	Any
≤ 25	PLTS 1 ³	PLTS 2	PLTS 3	PLTS 4
30	PLTS 2	PLTS 2	PLTS 3	PLTS 4
35	PLTS 3	PLTS 3	PLTS 4	PLTS 4
≥ 40	PLTS 4	PLTS 4	PLTS 4	PLTS 4

¹For street being crossed.

²Minimum PLTS 3 when crossing lacks standard ramps.

³Refuge should be at least 10 feet for PLTS 1, otherwise use PLTS 2 for refuges 6 to <10 feet.

⁴Use these columns when ADT volumes are not available.

Appendix F: Site Walk Photos

DRAFT

















Appendix G: Existing Conditions Report

Sub appendices include Traffic Counts

DRAFT



EXISTING CONDITIONS **DRAFT** SUMMARY

DATE: December 20, 2024

TO: Cameron Shew | Sacramento County
Gary Gaspari | Sacramento County

FROM: Josh Pilachowski | DKS Associates
Sean Carney | DKS Associates
Dave Tokarski | DKS Associates
Christine Bairan | DKS Associates

SUBJECT: Re-Imagine North Watt Corridor Plan

Project # P23110-000

INTRODUCTION

PROJECT BACKGROUND

The North Watt Avenue Corridor Plan, which was adopted along with a zoning ordinance amendment to consider the North Watt Avenue Corridor as a special planning area on July 17, 2012 (Resolution 2012-0524), was established to guide infill growth and public improvements within the plan area for a planning horizon of 20 years. The 2012 North Watt Corridor Plan considered existing transit services and plans for future expansion in transit service within the project area as the Corridor is developed with “transit-friendly” uses, such as mixed use and transit-oriented development. As part of the circulation element of the 2012 Corridor Plan, policies related to transit were established. The policies called for improvements to local bus transit stops, upgrading transit facilities, following spacing criteria based on the County’s standards, and accommodating future bus rapid transit on Watt Avenue.

When the Corridor Plan was adopted, the Corridor was redesignated to a Smart Growth Street (SGS) in the General Plan. The SGS policies state that the County should strive to maintain LOS E or better. Additionally, it was noted that existing bicycle facilities and sidewalks found throughout the project area are discontinuous in nature. The bicycle lanes are not developed to standards and cannot be considered as viable bicycle lanes. Mitigation measures and recommendations were stated within the 2012 Plan, which include intersection improvements, installation of new or improved bicycle and pedestrian facilities, accommodation of the bus rapid transit, and more.

POLICY FRAMEWORK AND SETTING

The Circulation Element of the Sacramento County General Plan, as amended on October 25, 2022, lists a number of goals, policies, and implementation measures as part of the Transportation Policy Plan. The corridor plan requests to both create the Smart Growth Street (SGS) General Plan designation and to change the General Plan Transportation Plan to add the SGS designation for Watt Avenue from I-80 North to U Street. The concept of SGSs expands upon the Complete Streets concept. SGSs take a holistic view of the street, the adjacent corridor, the surrounding community and the natural environment, while allowing for more flexibility in the design of street and corridor improvements. The SGSs concept is vital in the County's goal of implementing SACOG's adopted Blueprint Vision and concepts related to smart growth and transit-oriented development promoted in the County's General Plan. Some of the objectives which have been developed in relation to SGSs include: incorporating "green infrastructure" to the greatest extent feasible, improving community identity by coordinating improvements to streetscape, create communities and corridors using a holistic perspective, and more.

The following policies relate to the project corridor:

- CI-1. Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated through roadway shoulders of sufficient width or other means to accommodate all modes of travel.
- CI-2. Promote continued mobility for individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability.
- CI-3. Travel modes shall be interconnected to form an integrated, coordinated, and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.
- CI-4. Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.
- CI-6. Provide support for community-based corridor planning processes on existing roadways with excess vehicle capacity within built communities to optimize the public right-of-way by utilizing the excess width for other modes of travel or public amenities such as bike lanes, landscaping, walkways, parking, or medians.
- CI-7. Plan and construct transportation facilities as delineated on the Transportation Plan of the Sacramento County General Plan. Transportation facilities shall be consistent with the Sacramento County Improvement Standards and Construction Specifications, the Connector Project Design Guidelines, and supplemented by the California Department of Transportation (Caltrans) design standards.
- CI-8. Maintain and rehabilitate the roadway system to maximize safety, mobility, and cost efficiency.
- CI-9. Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or improvements that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in

the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

- CI-14. Pursue all available sources of funding for the development, improvement, and maintenance of the roadway system.
- CI-16. Ensure that transportation infrastructure improvement projects initiated by the County include a comprehensive public outreach process and involves affected local stakeholders and communities in the beginning and throughout the planning and development process for the project.
- CI-20. Promote transit services in appropriate commercial corridors and where population and employment densities are sufficient or could be increased to support those transit services.
- CI-32. Develop a comprehensive, safe, convenient and accessible bicycle and pedestrian system that serves and connects the County's employment, commercial, recreational, educational, social services, housing and other transportation modes.
- CI-34. Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.
- CI-38. Design and construct pedestrian facilities to ensure that such facilities are accessible to all users.

SMART GROWTH STREET (SGS) POLICIES

- CI-65. Incorporate Low Impact Design (LID) techniques to the greatest extent feasible to improve water quality runoff and erosion control, infiltration, groundwater recharge, visual aesthetics, etc.
- CI-66. Use recycled and/or recyclable materials whenever feasible.
- CI-67. When feasible, incorporate lighter colored (higher albedo) materials and surfaces, such as lighter-colored pavements, and encourage the creation of tree canopy to reduce the built environment's absorption of heat to reduce the urban "heat island" effect.
- CI-68. Smart Growth Street planning efforts shall identify specific, implementable measures to create and/or improve community identity.
- CI-69. Incorporate public art into streetscape improvements to the extent feasible.
- CI-70. Smart Growth Streets shall incorporate features such as shade trees and plantings, well designed benches and other street furniture, trash receptacles, news racks, outdoor dining experiences, entertainment, public art, pedestrian scaled lighting fixtures, wayfinding signage, bicycle racks and other amenities as appropriate.
- CI-71. A Smart Growth Street designation requires a focused and holistic corridor planning analysis that considers highly coordinated and interconnected land uses and transportation infrastructure within the corridor while also considering the impacts to surrounding communities and the natural environment. A Smart Growth Street should recognize that they will remain major corridors for through auto traffic that should be accommodated on the Smart Growth Street and not shifted to neighborhood streets surrounding it.
- CI-72. On a Smart Growth Street, the County shall strive to maintain operations and capacity on urban roadways and intersections at LOS E or better, unless maintaining this LOS would, in the County's judgment, be infeasible and conflict with the achievement of other Smart Growth Street objectives. Congestion in excess of LOS E may be acceptable

provided that provisions are made to improve overall mobility, reduce overall VMT and/or promote non-automobile transportation.

- CI-73. Where a Smart Growth Street planning analysis indicates that a roadway improved to its general plan designation will be congested in excess of LOS E, mobility impacts fees may be assessed to the properties within the Smart Growth Street area. Such mobility fees shall be fairly apportioned to the properties and shall be sufficient in amount to improve other Smart Growth Street objectives such as improvements that would enhance pedestrian, bicycle, transit, other modes of mobility, and public realm amenities.
- CI-74. Evaluation of Smart Growth Street corridors and development within those corridors shall utilize multi-modal level of service standards, including pedestrian, bicycle, and transit modes of travel in addition to motor vehicle travel, to support and encourage overall mobility through improvement to all modes of travel.
- CI-75. Smart Growth Street planning efforts shall develop a comprehensive strategy to significantly reduce the total number of driveways along the roadway, including specific measures to ensure implementation, such as requiring cross-access and reciprocal parking agreements between adjacent property owners.
- CI-76. Smart Growth Street planning efforts shall develop a comprehensive strategy to reduce both the total amount of parking and total surface area dedicated to parking facilities. In general, reduced parking requirements and innovative parking solutions such as, shared parking, structured parking, parking maximums rather than minimums, on street parking, performance parking pricing, parking benefit districts and other innovative parking solutions will be strongly encouraged wherever feasible, while large surface parking lots will be strongly discouraged.
- CI-77. Planning processes for Smart Growth Street corridors shall consider road diets, pedestrian and bicycle enhancements, traffic calming measures and other feasible measures to create a corridor that equitably accommodates all users and modes of travel.
- CI-78. Establish connectivity standards to implement within Smart Growth Street corridors, to ensure safe, pleasant and direct travel between destinations for all users.
- CI-79. To ensure the safety and comfort of all users, support and encourage street design to accommodate vehicular speeds of up to 40 miles per hour as appropriate.

DESCRIPTION OF NORTH WATT CORRIDOR

Historically, the North Watt Avenue corridor has high traffic volumes, speeds, and a lack of complete streets and traffic calming features. Due to the North Watt Avenue corridor extending into Placer County, it provides one of the limited connections between Placer County and I-80 as well as the future and planned development growth in western Placer County. Additionally, safety is a key issue for the project corridor and was identified in the Active Transportation Plan as a high injury corridor. DKS staff, along with County staff and WRT staff, conducted a field visit on Tuesday, July 18, 2023, to observe and identify the existing multimodal infrastructure, facilities, and networks that are present through the project corridor. Pictures from the site walk can be found in **Attachment A**.

The North Watt Avenue corridor is located within the North Highlands community. According to the 2020 U.S. Census¹, of the 49,327 persons living in the North Highlands CDP (Census Designated Place), 8.6% were under 5 years old, 26.0% were 5 to 17 years old, 53.2% were 18 to 64 years old, and 12.2% were 65 years old and over.

Regarding the baseline conditions of the North Highlands community, according to Sacramento County's Environmental Justice Element², as of 2017, approximately 63% of the housing units were within ½ mile of a grocery store. The rate of asthma emergency visits within the community are among the worst in the state of California and could be due to their proximity to high volume roadways. The community does not have robust tree canopies, making residents more susceptible to getting heat stroke or exhaustion during a heat wave. Additionally, according to the Climate and Economic Justice Screening Tool, the North Watt Avenue corridor is located within disadvantaged communities that are above the 65th percentile of low income, asthma, housing, poverty, and pollution. According to the American Community Survey 5-Year Estimates, the North Highlands community median household income was \$62,156, whereas the median household income in Sacramento County was \$84,010³, and the North Highlands area has a larger percent of people experiencing poverty at approximately 20%⁴. The North Highlands community is predominately white (57.6%) and Hispanic or Latino (13.6%).

North Watt Avenue generally has four and six travel lanes with a striped or landscaped median. Posted speed limits within the project corridor ranges from 35 to 45 mph. The right-of-way (ROW) of the North Watt Avenue corridor varies from 70 to 90 feet, putting forth challenges and opportunities for better street design. Based on the field visit, it was observed that roadway features, which includes bicycle and pedestrian facilities, medians, landscaping, road grade and width, and signages, were inconsistent throughout the corridor. The sidewalks along the project corridor are generally five feet wide and are provided with pedestrian ramps. However, only a few ramps are ADA compliant, lacking the appropriate running and cross slope, width, flared sides and are not contained within the marked crosswalk. Existing crosswalks at signalized intersections are generally marked and actuated, although many intersections lack countdown signal heads and accessible pedestrian signal (APS) technology. At major signalized intersections, many crossings lack median refuges and striping for higher visibility. Additionally, the positioning of existing utility poles installed along the sidewalks conflict with ADA standards in many locations.

The project corridor has been divided into four segments to better describe the existing conditions of North Watt Avenue corridor. **Table 1** provides a general summary of the existing conditions and characteristics for each road segment. The primary features, facilities, and land use of each segment are shown **Figures 1** through **4**.

¹ <https://www.census.gov/quickfacts/fact/table/northhighlandscdpcalifornia/PST045222>

² <https://planning.sacounty.gov/PlansandProjectsIn-Progress/Documents/General%20Plan%202030/Environmental%20Justice%20Element.pdf>

³ <https://www.census.gov/quickfacts/fact/table/sacramentocountycalifornia/PST045223>

⁴ <https://www.census.gov/quickfacts/fact/table/northhighlandscdpcalifornia/PST045222>

Existing Conditions - Road Segment 1: Antelope Road to Elkhorn Boulevard

Characterized by retail uses with parking lot frontage and vacant properties on the west and low rise residential on the east side of Watt Avenue

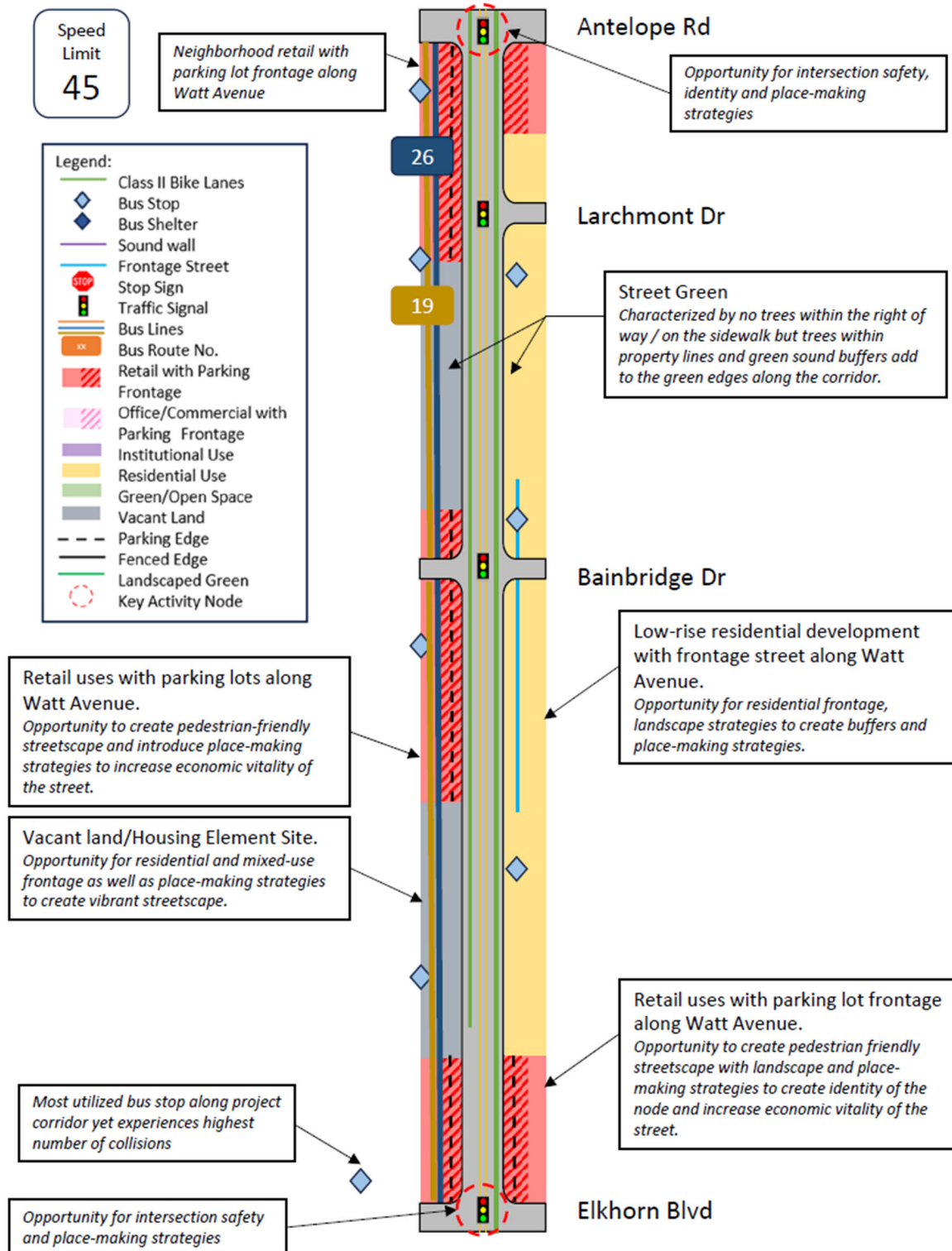


FIGURE 1: ROADWAY SEGMENT 1

Existing Conditions - Road Segment 2: Elkhorn Boulevard to Don Julio Boulevard

Characterized by retail uses with parking lot frontage on the west and low rise residential on the east side of Watt Avenue

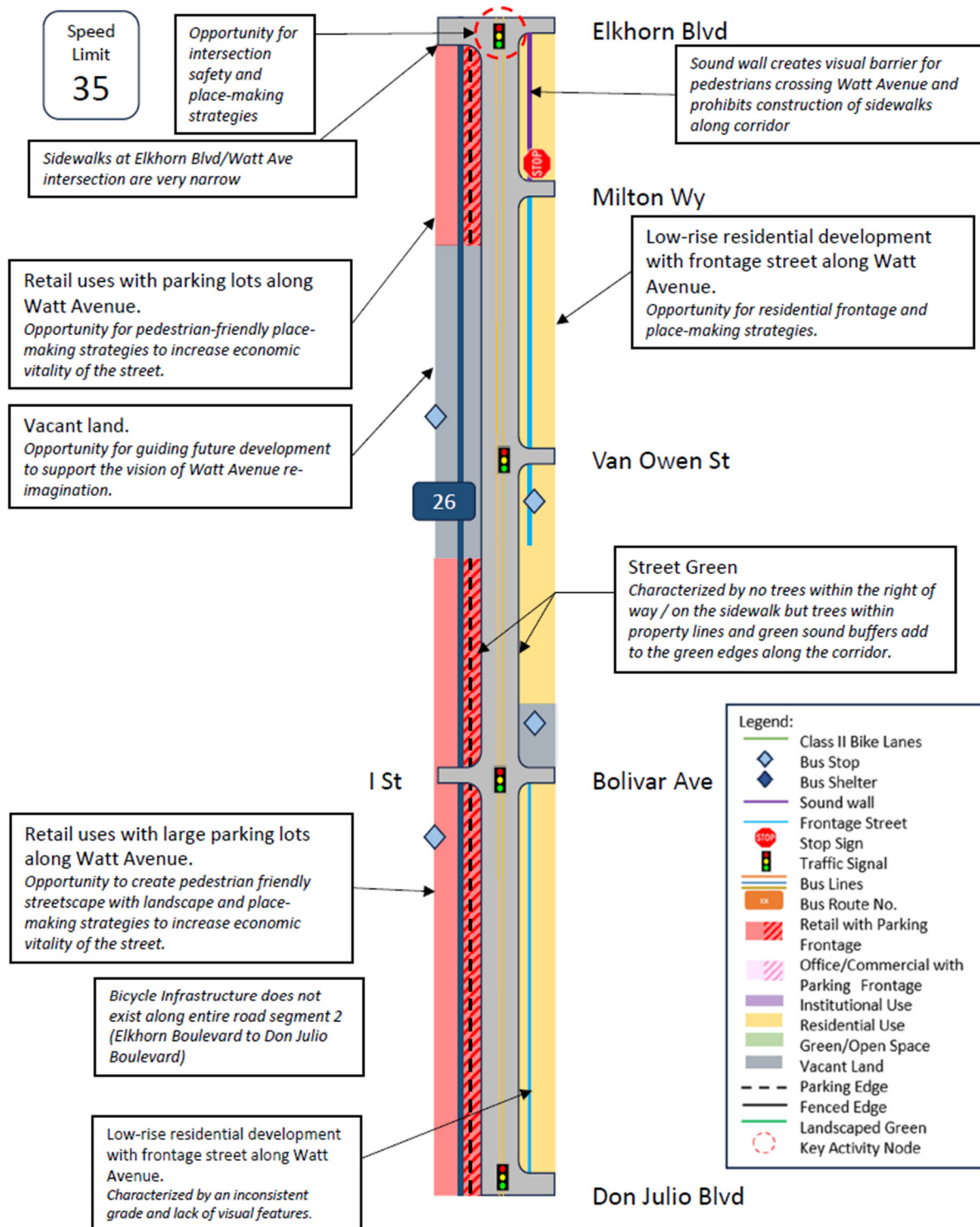


FIGURE 2: ROADWAY SEGMENT 2

Existing Conditions - Road Segment 3: Don Julio Boulevard to A Street

Characterized by retail uses with parking lot frontage along Watt Avenue on the west and mixed land uses and activity nodes on the east side of Watt Avenue

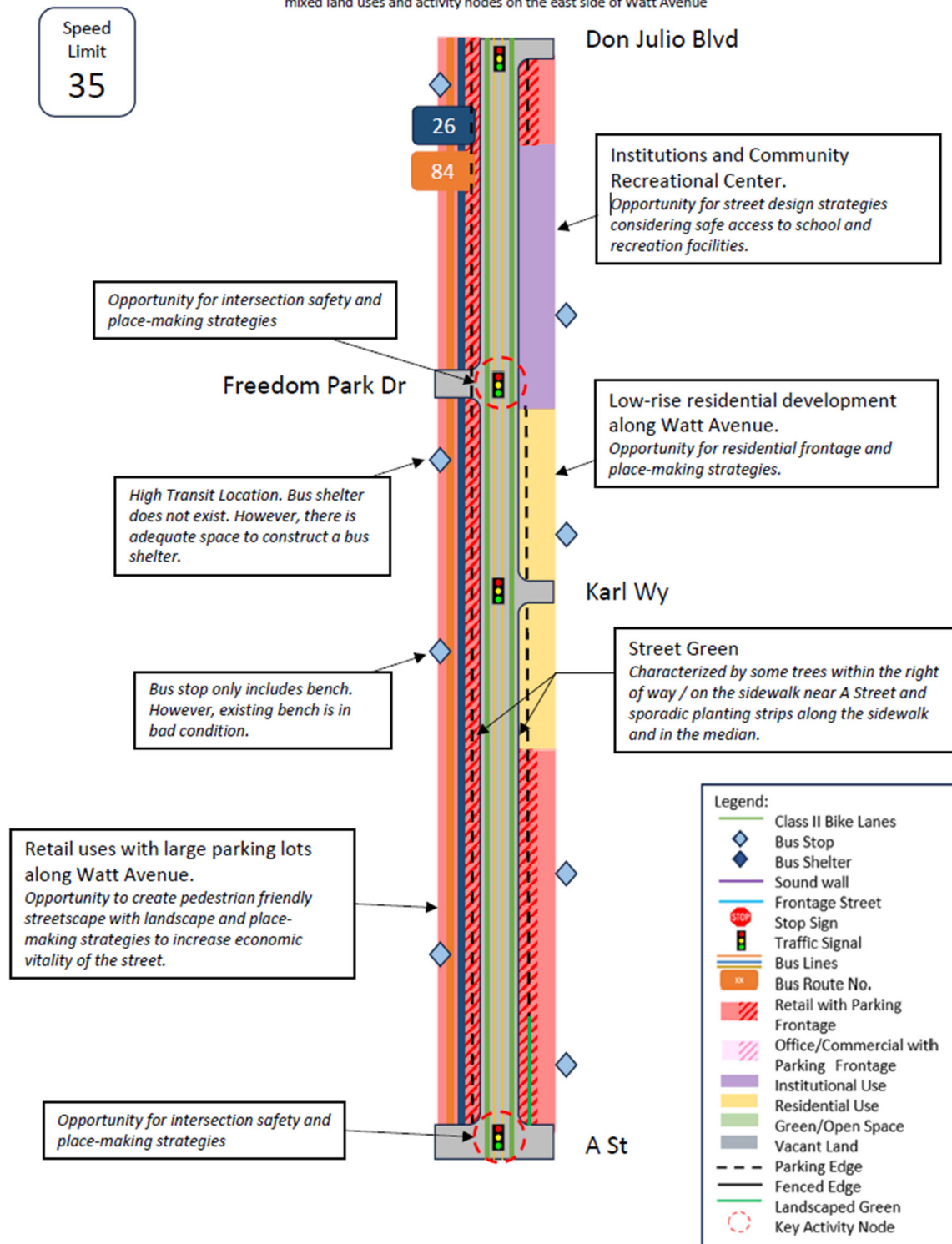


FIGURE 3: ROADWAY SEGMENT 3

Existing Conditions - Road Segment 4: A Street to Peacekeeper Way

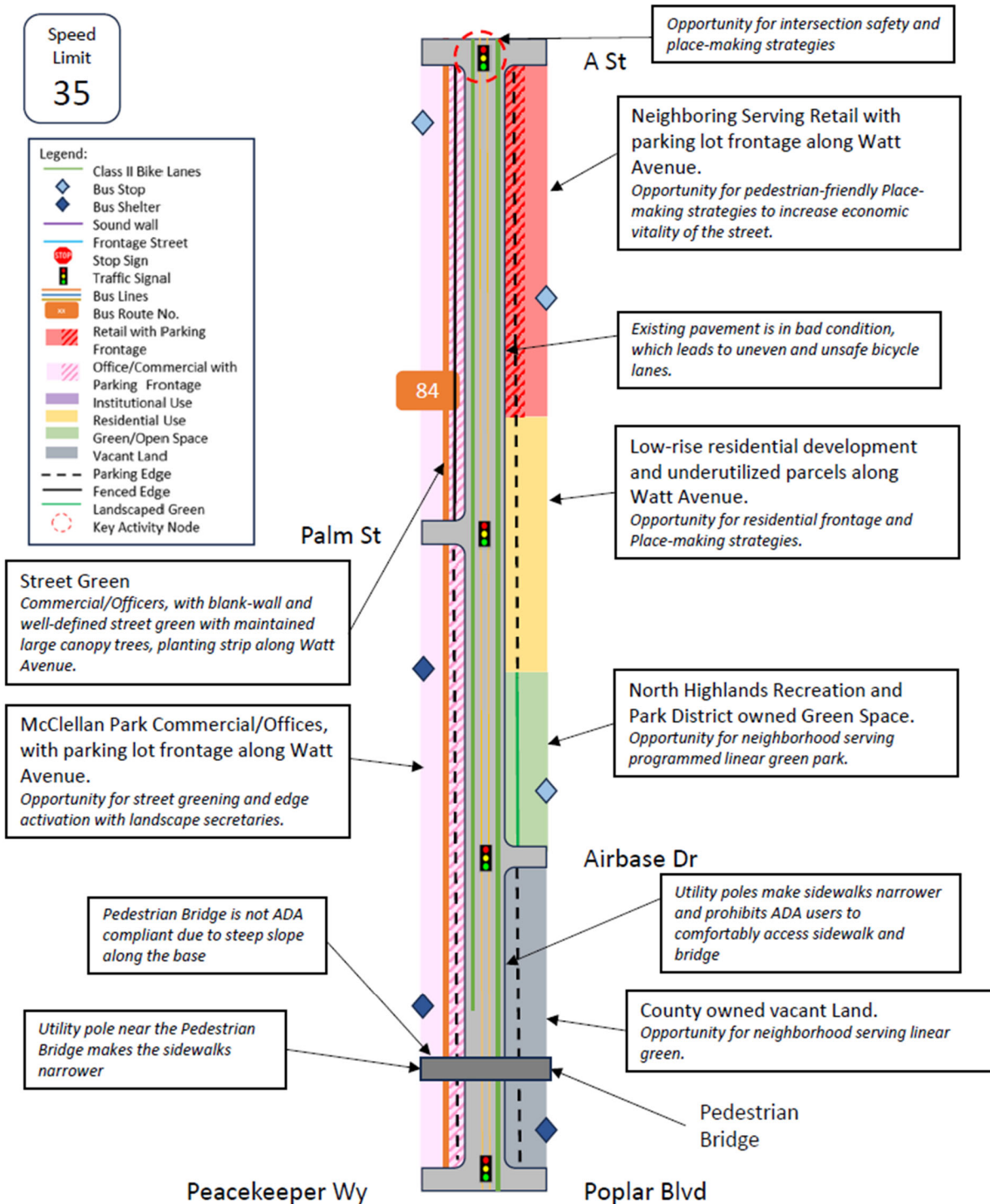


FIGURE 4: ROADWAY SEGMENT 4

TABLE 1: SUMMARY OF EXISTING CONDITIONS AND CHARACTERISTICS ALONG WATT AVENUE CORRIDOR

	ROAD SEGMENT 1	ROAD SEGMENT 2	ROAD SEGMENT 3	ROAD SEGMENT 4
BOUNDARIES	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Don Julio Boulevard	Don Julio Boulevard to A Street	A Street to Peacekeeper Way
LENGTH (APPROX.)	0.96 miles	0.81 miles	0.72 miles	0.53 miles
NUMBER OF LANES	4	4	4 to 6	4
POSTED SPEED LIMIT	45 mph	35 mph	35 mph (25 mph within school zone)	35 mph
ADJACENT LAND USES	NB: Residential SB: Commercial	NB: Residential SB: Commercial	NB: Residential, Commercial SB: Commercial, Industrial	NB: Residential, Commercial SB: Commercial, Government
NOTABLE LOCATIONS	Shopping Plaza (south of U St)	Family Community Church, USPS, Second Slavic Baptist Church	Watt & Freedom Park Center	Citizens Corps/CERT, ARC Community College
MAJOR CROSS-STREETS WITHIN ROAD SEGMENT	<ul style="list-style-type: none"> • Antelope Road • Larchmont Drive • Bainbridge Drive • Turner Drive • Elkhorn Boulevard 	<ul style="list-style-type: none"> • Milton Way • Van Owen Street • Bolivar Avenue • Don Julio Boulevard 	<ul style="list-style-type: none"> • Freedom Park Drive • Karl Way • A Street 	<ul style="list-style-type: none"> • Palm Street • Airbase Drive • Peacekeeper Way
MEDIAN TYPES INCLUDED	Raised/concrete, some with minor landscaping	Raised/concrete with minor landscaping, striped/painted	Raised/concrete with minor landscaping, striped/painted	Raised/concrete with landscaping, striped/painted

	ROAD SEGMENT 1	ROAD SEGMENT 2	ROAD SEGMENT 3	ROAD SEGMENT 4
EXISTING BICYCLE FACILITIES	Class II - Bike lanes (with exception of section north of Elkhorn Boulevard in SB direction)	None	Class II - Bike lanes	Class II - Bike lanes (with exception of section north of Peacekeeper Way in SB direction)
CONDITION OF PEDESTRIAN FACILITIES	<ul style="list-style-type: none"> Sidewalks are in good condition but lack buffers from traveling lanes 	<ul style="list-style-type: none"> Sidewalks are in good condition but lack buffers from traveling lanes 	<ul style="list-style-type: none"> Sidewalks are in good condition but lack buffers from traveling lanes 	<ul style="list-style-type: none"> Pedestrian bridge not ADA-compliant Existing utility poles restrict width of existing sidewalk
BUS SHELTER LOCATIONS	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> (Routes 84, 93) North of Pedestrian Bridge (SB) (Routes 84, 93) South of Pedestrian Bridge (NB) (Route 84) South of Watt Avenue / Palm Street (SB)

	ROAD SEGMENT 1	ROAD SEGMENT 2	ROAD SEGMENT 3	ROAD SEGMENT 4
CONDITIONS OF FRONTAGE ROADS	<ul style="list-style-type: none"> East side of road segment (from Q St to Owens Wy) consists of landscaping 	<ul style="list-style-type: none"> Sound wall exists along the east side of the corridor, south of Elkhorn Blvd. East side of road segment (from Milton Wy to Wan Owen St) consists of landscaping East side of road segment (from I St to Don Julio Blvd) has a painted median for separation. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None

EXISTING TRANSPORTATION - RELATED CHALLENGES AND CONSTRAINTS

To better understand the challenges presented by this corridor, County and Consultant staff performed a site walk. As shown above in **Figure 1** through **Figure 4**, there are several concerns and opportunities related to multimodal accessibility, consistency, and safety. The primary concerns were identified:

PEDESTRIAN INFRASTRUCTURE

There are several gaps in sidewalks along the corridor, requiring pedestrians to walk in adjacent parking lots or along the shoulder, increasing their exposure to oncoming traffic. Additionally, in some locations where sidewalks do exist, utility poles and other fixed objects reduce the available usable sidewalk width, potentially inconsistent with current standards. The pedestrian bridge, located north of the Watt Avenue / Peacekeeper Way intersection, does not meet accessibility requirements nor is it bicycle friendly. The slope of the ramp at the base of the bridge is steep and creates an unfriendly and unusable environment for residents who use bicycles, scooters, or wheelchairs.

BICYCLE INFRASTRUCTURE

The bicycle infrastructure is inconsistent along the corridor. For instance, at the Watt Avenue / Elkhorn intersection, bike lanes are present on the north leg, but not the south leg. The same issue may be observed to the east and west legs at the intersection. Additionally, wherever bicycle lanes exist, there are no buffers between the closest travel lane and the bike lane. In several segments where bicycle lanes are provided, the lane straddles the curb/gutter and paved asphalt, providing an inconsistent and non-level surface to bike on.

TRANSIT INFRASTRUCTURE

There are minimal bus stop amenities provided along the corridor, despite the high number of routes and volume of transit users. Bus stops are often denoted with only a sign, even at the highest volume stops along the corridor, there are generally no amenities provided.

SAFETY

The Watt Avenue / Elkhorn Boulevard intersection is one of the study intersections along the project corridor that experiences the highest number of collisions. It is noted that the existing pedestrian, bicycle, and transit infrastructures are insufficient to provide a comfortable environment for residents to use. The sound wall located on the southeast quadrant of the intersection creates a visual barrier for pedestrians who attempt to cross Watt Avenue and does not allow for construction of sidewalks. The sidewalk and pavement conditions within the vicinity of this intersection are extremely poor.

RIGHT OF WAY

There is a high level of variability in the existing roadway width along the corridor. Public easements (including right of way) and location of frontage improvements are based on the standards in effect

at the time a development occurs. Over time, Watt Avenue’s designation has increased to provide 6 lanes of traffic capacity. Newer standards require roadways to provide bike lanes, wider sidewalks in pedestrian districts, and landscaping buffers. This has resulted in Watt Avenue gradually becoming a wider roadway. New development is required to construct improvements at the ultimate location. This results in a “sawtooth” effect next to older developments, which based on previous standards. Over time as these older properties redevelop, the right of way would be reset to the ultimate location based on the current standards, but this process is gradual and parcel-by-parcel. A comprehensive review of the parcel records will be necessary to determine the exact right of way and irrevocable offers of dedication (IOD) the County has along Watt Avenue for roadway and landscaping improvements. Ultimately, the goal will be to develop a comprehensive design that improves the consistency of the corridor while fitting within a feasible footprint (i.e., not having an excessive impact on adjacent land uses).

LITERATURE REVIEW

Significant planning studies have been completed over the last decade that overlap with the study corridor. These studies have identified multimodal deficiencies and have provided project recommendations that are relevant to this Corridor Plan. These documents and the relevant conclusions are summarized below.

2022 ACTIVE TRANSPORTATION PLAN

The 2022 Active Transportation Plan (ATP) was established as a tool for guiding County staff, public officials, residents, and developers to build a balanced transportation system that supports and encourages active modes of travel, which include walking, biking, and rolling (mobility devices, skateboards, scooters, and more). The main purpose of the 2022 ATP is to promote people to choose walking, biking, and rolling through the creation of safe, comfortable, and connected, and accessible transportation networks and to encourage alternatives to single-occupancy vehicles trips and improve access. The primary goals and objectives of the 2022 ATP include the following:

- Create safe and comfortable places for residents, workers, and visitors to walk, bike, and roll;
- Provide active transportation access to neighborhood destinations and neighboring cities and counties;
- Prioritize active transportation improvements in communities that rely on walking, biking, rolling, and public transportation;
- Maintain the active transportation network in a state of good repair;
- Support and expand educational programs that support walking, biking, and rolling;
- Implement the recommended infrastructure projects using all available funding sources; and
- Improve climate change.

Within the 2022 Active Transportation Plan, it stated that Watt Avenue suffers from a lack of connectivity. The corridor was determined to be broken and disconnected due to the missing stretches of bike lanes between Elkhorn Boulevard and Don Julio Boulevard in North Highlands and between Madison Avenue and Arden Way in West Arden-Arcade. One of the challenges mentioned

by an attendee of the Sacramento County Disability Advisory Committee, held on July 21, 2020, mentioned that a wheelchair user can and has fallen due to the unmanageable and substandard cross slopes at driveways on Watt Avenue. Additionally, one of the feedbacks received during public outreach events was concerning the existing speeds of traffic, which made Watt Avenue feel unsafe. The ATP engagement process led to recommendations throughout the County, including 194 pedestrian improvement locations, 192 miles of sidewalk gap closures, 1,218 miles of bicycle facilities, and the collection of policy and programmatic recommendations.

It is essential to maintain the bicycle facilities, shared use paths, and sidewalks to create a safer and more comfortable environment for residents to use. Hence, maintenance policies were established, which are expected to be implemented by the County:

- *Policy 1: Identify all necessary maintenance stakeholders across Sacramento County departments and partner agencies/jurisdictions.*
- *Policy 2: Maintain designated walking and bicycling facilities to be safe, comfortable, accessible, and usable for walking, bicycling, and rolling.*
- *Policy 3: Maintain bicycle parking and other support facilities for a more comprehensive bicycle network.*
- *Policy 4: Develop a communications protocol for facility closures/detours and network updates.*

Table 2 and **Table 3** present a list of the pedestrian intersection and bicycle recommendations, respectively, within the project corridor.

TABLE 2: PEDESTRIAN INTERSECTION RECOMMENDATIONS (2022 ATP)

PEDESTRIAN INTERSECTION RECOMMENDATIONS			
PROJECT ID	6	114	9
STREET 1	Watt Avenue	Watt Avenue	Watt Avenue
STREET 2	Airbase Drive	Don Julio Boulevard	Elkhorn Boulevard
INTERSECTION TYPE	Major Intersection	Major Intersection	Major Intersection
TRAFFIC CONTROL	All-Way Traffic Signal	All-Way Traffic Signal	All-Way Traffic Signal
MAP BOOK GRID ID	B5	B5	B5
PRIORITY	No	No	No
SCORE	3.4	3.4	3.25
COST ESTIMATE	\$66,650.00	\$66,650.00	\$66,650.00

PEDESTRIAN INTERSECTION RECOMMENDATIONS			
RANK	83	83	94

TABLE 3: BICYCLE RECOMMENDATION (2022 ATP)

BICYCLE RECOMMENDATIONS	
BICYCLE CLASS	Shared-Use Path
ON STREET	Watt Avenue Paseo Trail
FROM STREET	Freedom Park Drive
TO STREET	U Street
LENGTH (MI.)	1.96
MAP BOOK GRID ID	A4
SCORE	3.95
SCORE ESTIMATE	\$3,199,950.00
RANK	45

NORTH WATT AVENUE CORRIDOR PLAN

The North Watt Avenue Corridor Plan, adopted in 2012, proposes an ordinance on 750 acres within the North Highlands community along a 4-mile stretch from north of I-80 to Antelope Road/U Street within unincorporated Sacramento County. With the intent to guide growth and public improvements within a planning period of 20 years, the plan may result in an addition of up to 7,200 residential units, 1.17M SF of new retail, and 714,700 SF of new office uses. Generally, the overall objectives of the plan are to support regional transit, promote “vibrant” district centers, improve multimodal transportation opportunities, promote long-term sustainability, and attract sustainable urban design. Overall, the plan aims to enhance the quality of life within the community by focusing on the community’s vision for a vibrant and economically healthy corridor.

The General Plan Economic Development Element specifically speaks to opportunities along Watt Avenue with the following policy:

- ED-22. Support the redevelopment and revitalization efforts in the surrounding communities and create interrelationships with portals into the community along Watt Avenue and Winters Street.

The following Land Use Element policies were established to revitalize commercial corridors, which would enhance community image and stimulate private reinvestment and will encourage new economic and commercial development and improvements to housing infrastructure:

- LU-89. Support planning for and development of mixed-use centers and urban villages along commercial corridors to improve quality of life by creating diverse neighborhood gathering places, supporting enhanced transit service and non-automotive travel, stimulating local economic development, eliminating blight, and balancing land uses.
- LU-90. Focus investment of County resources in commercial corridors to facilitate improvements to streetscapes, sidewalks, landscaping, undergrounding of utilities, and other infrastructure and public amenities to encourage and stimulate private investment.

As part of the plan, short- and long-term improvements were proposed to better the corridor. Some improvements include widening the roadways by increasing the number of travel lanes and constructing raised, landscaped medians throughout, transit improvements, and the construction of continuous sidewalks and class II bicycle lanes. Additionally, a plan for bus rapid transit (BRT) was discussed; however, the final alignment (i.e., Watt Avenue or 34th Street) varied between alternatives.

The Plan included a request to change the roadway designation for Watt Avenue to a Smart Growth Street, in order to develop roadways with “green infrastructure.” The Smart Growth Street (SGS) proposed 15 policies, including the following: ensuring transportation infrastructure are interconnected within the community, maintaining operations and capacity at LOS E or better, reducing congestion and number of driveways, and considering road diets. Overall, as stated within the North Watt Avenue Corridor Plan:

“The Smart Growth Street policies state the County should strive to maintain LOS E or better. On designated Smart Growth Streets, however, the County may conclude that widening or other improvements needed to maintain LOS E or better is infeasible. In lieu of this infeasible widening or other improvements, LOS worse than E may be considered acceptable if overall mobility is improved. Overall mobility is defined as including non-automobile transportation.”

CLIMATE ACTION PLAN

The Climate Action Plan (CAP), which was adopted November 6, 2024, details specific measures that will be implemented in Sacramento County to meet the State of California’s 2040 and 2045 greenhouse gas (GHG) emissions reduction targets from communitywide activities and government operations.

The ATP works also towards the goals and measures of the 2024 Climate Action Plan, one of which is to reduce greenhouse gas (GHG) emissions. As stated in the ATP, the Plan supports the following measures from the Climate Action Plan:

- *Measure GHG-11: Reduce emissions from new residential and office/business professional development vehicle miles traveled (VMT). The County will achieve a 15% reduction in daily VMT compared to the regional average for all new residential and office/business professional development in the County.*

- *Measure GHG-15: Improve pedestrian networks and facilities. The County will update the Pedestrian Master Plan to reduce barriers to walking and increased mobility for all users of the roadways.*
- *Measure GHG-17: Improved bicycle network and facilities. The County will improve the bicycle network to provide for safe and convenient bicycle travel through implementation of the Bicycle Master Plan and the improvement of bicycle infrastructure.*

The CAP includes an adaptation plan that recommends actions to reduce the community's vulnerability to the anticipated impacts of climate change. The adaptation measures address climate impacts, which calls for a comprehensive communication strategy, such as the following:

- *Prepare for Increases in Temperatures and Extreme Heat Days and Heat Waves;*
- *Prepare for Increased Risk of Wildfire and Smoke Events;*
- *Prepare for Increased Drought;*
- *Prepare for Increased Flooding; and*
- *Prepare for Sea-Level Rise.*

Of the adaptation measures listed within the draft CAP, **Table 4** and **Table 5** summarize the measures applicable to the project corridor.

TABLE 4: CAP ADAPTATION MEASURES (TEMPERATURE)

	TEMP-01	TEMP-02	TEMP-07	TEMP-08
MEASURE NAME	Protect Critical Infrastructure Vulnerable to Extreme Heat Events	Partner with Local Agencies and Utilities on Heat-Related Climate Change Initiatives and Efforts	Use Cool Pavement Technology and Reduce the Extent of Paved Surfaces	Increase Parking Lot Shading, Landscaping, and Urban Greening, Prioritizing Communities with Less Tree Cover
STRATEGY	Prepare for Increased Temperatures and Extreme Heat Days and Head Waves	Prepare for Increased Temperatures and Extreme Heat Days and Head Waves	Prepare for Increased Temperatures and Extreme Heat Days and Head Waves	Prepare for Increased Temperatures and Extreme Heat Days and Head Waves
BENEFITS	Reduce frequency of power outages	Mitigate effects of Urban Heat Island Effect (UHIE) Lower risk of heat-related illnesses Improve air quality	Mitigate effects of UHIE Lower energy consumption Improve air quality Increase electrical grid resilience	Reduce effects of UHIE Provide opportunities for carbon sequestration in urban areas

	TEMP-01	TEMP-02	TEMP-07	TEMP-08
IMPLEMENTING COUNTY DEPARTMENTS	DGS and SACDOT	SM	SM, PER, and BP&I	SM, PER, Code Enforcement, and DGS
TIMEFRAME	Near term	Near term	Near term	Midterm

TABLE 5: CAP ADAPTATION MEASURES (FLOOD)

	FLOOD-04	FLOOD-05	FLOOD-07
MEASURE NAME	Coordinate with Federal, State, and Local Agencies to Improve Emergency Evacuation and Supply Transportation Routes	Invest in Use of Pervious Pavements and Landscaping in Developed Areas and Restrict the Use of Paved Surfaces	Establish an Underground Utilities Program Resistant to Flooding
STRATEGY	Prepare for Increased Flooding	Prepare for Increased Flooding	Prepare for Increased Flooding
BENEFITS	Help protect Sacramento County residents during flood events	Minimize surface runoff and rates of urban flooding Maintain capacity of stormwater infrastructure Lower cases of localized flooding	Increase Sacramento County's resilience to temperature- and wildfire-related impacts
IMPLEMENTING COUNTY DEPARTMENTS	SacOES, DWR, and SACDOT. Potential collaboration opportunities with the City of Sacramento, CalOES, SAFCA, CA DWR, and FEMA	SM, PER, DWR, and SACDOT	SM
TIMEFRAME	Near term	Near term	Near term

2020 ADA TRANSITION PLAN

The Americans of Disabilities Act (ADA) of 1990 provides comprehensive civil rights protection to qualified individuals with disabilities in the areas of employment and public accommodations. Its goal is to ensure equal participation in public life for all Americans with disabilities. Therefore, the ADA Transition Plan was established to document physical accessibility barriers to the County's programs,

services, and activities and to outline a schedule or plan for the County to transition from a state of noncompliance to compliance.

As stated in the 2020 ADA Transition Plan, the following was listed as part of its existing policies and/or standards:

- *The "County Street Improvement Standard" has designated as "Class B Street" as a residential street with curb and gutter but without sidewalks, and a "Class C Street" as a residential street that has no sidewalk, curb, or gutter.*
- *Traffic/pedestrian light dictates the right of way for both pedestrians and vehicles at signalized intersections. When a signalized intersection has one or more corners without sidewalks, the County provides a pedestrian refuge area to wait for signal change indicating the crossing right of way. The safe refuge is a paved area outside of the vehicular way with raised asphalt concrete (AC) dikes to channel traffic away from the paved refuge area. Cut through level with the street at raised AC dikes are provided to allow for wheelchair passage to the crosswalk.*

ENVIRONMENTAL JUSTICE ELEMENT

The Environmental Justice (EJ) Element, which was adopted December 17, 2019, seeks to minimize and equalize the effects of environmental hazards among the entire community regardless of income, ethnicity, or race. The element was defined as "fair treatment and meaningful participation of people of all races, culture, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." The main goal is to address public health risks and environmental justice concerns of those living in disadvantaged communities. The objectives of the EJ Element focus on providing an equitable degree of protection from environmental and health hazards and allowing all members of a community to participate meaningfully in any civic public decision-making process.

As stated in the EJ Element, the County will use the following strategies and policies for its implementation:

- *EJ-33 - There will be an annual implementation review for the EJ Element.*
- *EJ-34 - The County will embed environmental justice into its regular processes and practices.*

The EJ Element identifies the study corridor as being within the North Highlands/Foothill Farms Environmental Justice Community. Community workshops were held within the community to cover identified community issues and ways to address those issues. The community workshop in the North Highlands/Foothill Farms community was held on January 22, 2019. In the community workshop, the following was stated by the public:

- *"Safer bike lanes that are more separated from traffic are needed in North Highlands/Foothill Farms. Heavy and fast traffic on roads make bicyclists feel unsafe."*
- *"Install more sidewalks, street trees and streetlights. North Highlands/Foothill Farms has a shortage of all these items."*

- *"More support for the establishment and ongoing operations of community gardens and farmer markets. Large areas of the community are food deserts and community gardens, and farmer's markets can address this issue."*
- *"Partner with local community-based organizations (CBOs), local churches and business improvement districts to improve public engagement. Involve the community's youth in public engagement efforts."*
- *"Neighborhood Watch Programs and sex trafficking awareness education programs to address some of the crime issues in North Highlands/Foothill Farms."*

HIGH-CAPACITY BUS SERVICE STUDY (2021)

The High-Capacity Bus Service Study, produced by WSP for the Sacramento Regional Transit District (SacRT), was completed and submitted in May 2021. "High-capacity transit" is characterized by fixed routes operating at higher frequency, faster speeds, limited stops, efficient operations, traffic signal prioritization, and branding infrastructure. The High-Capacity Bus Service (HCBS) Study aims to promote and improve transit throughout Sacramento Regional Transit (SacRT)'s service area. The corridors in the HCBS study include Sunrise Boulevard, Watt Avenue, Florin Road, Arden Way, and Stockton Boulevard.

As stated in the HCBS Study, Watt Avenue offers a significant number of routes and transfers within the SacRT system. Currently, the corridor is served by Routes 26, 84, and 93.

A corridor evaluation was performed for the Watt Avenue corridor based on the information collected in the existing conditions task. Based on the corridor evaluation, the Watt Avenue corridor was considered a suitable candidate for high-capacity bus service. The HCBS recommended improvements to existing service and spot improvements to increase transit speed and reliability in the short term. It was noted that an increased number of projects and political support has been accelerating along the corridor. Watt Avenue was noted to have relatively lower ridership and frequency, with the greatest number of connecting transit lines. Riders on Watt Avenue appear to be the most satisfied with current transit service based on on-board surveys on bus lines serving the segment. The corridor has the greatest number of projects that would support HCBS according to the 2020 Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy. Watt Avenue serves a more diversified geographic location within the SacRT Service Area, creating a more regional network and has land use characteristics that best support HCBS now and in the future.

The HCBS Study states key improvements that are proposed within the corridor, which include the following:

1. From Elverta Road to Don Julio Boulevard
 - a. The goal is to increase the intuitiveness of service in the corridor and increase multimodal access to stops. Route 84 would primarily serve Watt Avenue which Route 26 would cover local service. This improvement will help increase access for active transportation, increase safety, and passenger amenities.
2. From Don Julio Boulevard to I-80 LRT Station

- a. The goal is to reduce travel time and provide more consistent run times along the corridor by consolidating stops. SacRT would focus on reducing the number of stops and install extra amenities such as shelters and benches.

As part of the long-term HCBS vision, the HCBS study identifies potential improvements and corresponding timeframes. Initially, the study recommends streamlining existing bus routes and enhancing transit corridors. This would involve improving frequency, realigning routes for continuous service on the arterial, making spot transit priority improvements, relocating stops for better speed/reliability and passenger access, improving pedestrian and bicycle access and more. Once the HCBS is implemented, potential improvements involve spacing stations farther apart at main intersections, providing larger shelters, boarding platforms, using all-door bus boarding, advancing bus technology, and upgrading to larger buses. It is noted that the annual operating costs for Phases 1, 2, and 3 are expected to be approximately 3.65 million, 6.10 million, and 7.33 million dollars, respectively.

LOCAL ROAD SAFETY PLAN

The Local Road Safety Plan (LRSP), adopted in January 2022, provides a summary of key safety emphasis areas, which was identified through stakeholder outreach and analysis of crash data. The emphasis areas identified included bicyclists, pedestrians, motorcyclists, and equity. The Plan addressed high-level safety needs and strategies to address certain needs. The main elements within the Plan are quantitative goals and associated strategies to measure the success of achieving its goals. The vision statement of the LRSP is to progressively reduce fatal and severe injury crashes within Unincorporated Sacramento County.

Based on the crash data analysis, the Elkhorn Boulevard and Watt Avenue intersection was a part of the top 3 locations in the County for fatal and serious injury (FSI) crash locations from 2015 to 2019. The intersection experienced seven FSI crashes, or approximately 1.4 crashes per year. Additionally, the Elkhorn Boulevard and Watt Avenue intersection had five FSI bicycle collisions from 2015 to 2019. However, this intersection was not a part of the prioritized list of top-scoring intersections for pedestrian treatments.

TRAVEL DEMAND MODEL REVIEW

In order to forecast travel demand and traffic volumes and patterns into the future, this project will rely on the use of a travel demand model. The Sacramento area Council of Governments (SACOG) maintains an Activity Based Model (ABM) called SACSIM19. SACSIM19 is commonly used for transportation planning projects, including SACOG's Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS). SACSIM19, as released by SACOG, includes an existing scenario (2016) as well as a number of future scenarios (2027, 2035, and 2040). In addition to these scenarios, Sacramento County has adopted a "super-cumulative" scenario that includes a number of major projects in the Unincorporated County, including four specific/master plans along Jackson Highway, updated land use in the southeast portion of the County, two specific plans in the unincorporated portions of the Natomas area, and updates in the cities of Elk Grove and Rancho Cordova consistent with their general plans. North of the Sacramento County line, SACOG's MTP/SCS

land use was used for all scenarios. For future scenarios, this include portions of Placer Vineyards and Riolo Vineyard in unincorporated Placer County, portions of Sutter Pointe in Sutter County, portions of Sierra Vista and Creekview in Roseville, and portions of project's in Lincoln's Sphere of Influence (SOI) from their 2050 General Plan. Upon review of both SACOG's 2040 scenario and Sacramento County's super-cumulative scenario, land use assumed in both models is identical in the North Watt Corridor study area.

Any discussion of future land use below applies to both 2040 and super-cumulative conditions. This section presents a review of the model land uses assumed in the study area and provides a comparison of these modeled land uses to the land use presented in the North Watt Corridor Plan of 2012 (documented above).

MODEL LAND USES IN NORTH WATT CORRIDOR AREA

In order to summarize model land uses in the vicinity of the study corridor, land uses assumed in traffic analysis zones (TAZs) directly adjacent to the corridor have been summarized and compared between the existing and future model scenarios. In total, the corridor study area consists of a portion of 11 TAZs, 6 of which are on the west side of Watt Avenue, 4 of which are on the east side of Watt Avenue, and 1 of which straddles Watt Avenue with most of it on the east side and a smaller portion of it on the west side of Watt Avenue. **Figure 5** shows a map of the selected TAZs, along with the North Watt Corridor Plan Area as defined in the 2012 study.

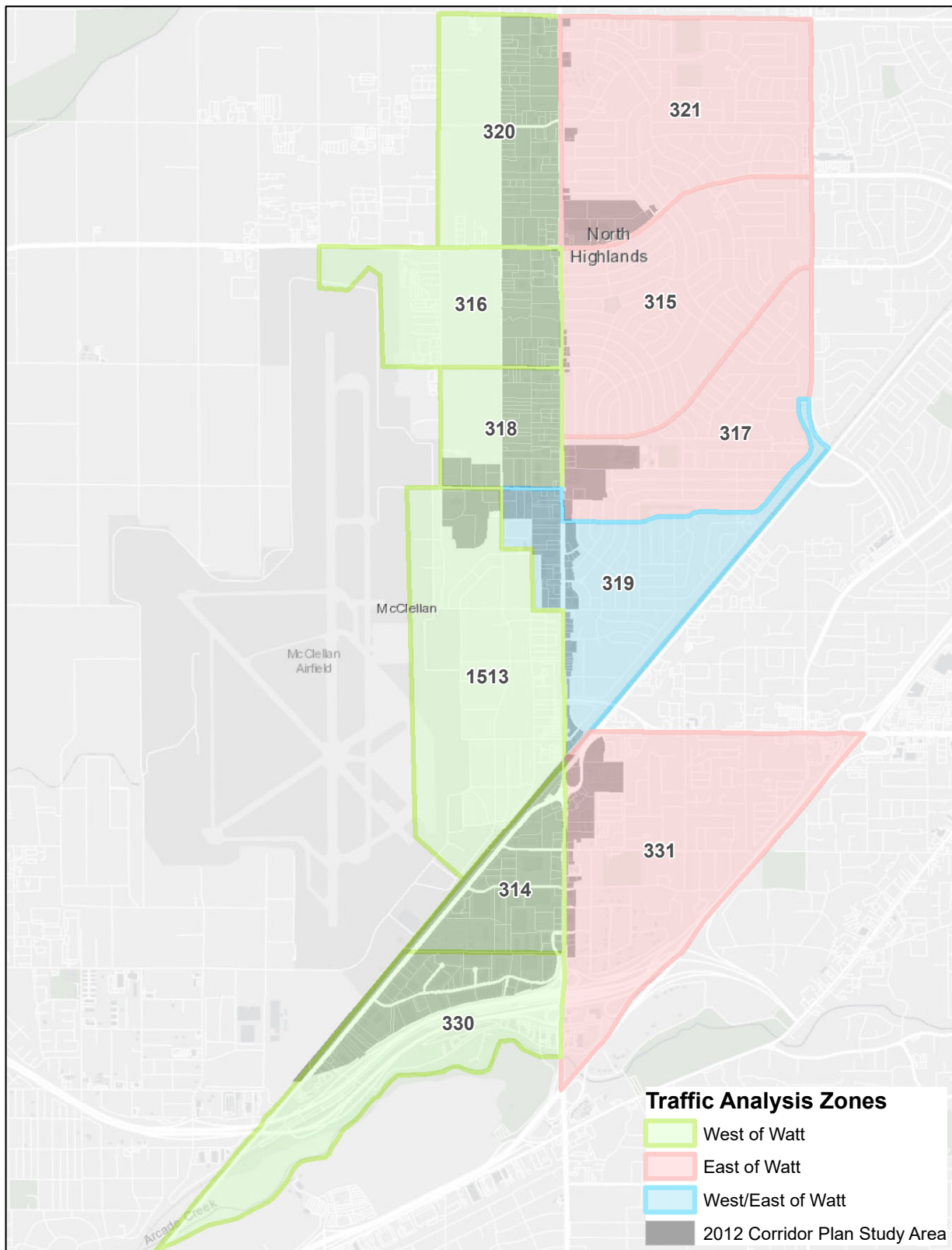


FIGURE 5: STUDY AREA TRAFFIC ANALYSIS ZONES

Table 6 shows the land uses assumed in SACOG’s SACSIM19 existing (2016) and future (2040) models for TAZs in the study area and displayed in the figure above. As stated previously, SACOG’s 2040 and Sacramento County’s super-cumulative land use are identical in the study area. The table shows that households in the study area TAZs increase by 46% and total employment increases by 28.6% between 2016 and 2040/ super-cumulative models. Of this growth, over 75% of the households and employment are west of Watt Avenue.

TABLE 6: TRAVEL DEMAND MODEL LAND USE BY TAZ

TAZ	SIDE OF WATT AVENUE	TOTAL HOUSEHOLDS			TOTAL EMPLOYMENT		
		2016	2040/SC	GROWTH	2016	2040/SC	GROWTH
314	West	-	749	749	1,548	2,046	498
316		45	767	722	806	1,543	737
318		124	557	433	622	566	(56)
320		116	656	540	663	899	236
330		-	233	233	1,688	1,750	62
1513		173	347	174	2,513	3,175	662
319	West/East	1,587	1,924	337	733	993	260
315	East	2,023	2,061	38	166	174	8
317		1,343	1,399	56	189	184	(5)
321		2,653	2,907	254	399	559	160
331		114	343	229	417	643	226
TOTAL		8,178	11,943	3,765 (+46%)	9,744	12,532	2,788 (+28.6%)

In addition to summarizing TAZs as a whole for the study area, the fact that the travel demand model land use inputs consist of individual parcels, households, and people allows the summarization of model data by district, as identified in the 2012 North Watt Avenue Corridor Plan. **Figure 6** shows the land use plan and districts as identified in the 2012 plan.

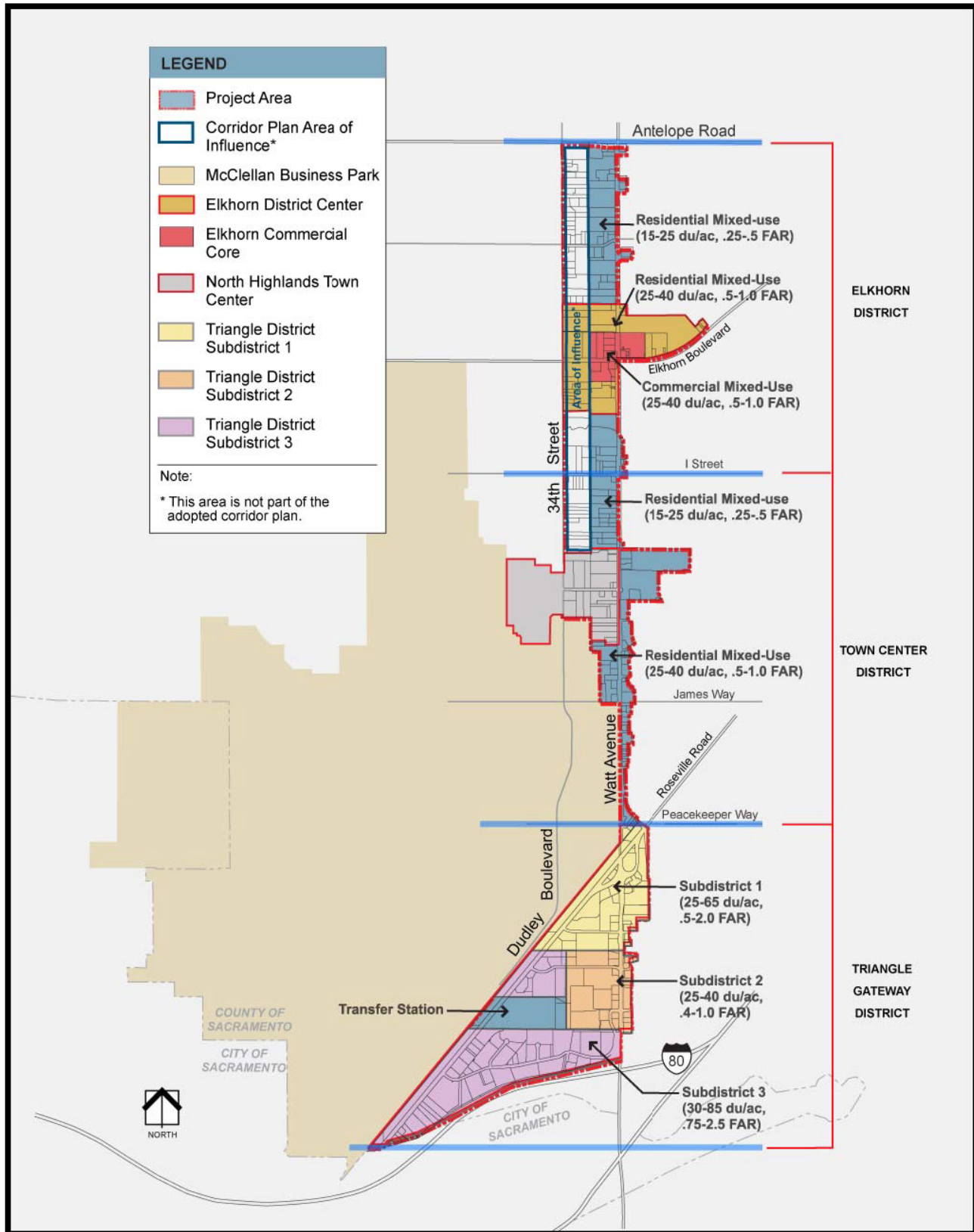


FIGURE 6: NORTH WATT AVENUE CORRIDOR PLAN DISTRICTS AND LAND USE

Table 7 shows the plan's land use assumptions by district and compares that land use to the travel demand model land use. Note that for summarization, the Town Center District includes the North Highlands Town Center. The 2012 study reports non-residential land uses by square footage for "Commercial" and "Office" and does not list industrial as a land use category. The travel demand model includes non-residential land uses as employment, not square footage, and includes ten different employment categories. For this comparison, "Commercial" includes three model employment categories (retail, food/beverage, and service) while "Office" includes three other employment categories (office, government, and medical). Other model employment categories (education, industrial, and other) are not included in the previous study land use summaries by district. Because one data source is by square footage and the other is by employment, one of the two must be converted for comparison. In order to compare to the previous land use plan, the model employment numbers were converted to square footage by using 500 square feet per employee for commercial uses and 300 square feet per employee for office uses.

TABLE 7: CORRIDOR PLAN AND MODEL LAND USE BY DISTRICT

DISTRICT	LAND USE	SACSIM MODEL 2016	SACSIM MODEL 2040/SCS	2012 PLAN
ELKHORN DISTRICT	RESIDENTIAL DU	536	1,847	2,363
	RETAIL/ COMM KSF	349.0	502.0	292.5
	OFFICE/ MEDICAL KSF	82.8	179.4	220.25
TOWN CENTER DISTRICT	RESIDENTIAL DU	379	1,224	2,280
	RETAIL/ COMM KSF	323.5	342.0	292.5
	OFFICE/ MEDICAL KSF	103.2	80.7	134.85
TRIANGLE GATEWAY DISTRICT	RESIDENTIAL DU	114	1,325	2,550
	RETAIL/ COMM KSF	601.5	805.5	585
	OFFICE/ MEDICAL KSF	362.4	482.4	359.6
TOTAL NORTH WATT AVENUE CORRIDOR PLAN	RESIDENTIAL DU	1,029	4,369	7,193
	RETAIL/ COMM KSF	1,274.0	1,649.5	1,170
	OFFICE/ MEDICAL KSF	548.4	798.9	714.7

Table 7 shows that the North Watt Avenue Corridor Plan assumes approximately 7,200 dwelling units for the study area, while the 2040 and super-cumulative models assume approximately 4,400 dwelling units for the same study area. Thus, the models assume approximately half of the growth in residential assumed in the Corridor Plan. The North Watt Avenue Corridor Plan assumes approximately 1.2 million square feet of commercial development, while the future models assume approximately 1.6 million square feet of commercial development. The North Watt Avenue Corridor Plan assumes approximately 715,000 square feet of office/medical development, while the future models assume approximately 798,900 square feet of office/medical development. While the model assumes only about half of the residential development of the Corridor Plan, when converted from employment to estimated square footage, non-residential development assumptions are much closer with the 2012 plan having less than the models.

LAND USE COMPARISON CONCLUSIONS AND MODEL MODIFICATIONS

In order for this study to be consistent with the North Watt Avenue Corridor Plan, the future travel demand model was updated to reflect the general land use assumptions reported in that plan. This includes approximately doubling the number of new dwelling units in the study area. New households were assumed to be multi-family units (SACSIM Household Type 3: Apartment/Condo). For non-residential uses, the employment in the SCS/super-cumulative model more closely matched the land use assumed in the 2012 plan. As such, the necessary changes were of a smaller magnitude. Non-residential growth was factored to match control totals for the categories of commercial and office/medical described above for each of the districts in the 2012 plan. As the 2012 plan does not specify industrial or other non-residential land uses except for within the North Highlands Town Center, these other land uses were assumed to not grow from 2016 levels within the Plan area. Additionally, the traffic analysis zones (TAZs) in the model were subdivided or split to better represent the study area in the model and allow for more accurate assignment of vehicles onto the roadway system.

EXISTING CONDITIONS DATA SUMMARY

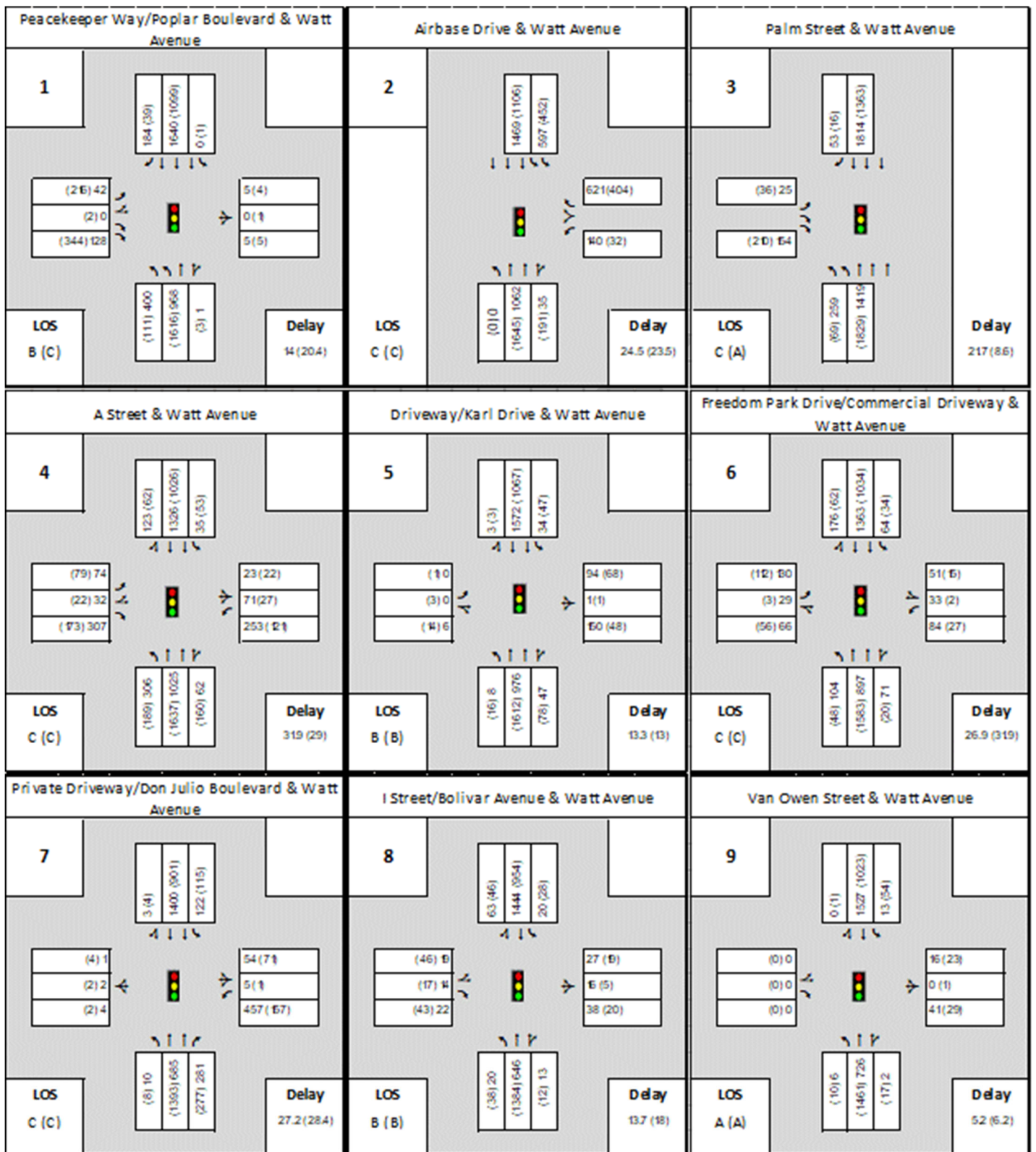
19 study intersections were identified and evaluated as part of the analysis of traffic operations. The study area consisted of the following study intersections and its traffic control type:

1. Watt Avenue / Peacekeeper Way / Poplar Boulevard [Signalized]
2. Watt Avenue / Airbase Drive [Signalized]
3. Watt Avenue / Palm Street [Signalized]
4. Watt Avenue / A Street [Signalized]
5. Watt Avenue / Karl Drive [Signalized]
6. Watt Avenue / Freedom Park Drive / Commercial Driveway [Signalized]
7. Watt Avenue / Don Julio Boulevard / Private Driveway [Signalized]
8. Watt Avenue / I Street / Bolivar Avenue [Signalized]
9. Watt Avenue / Van Owen Street [Signalized]
10. Watt Avenue / Milton Way / Commercial Driveway [TWSC]
11. Watt Avenue / Elkhorn Boulevard [Signalized]
12. Watt Avenue / Turner Drive / Commercial Driveway [TWSC]
13. Watt Avenue / Q Street / Bainbridge Drive [Signalized]
14. Watt Avenue / Larchmont Drive / Commercial Driveway [Signalized]
15. Watt Avenue / U Street / Antelope Road [Signalized]
16. 34th Street / Freedom Park Drive [Roundabout]
17. 34th Street / I Street [AWSC]
18. 34th Street / Elkhorn Boulevard [TWSC]
19. 34th Street / Q Street [AWSC]

Vehicle, pedestrian, and bicycle counts were collected during weekday a.m. (7:00 a.m. to 9:00 a.m.) and p.m. (4:00 p.m. to 6:00 p.m.) peak hours on Wednesday, May 24, 2023, when school was in session, with the exception of four (4) study intersections. Based on correspondence with County staff, data of the intersections listed below were taken from previously approved traffic studies and would not need new data collection. The four study intersections were collected on the following days/dates:

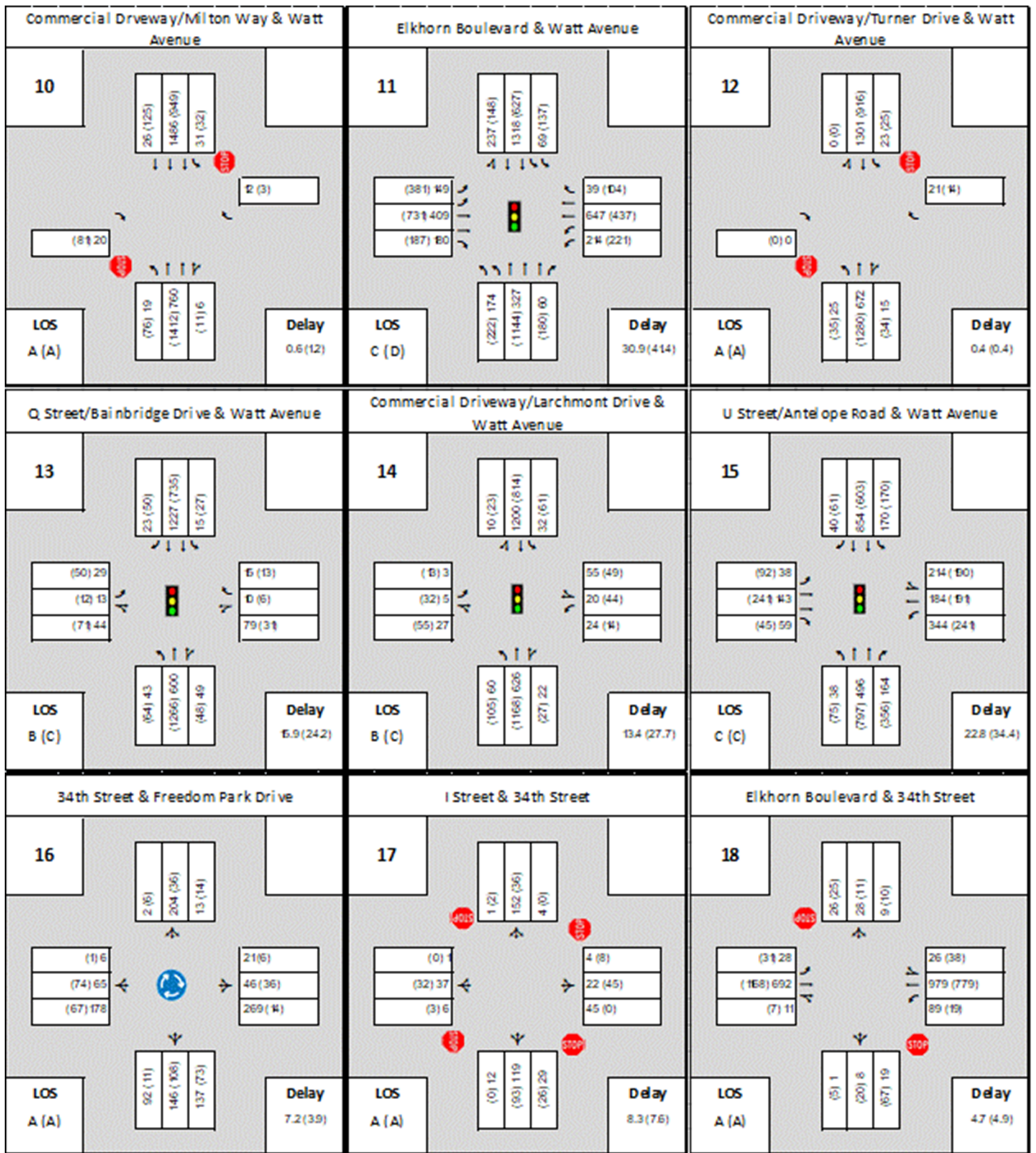
- Watt Avenue / Elkhorn Boulevard [Wednesday, February 20, 2019]
- Watt Avenue / Larchmont Drive / Commercial Driveway [Thursday, May 12, 2022]
- Watt Avenue / U Street / Antelope Road [Tuesday, May 24, 2022]
- 34th Street / Elkhorn Boulevard [Wednesday, February 20, 2019]

Figure 7 provides the lane configuration, existing a.m. and p.m. peak hour intersection turning movement traffic volumes, and modelled level of service for the study intersections. For conservative purposes, the peak hour of the traffic operational analysis was based on the individual peak hour of each intersection. The existing traffic volume count sheets are included in **Attachment B**.



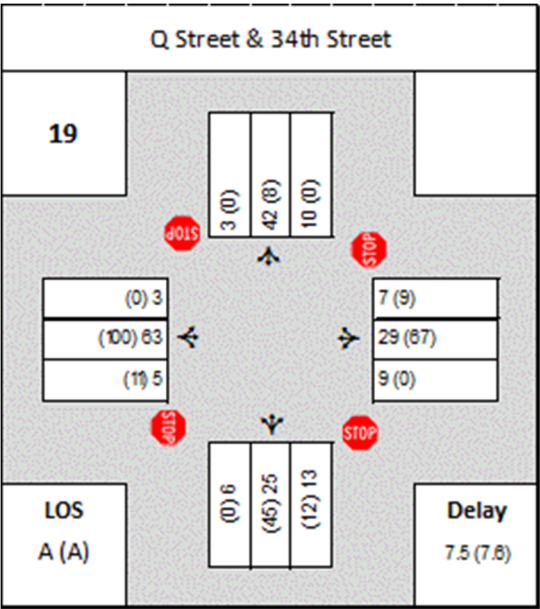
AM (PM) Peak Hour Volumes, Level of Service, and Delay

FIGURE 7: EXISTING STUDY INTERSECTIONS



AM (PM) Peak Hour Volumes, Level of Service, and Delay

FIGURE 7: EXISTING STUDY INTERSECTIONS (PG 2)



AM (PM) Peak Hour Volumes, Level of Service, and Delay

FIGURE 7: EXISTING STUDY INTERSECTIONS (PG 3)

TRANSIT DATA SUMMARY

DKS coordinated with Sacramento Regional Transit to collect transit ridership data for current transit routes along Watt Avenue. The data included routes 19, 26, 84, and 93. Additionally, boarding and alighting data for the Watt/I-80 light rail station near the study corridor was collected. Based on the collected transit data, the total amount of ridership in 2019 and 2022 were 7,313 and 4,736, respectively, resulting in about a 35 percent decrease. As shown in the **Figure 8**, the frequency of riders along the corridor is consistent between the two years. The highest and lowest amount of ridership occurred in October and July, respectively, in both years.

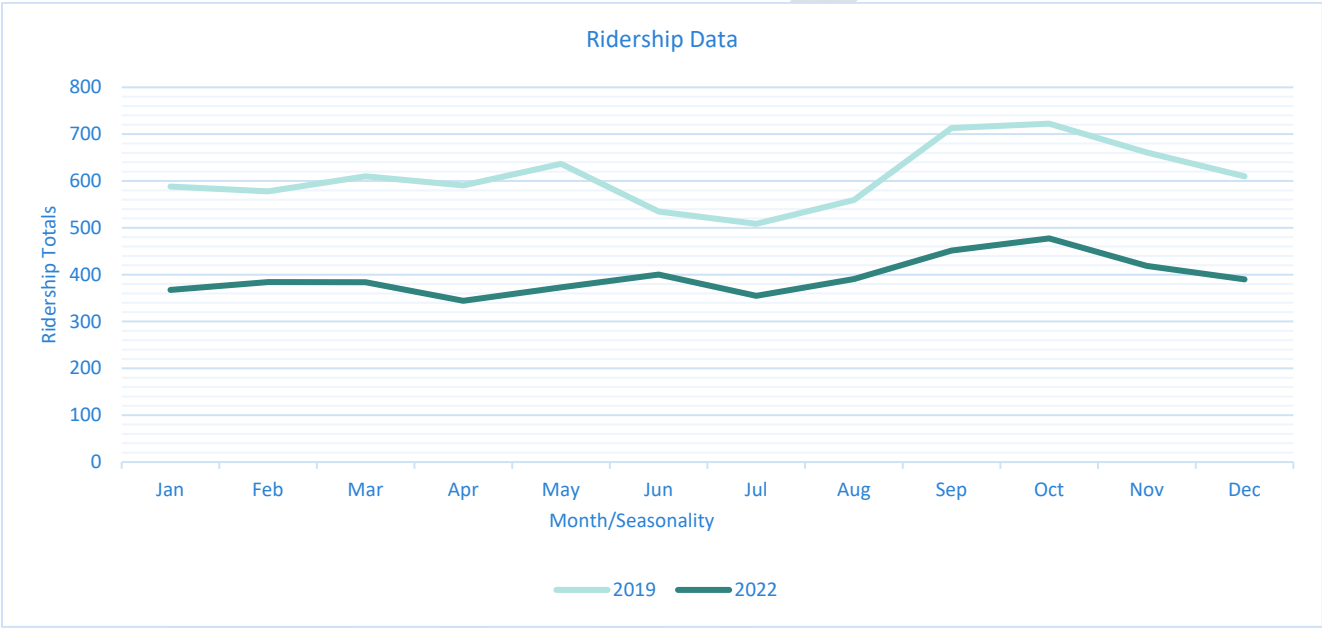


FIGURE 8: RIDERSHIP DATA COMPARISON BETWEEN 2019 AND 2022

The tables below represent the most utilized bus stops in 2022 along the corridor. **Table 8** summarizes the results by sum of boarding and alighting; **Table 9** summarizes the results by the sum of boarding only.

TABLE 8: SUMMARY OF MOST UTILIZED BUS STOPS ALONG WATT AVENUE (BOARDING AND ALIGHTING)

NO.	BUS STOP NO.	CROSS STREET	DIRECTION	BOARDING NUMBERS ¹	ALIGHTING NUMBERS ¹
1	03064	Watt Avenue / Freedom Park Drive	SB	20	11
2	03115	Watt Avenue / Elkhorn Boulevard	NB	9	28
3	03110	Watt Avenue / Freedom Park Drive	NB	12	20
4	03107	Watt Avenue / A Street	NB	7	20
5	03069	Watt Avenue / Poplar Boulevard	SB	11	15

1 Average Weekday 2022, Sacramento Regional Transit

TABLE 9: SUMMARY OF MOST UTILIZED BUS STOPS ALONG WATT AVENUE (BOARDING ONLY)

NO.	BUS STOP NO.	CROSS STREET	DIRECTION	BOARDING NUMBERS ¹
1	03060	Watt Avenue / Elkhorn Boulevard	SB	21
2	03064	Watt Avenue / Freedom Park Drive	SB	20
3	03067	Watt Avenue / A Street	SB	17
4	03103	Watt Avenue / Poplar Boulevard	NB	13
5	03066	Watt Avenue / North Haven Drive	SB	12

1 Average Weekday 2022, Sacramento Regional Transit

SAFETY ANALYSIS SUMMARY

DKS coordinated with County staff to collect crash data within a five-year period (2018 to 2022) to conduct safety analysis within the corridor. The data consisted of crashes on Watt Avenue from Longview Drive to Blackfoot Way.

Based on the crash data provided by the County, the corridor experienced a total of 1,190 crashes within the five-year period. Analysis of the highest primary collision factor and collision type showed that unsafe speeds and rear-end collisions were most common. The typical environmental factors were clear and dry road conditions. Of the 1,190 total crashes, 53 crashes were classified as “severe injury” or “fatal”; and 29 crashes were involved with either a pedestrian or a bicyclist.

The number of crashes occurring at each intersection along the boundaries were observed. Based on the 1,190 crashes the corridor experienced, most crashes occurred along Roseville Road, Elkhorn Boulevard, Myrtle Avenue, Orange Grove Avenue, and Winona Avenue. Therefore, the intersections along Watt Avenue at these cross streets are considered the top safety priority locations.

EXISTING CONDITIONS TRAFFIC ANALYSIS

COUNTY SEGMENT LOS RESULTS

Level of service analyses were conducted for the roadway segments in the study area based upon daily traffic volumes, number of traffic lanes between intersections, and roadway characteristics. The capacity class categories are based upon the nature of traffic flow along the facility, including number of interruptions due to intersection control and “side-friction” due to driveways and local streets. For each capacity class, relationships were developed between daily traffic volumes and roadway level of service. **Table 10** summarizes the maximum daily traffic volumes associated with each level of service designation and capacity class combination. Although the segment-based level of service calculations are based upon daily traffic volumes, the resultant levels of service are representative of peak hour conditions.

TABLE 10: LEVEL OF SERVICE THRESHOLD FOR ROADWAY SEGMENTS

LEVEL OF SERVICE THRESHOLD FOR ROADWAY SEGMENTS						
OPERATIONAL CLASS	NUMBER OF LANES	ADT LEVEL-OF-SERVICE CAPACITY THRESHOLD				
		A	B	C	D	E
Arterial - Low Access Control	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial - Moderate Access Control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000
Arterial - High Access Control	2	12,000	14,000	16,000	18,000	20,000
	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	43,000	48,000	54,000	60,000
Residential	2	600	1,200	2,000	3,000	4,500
Residential Collector with Frontage	2	1,600	3,200	4,800	6,400	8,000
Residential Collector without Frontage	2	6,000	7,000	8,000	9,000	10,000
Facility Type	Stops / Mile		Driveways		Speed	
Arterial - Low Access Control	4 +		Frequent		25 – 35 mph	
Arterial - Moderate Access Control	2 – 4		Limited		35 – 45 mph	
Arterial - High Access Control	1 - 2		None		45 – 55 mph	
Source: Transportation Analysis Guidelines, County of Sacramento, September 10, 2020.						

Table 11 summarizes the existing year roadway segment analysis results. Results of this analysis indicate that all roadway segments are expected to operate acceptably at LOS C or better during existing conditions.

TABLE 11: ROADWAY SEGMENT RESULTS SUMMARY (EXISTING CONDITIONS)

	ROADWAY	EXTENT	TYPE/LANES	VOLUME	LOS
A.	WATT AVENUE	Antelope Road to Elkhorn Boulevard	Arterial M/4	27,983	B
B.	WATT AVENUE	Elkhorn Boulevard to Airbase Drive	Arterial M/6	33,074	A
C.	WATT AVENUE	Airbase Drive to Peacekeeper Way	Arterial M/6	37,658	A

Source: DKS Associates, 2023.

LTS/ALL AGES AND ABILITIES PEDESTRIAN/BICYCLE ANALYSIS

Bicycle Level of Traffic Stress (LTS) has been calculated for the study corridor based on the methodologies described in the Mineta Transportation Institute's Report 11-19 Low-stress Bicycling and Network Connectivity (2012). Bicycle LTS quantifies the stress level of a given roadway segment by considering a variety of criteria including street width (number of lanes), speed limit or prevailing speed, presence and width of bike lanes, and the presence and width of parking lanes. LTS is designated with a score of 1 through 4, with 1 providing the most comfort and 4 providing the least comfort. Generally, an LTS score of 1 indicates that the roadway provides a stress level tolerable by small children, and an LTS score of 4 indicates a stress level tolerable only to strong and fearless bicyclists (See **Figure 9**). The Mineta Transportation Institute's LTS methodology is described in greater detail in **Attachment C**.

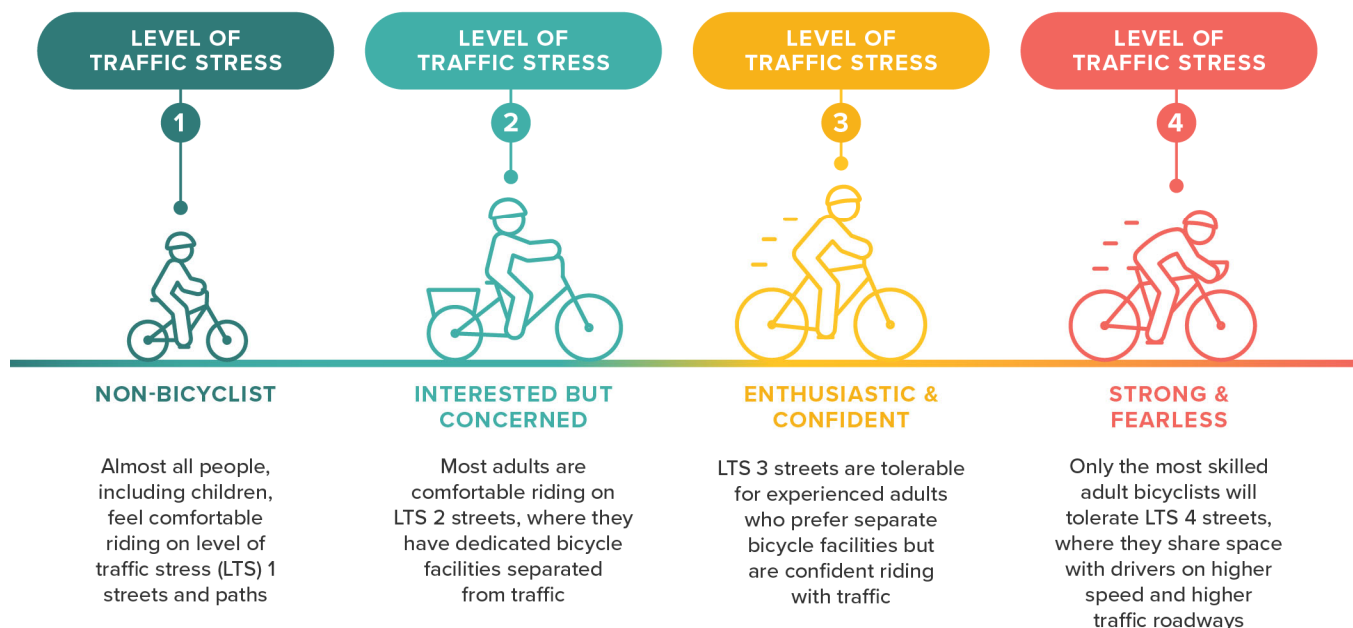


FIGURE 9: BLTS SCORE DESCRIPTION

Along the study corridor, criteria are applied separately for each category using the “worst case principle,” meaning the worst (or highest) score among the criteria considered governs the overall LTS score for that facility.

The criteria used to determine BLTS along the corridor is summarized in **Table 12**. Based on these criteria, Watt Avenue between Peacekeeper Way and Don Julio Boulevard receives a BLTS score of 3, and Watt Avenue Between Don Julio Boulevard and Antelope Road receives a BLTS score of 4. Using the worst-case principle, the posted speed and presence/absence of bicycle lanes along the corridor govern the BLTS score along the corridor. Generally, scores of 3 and 4 denote a high stress experience. The Bicycle LTS score along the study corridor is illustrated in **Figure 10**.

TABLE 12: ROADWAY CHARACTERISTICS AND BICYCLE LEVEL OF TRAFFIC STRESS ON STUDY CORRIDOR

SEGMENT	POSTED SPEED (MPH)	PARKING LANE	BIKE LANE	TRAVEL LANES ¹	BLTS
ANTELOPE ROAD TO ELKHORN BOULEVARD	45	NO	YES	4	4
ELKHORN BOULEVARD TO VAN OWEN STREET	35	NO	NO	6	4
VAN OWEN STREET TO DON JULIO BLVD	35	NO	NO	4	4
DON JULIO BLVD TO PEACEKEEPER WAY	35	NO	YES	6	3

1 Travel lanes do not include parking lanes or turning lanes

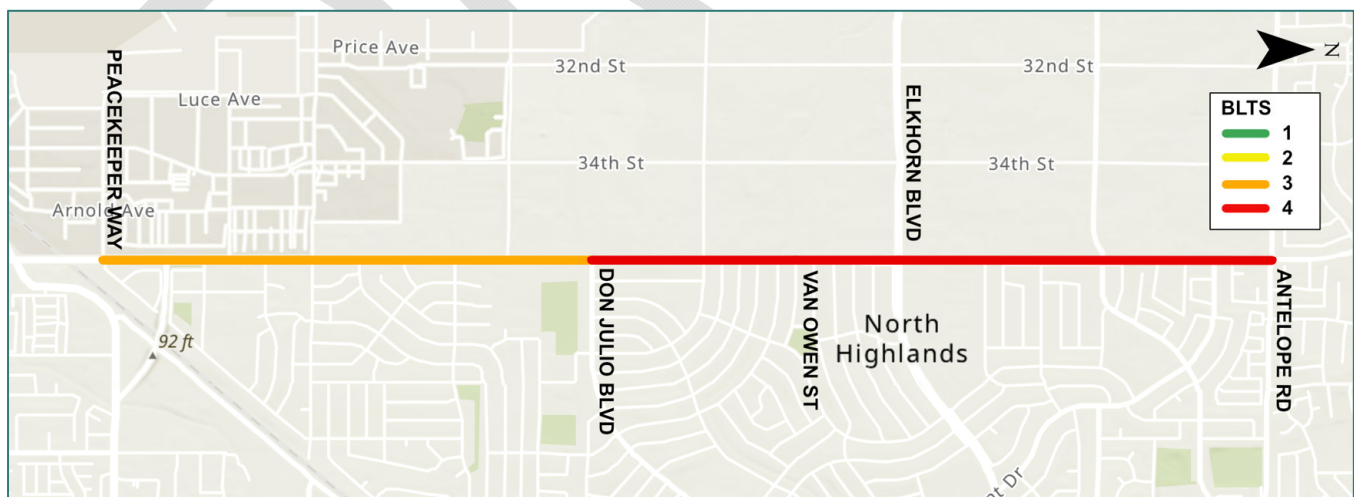


FIGURE 10: BICYCLE LEVEL OF TRAFFIC STRESS ALONG STUDY CORRIDOR

SYNCHRO RESULTS

Table 13 summarizes the existing peak hour intersection operating conditions. Results indicate that all study intersections operate at LOS C or better except for the 34th Street and Elkhorn Boulevard intersection, which operates at LOS F during both AM and PM peak hours, and the Watt Avenue and Elkhorn Boulevard intersection, operates at LOS D during the PM Peak hour.

DRAFT

TABLE 13: EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	DELAY (SECONDS)	LOS	DELAY (SECONDS)	LOS
1. WATT AVENUE AND PEACEKEEPER WAY/POPLAR BOULEVARD	14	B	20.4	C
2. WATT AVENUE AND AIRBASE DRIVE	24.5	C	23.5	C
3. WATT AVENUE AND PALM STREET	21.7	C	8.6	A
4. WATT AVENUE AND A STREET	31.9	C	29	C
5. WATT AVENUE AND DRIVEWAY/KARL DRIVE	13.3	B	13	B
6. WATT AVENUE AND FREEDOM PARK DRIVE/COMMERCIAL DRIVEWAY	26.9	C	31.9	C
7. WATT AVENUE AND PRIVATE DRIVEWAY/DON JULIO BOULEVARD	27.2	C	28.4	C
8. WATT AVENUE AND I STREET/BOLIVAR AVENUE	13.7	B	18	B
9. WATT AVENUE AND VAN OWEN STREET	5.2	A	6.2	A
10. WATT AVENUE AND COMMERCIAL DRIVEWAY/MILTON WAY	0.6 [17.9]	A [C]	1.2 [16.3]	A [C]
11. WATT AVENUE AND ELKHORN BOULEVARD	30.9	C	41.4	D
12. WATT AVENUE AND COMMERCIAL DRIVEWAY/TURNER DRIVE	0.4 [10.8]	A [B]	0.4 [14.2]	A [B]
13. WATT AVENUE AND Q STREET/BAINBRIDGE DRIVE	15.9	B	24.2	C
14. WATT AVENUE AND COMMERCIAL DRIVEWAY/LARCHMONT DRIVE	13.4	B	27.7	C
15. WATT AVENUE AND U STREET/ANTELOPE ROAD	22.8	C	34.4	C
16. 34TH STREET AND FREEDOM PARK DRIVE	7.2	A	3.9	A
17. 34TH STREET AND I STREET	8.3	A	7.6	A
18. 34TH STREET AND ELKHORN BOULEVARD	4.7 [108.5]	A [F]	4.9 [74.2]	A [F]
19. 34TH STREET AND Q STREET	7.5	A	7.6	A

Source: DKS Associates, 2023.

1. [Worst stop-controlled delay] for TWSC intersections

Attachment B: Traffic Counts



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Location: 1 WATT AVE & PEACEKEEPER WAY AM

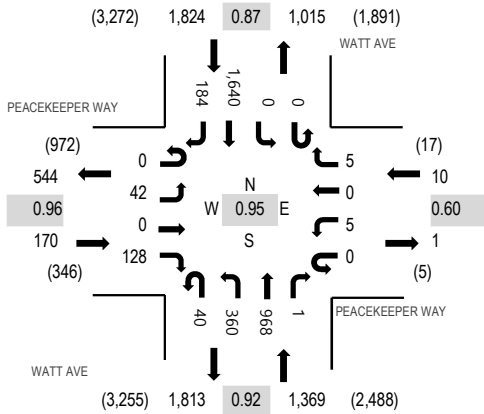
Date: Wednesday, May 24, 2023

Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

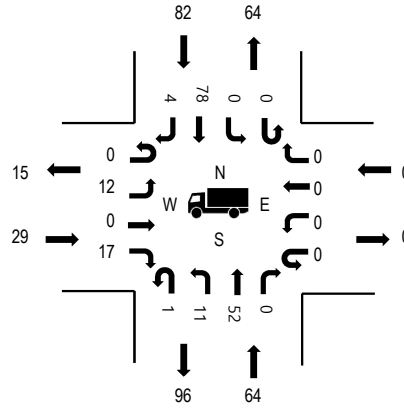
Motorized Vehicles



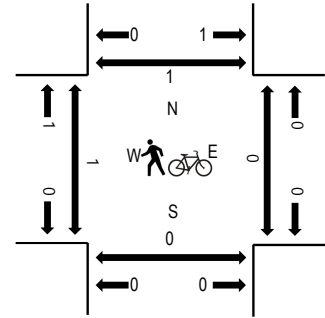
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	17.1%	0.96
WB	0.0%	0.60
NB	4.7%	0.92
SB	4.5%	0.87
All	5.2%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PEACEKEEPER WAY Eastbound				PEACEKEEPER WAY Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	11	0	18	0	0	0	0	0	62	151	0	0	0	344	31	617	3,166
7:15 AM	0	6	0	29	0	1	0	2	0	79	179	0	0	0	469	54	819	3,373
7:30 AM	0	13	0	35	0	0	0	1	12	97	221	0	0	0	426	42	847	3,297
7:45 AM	0	9	0	26	0	1	0	0	17	106	275	0	0	0	393	56	883	3,242
8:00 AM	0	14	0	38	0	3	0	2	11	78	293	1	0	0	352	32	824	2,957
8:15 AM	0	7	0	43	0	0	0	1	14	94	252	0	0	1	287	44	743	
8:30 AM	0	15	0	37	0	1	0	0	3	59	231	0	0	1	411	34	792	
8:45 AM	0	13	0	32	0	0	0	5	1	60	190	2	0	0	251	44	598	
Count Total	0	88	0	258	0	6	0	11	58	635	1,792	3	0	2	2,933	337	6,123	
Peak Hour	0	42	0	128	0	5	0	5	40	360	968	1	0	0	1,640	184	3,373	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	3	22	0	15	40	7:00 AM	0	0	0	0	0	7:00 AM	1	0	1	1	3
7:15 AM	7	17	0	20	44	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	14	8	0	19	41	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	4	22	0	28	54	7:45 AM	0	0	0	0	0	7:45 AM	1	0	0	0	1
8:00 AM	4	17	0	15	36	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	1	1
8:15 AM	3	9	0	10	22	8:15 AM	0	0	0	0	0	8:15 AM	1	0	0	2	3
8:30 AM	6	28	0	14	48	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	4	18	0	19	41	8:45 AM	0	0	0	0	0	8:45 AM	0	0	2	1	3
Count Total	45	141	0	140	326	Count Total	0	0	0	0	0	Count Total	3	0	3	5	11
Peak Hour	29	64	0	82	175	Peak Hour	0	0	0	0	0	Peak Hour	1	0	0	1	2



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Location: 2 WATT AVE & AIRBASE DR AM

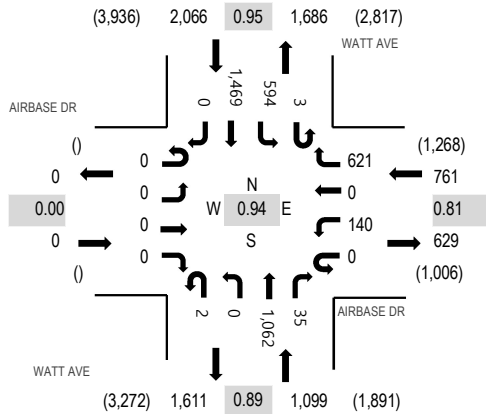
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

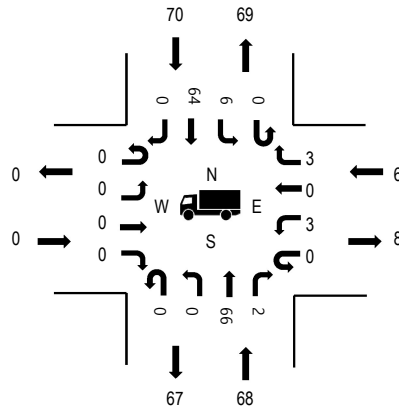
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

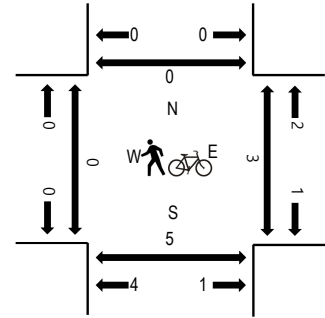
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.8%	0.81
NB	6.2%	0.89
SB	3.4%	0.95
All	3.7%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	AIRBASE DR Eastbound				AIRBASE DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	21	0	75	0	0	151	11	0	56	354	0	668	3,481
7:15 AM	0	0	0	0	0	44	0	84	1	0	183	3	0	86	478	0	879	3,801
7:30 AM	0	0	0	0	0	29	0	111	0	0	228	7	0	81	439	0	895	3,833
7:45 AM	0	0	0	0	0	44	0	148	1	0	277	6	0	159	404	0	1,039	3,926
8:00 AM	0	0	0	0	0	30	0	155	0	0	299	10	0	140	354	0	988	3,614
8:15 AM	0	0	0	0	0	38	0	198	0	0	253	7	2	119	294	0	911	
8:30 AM	0	0	0	0	0	28	0	120	1	0	233	12	1	176	417	0	988	
8:45 AM	0	0	0	0	0	40	0	103	0	0	196	12	0	121	255	0	727	
Count Total	0	0	0	0	0	274	0	994	3	0	1,820	68	3	938	2,995	0	7,095	
Peak Hour	0	0	0	0	0	140	0	621	2	0	1,062	35	3	594	1,469	0	3,926	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	21	6	15	42	7:00 AM	0	0	0	0	0	7:00 AM	0	0	1	0	1
7:15 AM	0	15	2	25	42	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	15	1	22	38	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	18	2	29	49	7:45 AM	0	0	0	0	0	7:45 AM	0	0	1	0	1
8:00 AM	0	16	2	15	33	8:00 AM	0	0	0	0	0	8:00 AM	0	1	0	0	1
8:15 AM	0	7	0	10	17	8:15 AM	0	0	0	0	0	8:15 AM	0	0	1	0	1
8:30 AM	0	27	2	16	45	8:30 AM	0	0	0	0	0	8:30 AM	0	4	1	0	5
8:45 AM	0	17	2	19	38	8:45 AM	0	0	0	0	0	8:45 AM	0	0	1	0	1
Count Total	0	136	17	151	304	Count Total	0	0	0	0	0	Count Total	0	5	5	0	10
Peak Hour	0	68	6	70	144	Peak Hour	0	0	0	0	0	Peak Hour	0	5	3	0	8



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Location: 3 WATT AVE & PALM ST AM

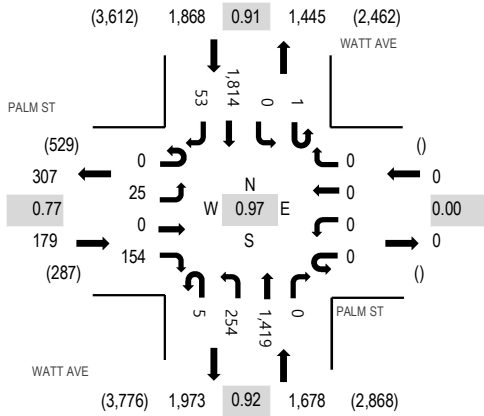
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:00 AM - 08:15 AM

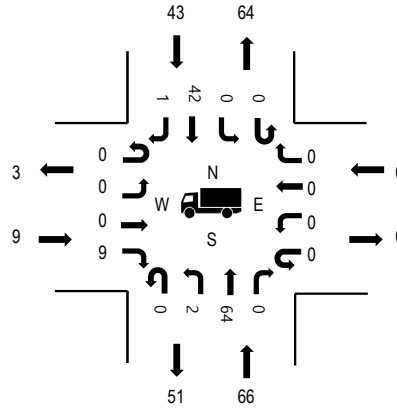
Peak Hour

Motorized Vehicles

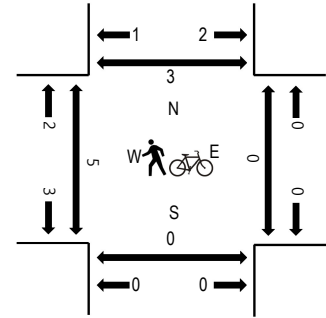


	HV%	PHF
EB	5.0%	0.77
WB	0.0%	0.00
NB	3.9%	0.92
SB	2.3%	0.91
All	3.2%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PALM ST Eastbound				PALM ST Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	4	0	21	0	0	0	0	4	31	207	0	0	0	377	8	652	3,275
7:15 AM	0	1	0	18	0	0	0	0	0	31	240	0	0	0	536	8	834	3,581
7:30 AM	0	5	0	26	0	0	0	0	5	56	291	0	0	0	451	19	853	3,680
7:45 AM	0	3	0	21	0	0	0	0	0	42	367	0	0	0	492	11	936	3,725
8:00 AM	0	5	0	36	0	0	0	0	5	70	382	0	1	0	444	15	958	3,492
8:15 AM	0	9	0	52	0	0	0	0	0	84	370	0	0	0	406	12	933	
8:30 AM	0	8	0	45	0	0	0	0	0	58	300	0	0	0	472	15	898	
8:45 AM	0	5	0	28	0	0	0	0	1	60	264	0	0	0	336	9	703	
Count Total	0	40	0	247	0	0	0	0	15	432	2,421	0	1	0	3,514	97	6,767	
Peak Hour	0	25	0	154	0	0	0	0	5	254	1,419	0	1	0	1,814	53	3,725	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	6	21	0	8	35	7:00 AM	0	0	0	0	0	7:00 AM	3	0	0	2	5
7:15 AM	3	17	0	19	39	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	6	13	0	9	28	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	4	8	0	16	28	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	2	16	0	11	29	8:00 AM	0	0	0	0	0	8:00 AM	2	0	0	0	2
8:15 AM	2	14	0	6	22	8:15 AM	0	0	0	0	0	8:15 AM	2	0	0	0	2
8:30 AM	1	28	0	10	39	8:30 AM	0	0	0	0	0	8:30 AM	1	0	0	3	4
8:45 AM	3	18	0	14	35	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	27	135	0	93	255	Count Total	0	0	0	0	0	Count Total	8	0	0	5	13
Peak Hour	9	66	0	43	118	Peak Hour	0	0	0	0	0	Peak Hour	5	0	0	3	8



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Location: 4 WATT AVE & JAMES WAY AM

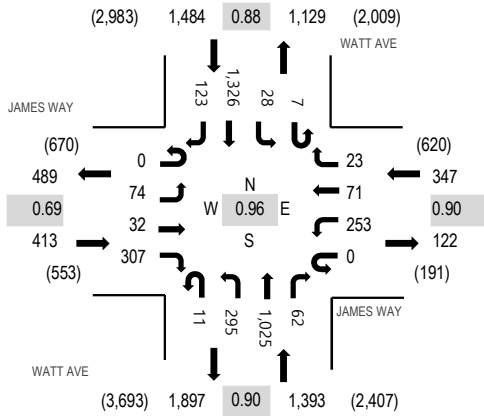
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

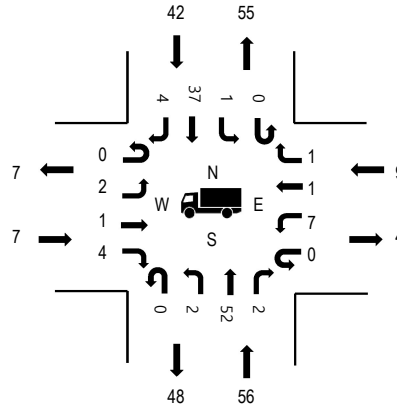
Motorized Vehicles



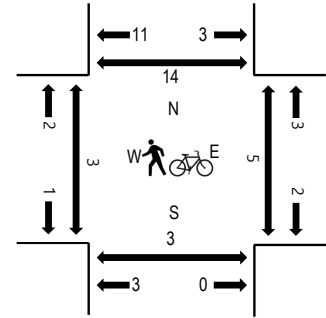
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.7%	0.69
WB	2.6%	0.90
NB	4.0%	0.90
SB	2.8%	0.88
All	3.1%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	JAMES WAY Eastbound				JAMES WAY Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	3	1	27	0	65	6	2	8	20	151	11	2	5	299	6	606	3,203
7:15 AM	0	4	6	27	0	55	4	4	5	28	213	10	1	4	467	10	838	3,501
7:30 AM	0	5	2	23	0	77	7	7	7	30	241	10	0	5	389	9	812	3,556
7:45 AM	0	7	0	50	0	75	10	7	2	55	293	14	1	2	391	40	947	3,637
8:00 AM	0	19	11	68	0	50	28	3	2	71	252	17	1	4	333	45	904	3,360
8:15 AM	0	24	9	76	0	70	22	9	5	109	258	15	1	11	264	20	893	
8:30 AM	0	24	12	113	0	58	11	4	2	60	222	16	4	11	338	18	893	
8:45 AM	0	7	0	35	0	36	6	4	1	37	233	9	3	6	275	18	670	
Count Total	0	93	41	419	0	486	94	40	32	410	1,863	102	13	48	2,756	166	6,563	
Peak Hour	0	74	32	307	0	253	71	23	11	295	1,025	62	7	28	1,326	123	3,637	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	2	18	2	5	27	7:00 AM	0	0	0	0	0	7:00 AM	1	0	0	0	1
7:15 AM	5	15	1	14	35	7:15 AM	0	0	0	0	0	7:15 AM	0	0	1	0	1
7:30 AM	3	8	3	11	25	7:30 AM	0	1	0	0	1	7:30 AM	0	1	1	2	4
7:45 AM	2	8	1	16	27	7:45 AM	0	0	0	0	0	7:45 AM	1	0	1	0	2
8:00 AM	3	12	1	9	25	8:00 AM	0	0	0	0	0	8:00 AM	1	0	1	5	7
8:15 AM	0	14	1	8	23	8:15 AM	0	0	0	0	0	8:15 AM	0	1	2	2	5
8:30 AM	2	22	6	9	39	8:30 AM	0	0	0	0	0	8:30 AM	1	2	1	7	11
8:45 AM	1	14	2	15	32	8:45 AM	0	0	0	0	0	8:45 AM	1	1	0	0	2
Count Total	18	111	17	87	233	Count Total	0	1	0	0	1	Count Total	5	5	7	16	33
Peak Hour	7	56	9	42	114	Peak Hour	0	0	0	0	0	Peak Hour	3	3	5	14	25



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Location: 5 WATT AVE & KARL DR AM

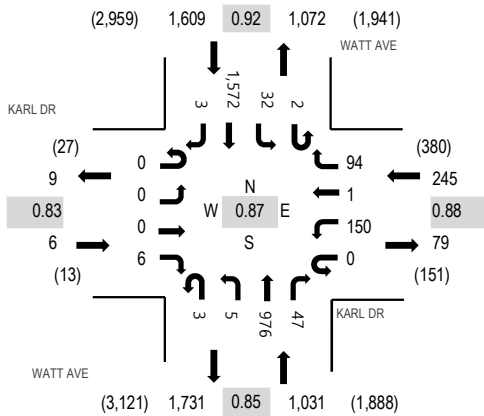
Date: Wednesday, May 24, 2023

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

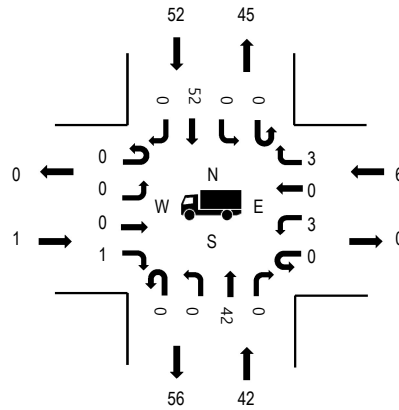
Motorized Vehicles



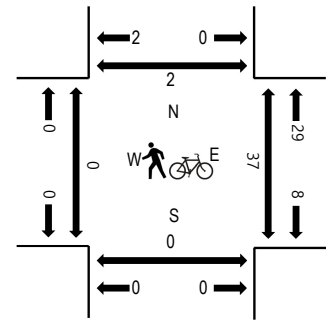
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	16.7%	0.83
WB	2.4%	0.88
NB	4.1%	0.85
SB	3.2%	0.92
All	3.5%	0.87

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	KARL DR Eastbound				KARL DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	1	0	17	1	17	0	0	146	8	0	5	317	0	512	2,706
7:15 AM	0	0	1	0	0	36	1	10	0	3	191	10	0	4	446	1	703	2,858
7:30 AM	0	0	0	0	0	34	0	11	1	2	181	9	0	1	424	1	664	2,891
7:45 AM	0	0	0	1	0	44	0	20	1	0	311	10	1	6	433	0	827	2,833
8:00 AM	0	0	0	3	0	41	1	28	0	2	236	14	0	9	329	1	664	2,534
8:15 AM	0	0	0	2	0	31	0	35	1	1	248	14	1	16	386	1	736	
8:30 AM	0	1	0	2	0	14	0	15	1	3	248	11	4	17	286	4	606	
8:45 AM	0	1	0	1	0	14	1	9	0	3	226	7	1	9	255	1	528	
Count Total	0	2	1	10	0	231	4	145	4	14	1,787	83	7	67	2,876	9	5,240	
Peak Hour	0	0	0	6	0	150	1	94	3	5	976	47	2	32	1,572	3	2,891	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	20	1	6	27	7:00 AM	0	0	0	0	0	7:00 AM	1	0	0	0	1
7:15 AM	0	17	3	10	30	7:15 AM	0	0	0	1	1	7:15 AM	3	0	0	0	3
7:30 AM	0	7	2	12	21	7:30 AM	0	0	0	0	0	7:30 AM	0	0	4	1	5
7:45 AM	1	9	1	19	30	7:45 AM	0	0	0	0	0	7:45 AM	0	0	2	1	3
8:00 AM	0	13	1	7	21	8:00 AM	0	0	0	0	0	8:00 AM	0	0	14	0	14
8:15 AM	0	13	2	14	29	8:15 AM	0	0	0	0	0	8:15 AM	0	0	17	0	17
8:30 AM	0	30	0	6	36	8:30 AM	0	0	0	0	0	8:30 AM	3	0	1	2	6
8:45 AM	0	16	1	14	31	8:45 AM	0	0	0	0	0	8:45 AM	1	0	2	1	4
Count Total	1	125	11	88	225	Count Total	0	0	0	1	1	Count Total	8	0	40	5	53
Peak Hour	1	42	6	52	101	Peak Hour	0	0	0	0	0	Peak Hour	0	0	37	2	39

Location: 6 WATT AVE & FREEDOM PARK DR AM

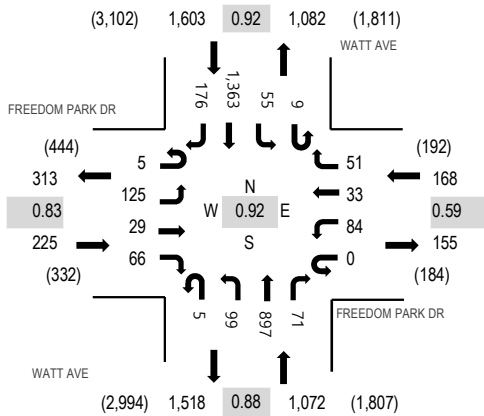
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

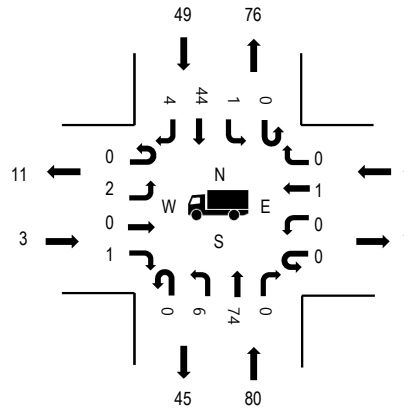
Peak Hour

Motorized Vehicles

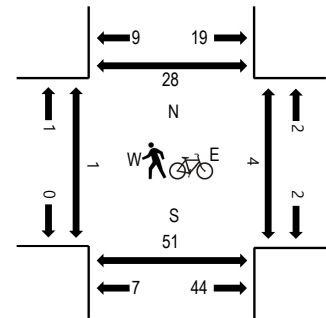


	HV%	PHF
EB	1.3%	0.83
WB	0.6%	0.59
NB	7.5%	0.88
SB	3.1%	0.92
All	4.3%	0.92

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FREEDOM PARK DR Eastbound				FREEDOM PARK DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	4	10	0	12	0	3	0	6	0	13	138	11	1	2	327	12	539	2,679
7:15 AM	2	8	0	11	0	3	0	0	1	20	164	5	2	2	419	13	650	2,917
7:30 AM	3	12	0	7	0	1	1	1	0	8	171	4	0	2	425	24	659	3,059
7:45 AM	1	21	3	9	0	2	3	4	0	36	255	12	1	12	425	47	831	3,068
8:00 AM	2	32	10	13	0	18	7	15	4	32	215	16	3	19	329	62	777	2,754
8:15 AM	2	26	10	27	0	34	13	24	1	16	190	33	2	22	353	39	792	
8:30 AM	0	46	6	17	0	30	10	8	0	15	237	10	3	2	256	28	668	
8:45 AM	2	20	2	14	0	3	1	5	0	11	188	1	3	0	250	17	517	
Count Total	16	175	31	110	0	94	35	63	6	151	1,558	92	15	61	2,784	242	5,433	
Peak Hour	5	125	29	66	0	84	33	51	5	99	897	71	9	55	1,363	176	3,068	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	22	0	7	29	7:00 AM	0	0	0	0	0	7:00 AM	0	0	1	0	1
7:15 AM	2	20	1	12	35	7:15 AM	0	0	0	0	0	7:15 AM	0	1	2	0	3
7:30 AM	4	10	0	14	28	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	2	2
7:45 AM	1	10	0	20	31	7:45 AM	0	0	0	0	0	7:45 AM	1	4	1	2	8
8:00 AM	1	20	0	10	31	8:00 AM	0	0	0	0	0	8:00 AM	0	15	3	12	30
8:15 AM	0	16	0	12	28	8:15 AM	0	0	0	0	0	8:15 AM	0	27	0	8	35
8:30 AM	1	34	1	7	43	8:30 AM	0	0	0	0	0	8:30 AM	0	5	0	6	11
8:45 AM	1	14	0	18	33	8:45 AM	0	0	0	0	0	8:45 AM	2	0	1	2	5
Count Total	10	146	2	100	258	Count Total	0	0	0	0	0	Count Total	3	52	8	32	95
Peak Hour	3	80	1	49	133	Peak Hour	0	0	0	0	0	Peak Hour	1	51	4	28	84



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Location: 7 WATT AVE & DON JULIO BLVD AM

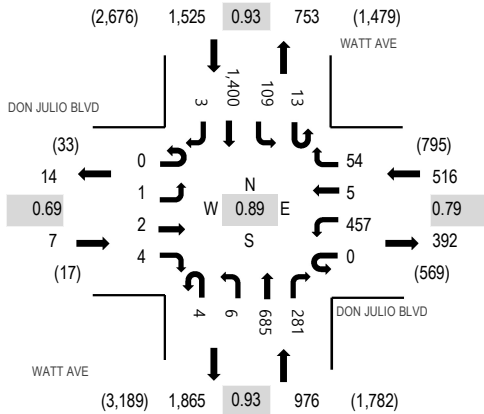
Date: Wednesday, May 24, 2023

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

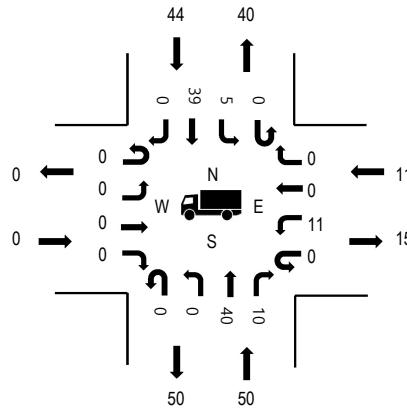
Motorized Vehicles



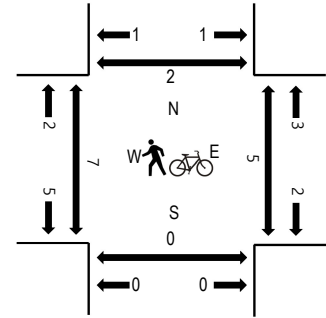
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.69
WB	2.1%	0.79
NB	5.1%	0.93
SB	2.9%	0.93
All	3.5%	0.89

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	DON JULIO BLVD Eastbound				DON JULIO BLVD Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	1	3	0	46	2	9	0	2	134	29	1	3	305	2	537	2,673
7:15 AM	0	0	0	1	0	68	3	11	0	1	127	25	2	5	354	0	597	2,911
7:30 AM	0	0	1	1	0	76	0	14	0	0	136	54	3	19	388	0	692	3,024
7:45 AM	0	1	1	2	0	134	0	16	1	3	189	86	6	39	367	2	847	2,934
8:00 AM	0	0	0	0	0	147	2	14	0	0	174	81	2	30	325	0	775	2,597
8:15 AM	0	0	0	1	0	100	3	10	3	3	186	60	2	21	320	1	710	
8:30 AM	0	0	0	2	0	61	0	20	2	1	227	60	5	18	205	1	602	
8:45 AM	0	1	0	2	0	48	1	10	0	3	176	19	3	17	227	3	510	
Count Total	0	2	3	12	0	680	11	104	6	13	1,349	414	24	152	2,491	9	5,270	
Peak Hour	0	1	2	4	0	457	5	54	4	6	685	281	13	109	1,400	3	3,024	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	19	1	11	32	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	14	3	10	27	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	1	1
7:30 AM	0	10	2	12	24	7:30 AM	0	0	0	0	0	7:30 AM	1	0	1	1	3
7:45 AM	0	11	2	14	27	7:45 AM	0	0	0	0	0	7:45 AM	1	0	1	0	2
8:00 AM	0	15	4	9	28	8:00 AM	0	0	0	0	0	8:00 AM	3	0	1	1	5
8:15 AM	0	14	3	9	26	8:15 AM	0	0	0	0	0	8:15 AM	2	0	2	0	4
8:30 AM	0	27	0	7	34	8:30 AM	0	0	0	0	0	8:30 AM	1	0	0	0	1
8:45 AM	0	10	4	14	28	8:45 AM	0	0	0	0	0	8:45 AM	1	0	0	0	1
Count Total	1	120	19	86	226	Count Total	0	0	0	0	0	Count Total	9	0	5	3	17
Peak Hour	0	50	11	44	105	Peak Hour	0	0	0	0	0	Peak Hour	7	0	5	2	14



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Location: 8 WATT AVE & BOLIVAR AVE AM

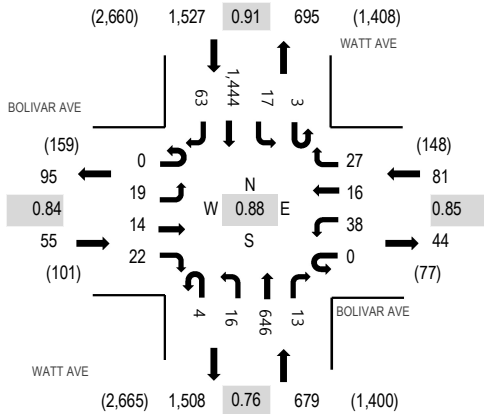
Date: Wednesday, May 24, 2023

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

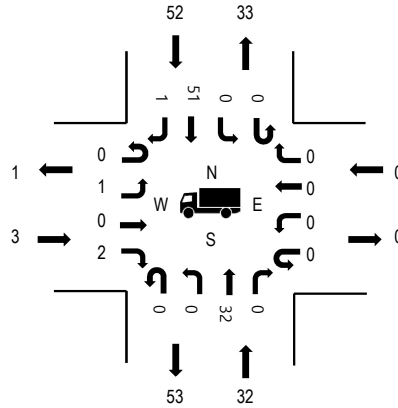
Peak Hour

Motorized Vehicles

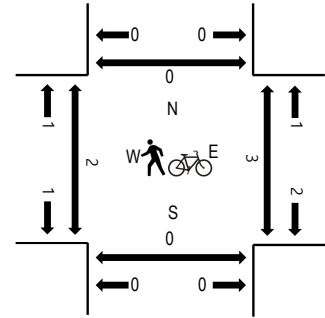


	HV%	PHF
EB	5.5%	0.84
WB	0.0%	0.85
NB	4.7%	0.76
SB	3.4%	0.91
All	3.7%	0.88

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BOLIVAR AVE Eastbound				BOLIVAR AVE Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	0	6	0	9	3	2	2	3	120	0	0	2	279	5	432	2,204
7:15 AM	0	1	3	3	0	15	2	5	0	3	146	2	0	1	360	4	545	2,327
7:30 AM	0	2	3	4	0	13	4	7	0	3	126	0	1	1	388	7	559	2,342
7:45 AM	0	2	6	7	0	3	2	9	1	2	208	4	0	6	405	13	668	2,331
8:00 AM	0	2	4	6	0	7	6	9	0	8	158	6	0	6	328	15	555	2,105
8:15 AM	0	13	1	5	0	15	4	2	3	3	154	3	2	4	323	28	560	
8:30 AM	0	10	6	2	0	11	1	3	1	11	250	7	2	5	223	16	548	
8:45 AM	0	2	4	8	0	10	5	1	0	6	169	1	1	2	228	5	442	
Count Total	0	33	27	41	0	83	27	38	7	39	1,331	23	6	27	2,534	93	4,309	
Peak Hour	0	19	14	22	0	38	16	27	4	16	646	13	3	17	1,444	63	2,342	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	12	1	7	20	7:00 AM	0	0	1	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	14	1	11	26	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	1	4	0	14	19	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	9	0	13	22	7:45 AM	0	0	0	0	0	7:45 AM	0	0	1	0	1
8:00 AM	1	10	0	10	21	8:00 AM	1	0	1	0	2	8:00 AM	1	0	0	0	1
8:15 AM	1	9	0	15	25	8:15 AM	0	0	0	0	0	8:15 AM	1	0	2	0	3
8:30 AM	1	23	0	10	34	8:30 AM	0	0	0	0	0	8:30 AM	0	1	0	0	1
8:45 AM	0	8	0	13	21	8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	0	1
Count Total	4	89	2	93	188	Count Total	1	0	2	0	3	Count Total	2	2	3	0	7
Peak Hour	3	32	0	52	87	Peak Hour	1	0	1	0	2	Peak Hour	2	0	3	0	5



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Location: 9 WATT AVE & VAN OWEN ST AM

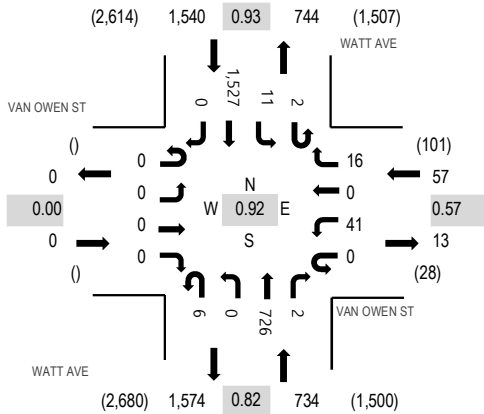
Date: Wednesday, May 24, 2023

Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

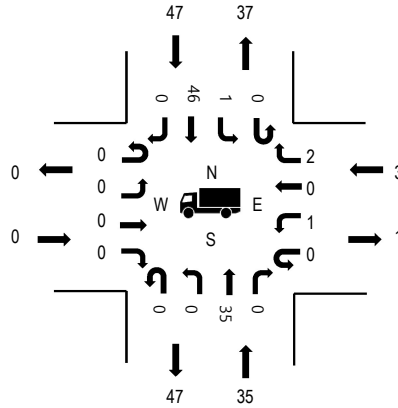
Peak Hour

Motorized Vehicles

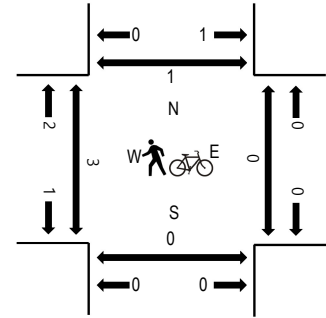


	HV%	PHF
EB	0.0%	0.00
WB	5.3%	0.57
NB	4.8%	0.82
SB	3.1%	0.93
All	3.6%	0.92

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	VAN OWEN ST Eastbound				VAN OWEN ST Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	11	0	0	5	0	124	2	0	0	258	0	400	2,151
7:15 AM	0	0	0	0	0	19	0	6	2	0	160	0	0	4	347	0	538	2,331
7:30 AM	0	0	0	0	0	8	0	3	2	0	153	2	0	0	412	0	580	2,329
7:45 AM	0	0	0	0	0	4	0	4	2	0	221	0	1	4	397	0	633	2,271
8:00 AM	0	0	0	0	0	10	0	3	0	0	192	0	1	3	371	0	580	2,064
8:15 AM	0	0	0	0	0	9	0	4	2	0	186	3	2	0	330	0	536	
8:30 AM	0	0	0	0	0	7	0	1	1	0	263	1	1	4	244	0	522	
8:45 AM	0	0	0	0	0	8	0	4	1	0	177	1	1	4	230	0	426	
Count Total	0	0	0	0	0	76	0	25	15	0	1,476	9	6	19	2,589	0	4,215	
Peak Hour	0	0	0	0	0	41	0	16	6	0	726	2	2	11	1,527	0	2,331	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	12	0	7	19	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	2	2
7:15 AM	0	14	1	11	26	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	1	1
7:30 AM	0	5	1	13	19	7:30 AM	0	0	0	1	1	7:30 AM	0	0	0	0	0
7:45 AM	0	7	0	12	19	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	9	1	11	21	8:00 AM	0	0	0	0	0	8:00 AM	3	0	0	0	3
8:15 AM	0	11	0	11	22	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	0	23	0	8	31	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	9	0	14	23	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	0	90	3	87	180	Count Total	0	0	0	1	1	Count Total	3	0	0	3	6
Peak Hour	0	35	3	47	85	Peak Hour	0	0	0	1	1	Peak Hour	3	0	0	1	4



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Location: 10 WATT AVE & MILTON WAY AM

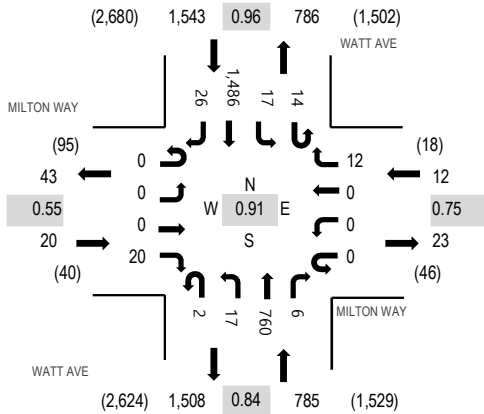
Date: Wednesday, May 24, 2023

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

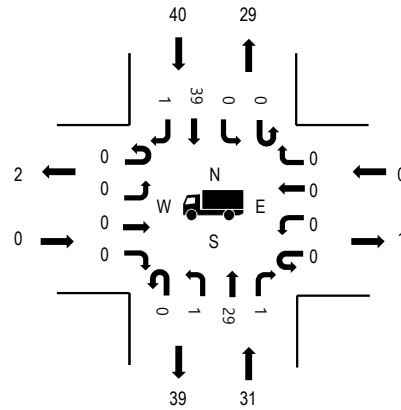
Peak Hour

Motorized Vehicles

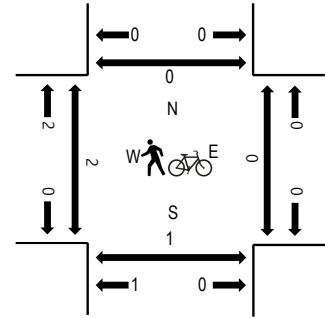


	HV%	PHF
EB	0.0%	0.55
WB	0.0%	0.75
NB	3.9%	0.84
SB	2.6%	0.96
All	3.0%	0.91

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	MILTON WAY Eastbound				MILTON WAY Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	3	0	0	0	1	1	3	122	2	3	3	266	10	414	2,176
7:15 AM	0	0	0	1	0	0	0	1	0	2	163	5	1	2	354	3	532	2,359
7:30 AM	0	0	0	7	0	0	0	2	1	7	158	1	0	2	398	5	581	2,360
7:45 AM	0	0	0	8	0	0	0	4	1	3	225	0	6	7	389	6	649	2,296
8:00 AM	0	0	0	2	0	0	0	4	0	3	189	5	3	6	377	8	597	2,091
8:15 AM	0	0	0	3	0	0	0	2	0	4	188	0	5	2	322	7	533	
8:30 AM	0	0	0	11	0	0	0	0	0	9	247	6	2	3	238	1	517	
8:45 AM	0	0	0	5	0	0	0	4	0	13	170	1	2	1	237	11	444	
Count Total	0	0	0	40	0	0	0	18	3	44	1,462	20	22	26	2,581	51	4,267	
Peak Hour	0	0	0	20	0	0	0	12	2	17	760	6	14	17	1,486	26	2,360	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	11	0	7	18	7:00 AM	0	0	0	0	0	7:00 AM	0	0	1	0	1
7:15 AM	0	13	1	12	26	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	6	0	11	17	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	7	0	9	16	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	8	0	10	18	8:00 AM	0	1	0	0	1	8:00 AM	1	0	0	0	1
8:15 AM	0	10	0	10	20	8:15 AM	0	0	0	0	0	8:15 AM	1	1	0	0	2
8:30 AM	1	19	0	8	28	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	7	0	14	21	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	1	81	1	81	164	Count Total	0	1	0	0	1	Count Total	2	1	1	0	4
Peak Hour	0	31	0	40	71	Peak Hour	0	1	0	0	1	Peak Hour	2	1	0	0	3



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Location: 11 WATT AVE & TURNER DR AM

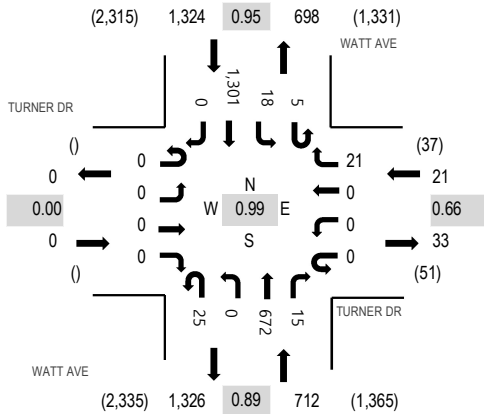
Date: Wednesday, May 24, 2023

Peak Hour: 07:30 AM - 08:30 AM

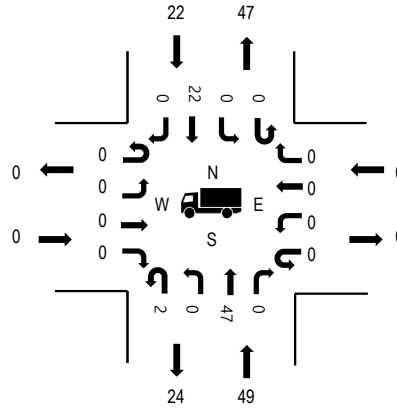
Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour

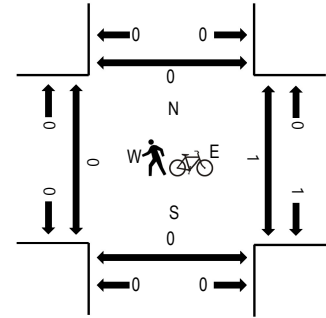
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.66
NB	6.9%	0.89
SB	1.7%	0.95
All	3.5%	0.99

Traffic Counts - Motorized Vehicles

Interval Start Time	TURNER DR Eastbound				TURNER DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	0	0	4	8	0	108	2	0	2	239	0	363	1,843
7:15 AM	0	0	0	0	0	0	0	6	10	0	118	2	0	0	322	0	458	1,994
7:30 AM	0	0	0	0	0	0	0	4	4	0	147	6	0	5	344	0	510	2,057
7:45 AM	0	0	0	0	0	0	0	2	3	0	194	2	0	3	308	0	512	1,980
8:00 AM	0	0	0	0	0	0	0	7	7	0	147	3	0	6	344	0	514	1,874
8:15 AM	0	0	0	0	0	0	0	8	11	0	184	4	5	4	305	0	521	
8:30 AM	0	0	0	0	0	0	0	4	4	0	212	2	1	3	207	0	433	
8:45 AM	0	0	0	0	0	0	0	2	5	0	177	5	1	2	214	0	406	
Count Total	0	0	0	0	0	0	0	37	52	0	1,287	26	7	25	2,283	0	3,717	
Peak Hour	0	0	0	0	0	0	0	21	25	0	672	15	5	18	1,301	0	2,057	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	7	0	5	12	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	18	0	5	23	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	9	0	3	12	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	20	0	7	27	7:45 AM	0	0	1	0	1	7:45 AM	0	0	0	0	0
8:00 AM	0	10	0	8	18	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	10	0	4	14	8:15 AM	0	0	0	0	0	8:15 AM	0	0	1	0	1
8:30 AM	0	22	0	6	28	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	13	0	8	21	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	0	109	0	46	155	Count Total	0	0	1	0	1	Count Total	0	0	1	0	1
Peak Hour	0	49	0	22	71	Peak Hour	0	0	1	0	1	Peak Hour	0	0	1	0	1



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Location: 12 WATT AVE & BAINBRIDGE DR AM

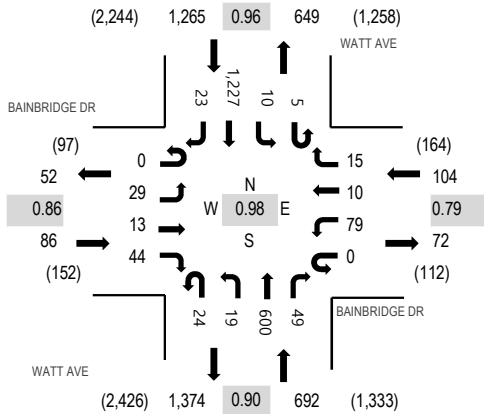
Date: Wednesday, May 24, 2023

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour

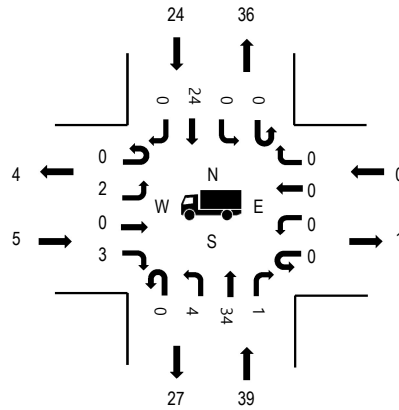
Motorized Vehicles



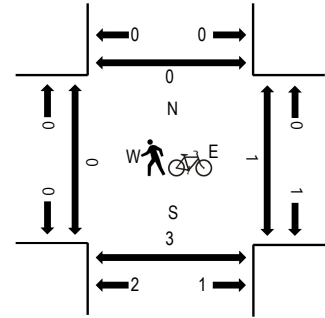
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.8%	0.86
WB	0.0%	0.79
NB	5.6%	0.90
SB	1.9%	0.96
All	3.2%	0.98

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BAINBRIDGE DR Eastbound				BAINBRIDGE DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	5	1	7	0	14	3	0	6	4	110	4	1	2	239	2	398	1,947
7:15 AM	0	4	1	15	0	13	0	2	4	2	105	9	1	6	307	5	474	2,076
7:30 AM	0	6	9	10	0	20	3	6	2	3	123	20	2	3	327	1	535	2,147
7:45 AM	0	8	2	8	0	25	4	4	8	7	166	15	1	3	284	5	540	2,061
8:00 AM	0	7	2	11	0	21	1	1	7	3	135	5	1	2	326	5	527	1,946
8:15 AM	0	8	0	15	0	13	2	4	7	6	176	9	1	2	290	12	545	
8:30 AM	0	4	2	12	0	9	2	2	4	4	195	5	0	2	200	8	449	
8:45 AM	0	5	3	7	0	11	4	0	5	6	174	4	1	1	199	5	425	
Count Total	0	47	20	85	0	126	19	19	43	35	1,184	71	8	21	2,172	43	3,893	
Peak Hour	0	29	13	44	0	79	10	15	24	19	600	49	5	10	1,227	23	2,147	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	17	1	7	25	7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:15 AM	1	14	0	5	20	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	7	0	6	13	7:30 AM	0	0	0	0	0	7:30 AM	0	1	0	0	1
7:45 AM	2	16	0	7	25	7:45 AM	0	0	0	0	0	7:45 AM	0	2	0	0	2
8:00 AM	0	9	0	7	16	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	3	7	0	4	14	8:15 AM	0	0	0	0	0	8:15 AM	0	0	1	0	1
8:30 AM	0	16	1	7	24	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	2	10	1	10	23	8:45 AM	0	0	0	0	0	8:45 AM	1	0	0	0	1
Count Total	8	96	3	53	160	Count Total	0	0	0	0	0	Count Total	1	4	1	0	6
Peak Hour	5	39	0	24	68	Peak Hour	0	0	0	0	0	Peak Hour	0	3	1	0	4



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Location: 13 DUDLEY BLVD (34TH) & PALM ST AM

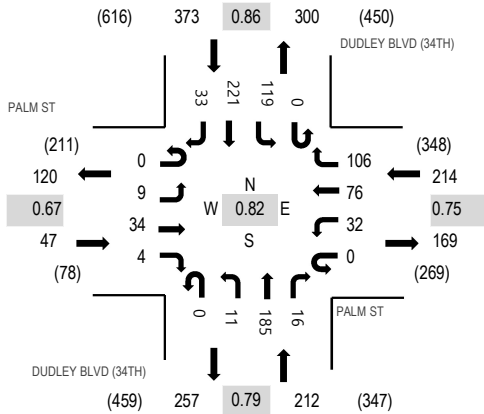
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour

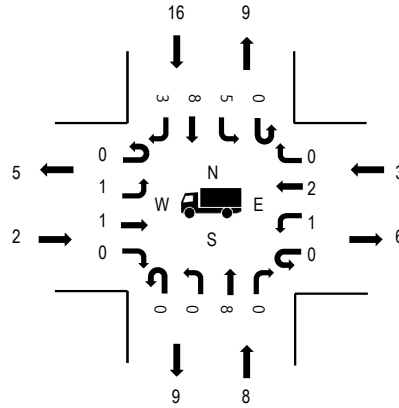
Motorized Vehicles



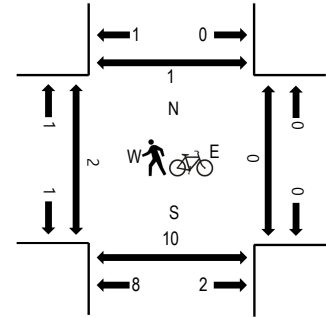
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.3%	0.67
WB	1.4%	0.75
NB	3.8%	0.79
SB	4.3%	0.86
All	3.4%	0.82

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PALM ST Eastbound				PALM ST Westbound				DUDLEY BLVD (34TH) Northbound				DUDLEY BLVD (34TH) Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	6	0	0	4	14	4	0	4	11	1	0	14	40	2	101	585
7:15 AM	0	1	4	1	0	6	18	8	0	1	33	3	0	18	53	0	146	684
7:30 AM	0	3	6	1	0	12	17	12	0	2	35	8	0	15	40	3	154	795
7:45 AM	0	3	4	0	0	5	22	14	0	6	42	5	0	26	51	6	184	846
8:00 AM	0	2	10	0	0	6	20	24	0	2	43	3	0	22	62	6	200	804
8:15 AM	0	2	6	2	0	8	21	42	0	0	61	7	0	39	60	9	257	
8:30 AM	0	2	14	2	0	13	13	26	0	3	39	1	0	32	48	12	205	
8:45 AM	0	4	2	2	0	10	19	10	0	3	28	6	0	17	33	8	142	
Count Total	0	18	52	8	0	64	144	140	0	21	292	34	0	183	387	46	1,389	
Peak Hour	0	9	34	4	0	32	76	106	0	11	185	16	0	119	221	33	846	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	3	4	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	1	9	2	4	16	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	5	2	1	8	7:30 AM	0	0	0	0	0	7:30 AM	0	0	1	0	1
7:45 AM	1	2	1	3	7	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	1	4	2	4	11	8:00 AM	0	0	0	1	1	8:00 AM	1	2	0	1	4
8:15 AM	0	0	0	5	5	8:15 AM	0	0	0	0	0	8:15 AM	0	4	0	0	4
8:30 AM	0	2	0	4	6	8:30 AM	0	0	0	0	0	8:30 AM	1	4	0	0	5
8:45 AM	1	3	2	5	11	8:45 AM	0	0	0	0	0	8:45 AM	1	0	0	0	1
Count Total	5	25	9	29	68	Count Total	0	0	0	1	1	Count Total	3	10	1	1	15
Peak Hour	2	8	3	16	29	Peak Hour	0	0	0	1	1	Peak Hour	2	10	0	1	13



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Location: 14 34TH ST & FREEDOM PARK DR AM

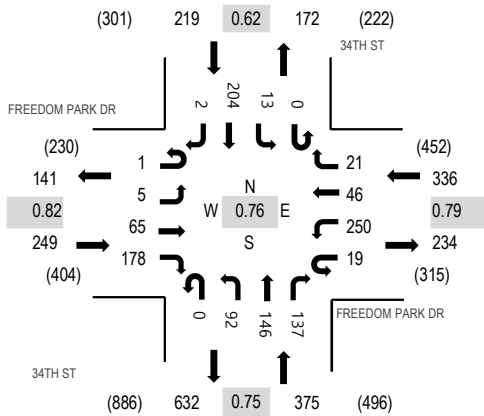
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour

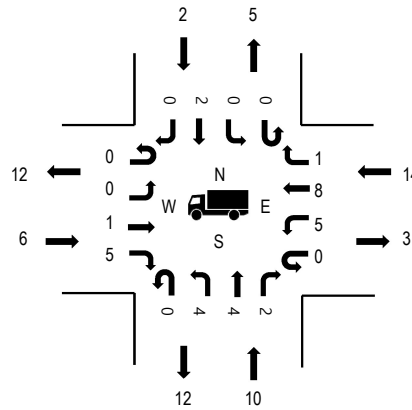
Motorized Vehicles



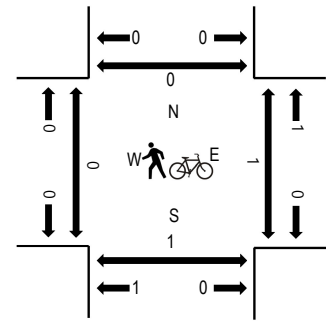
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.4%	0.82
WB	4.2%	0.79
NB	2.7%	0.75
SB	0.9%	0.62
All	2.7%	0.76

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FREEDOM PARK DR Eastbound				FREEDOM PARK DR Westbound				34TH ST Northbound				34TH ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	12	20	4	15	8	1	0	9	5	1	0	0	13	0	88	525
7:15 AM	0	0	9	35	3	11	14	1	0	6	4	4	0	1	19	2	109	759
7:30 AM	0	0	7	34	0	22	4	0	0	17	17	8	0	0	22	1	132	1,038
7:45 AM	0	0	6	55	0	41	15	1	0	11	13	16	0	1	37	0	196	1,179
8:00 AM	1	2	26	35	8	80	10	8	0	24	32	34	0	7	54	1	322	1,128
8:15 AM	0	1	16	59	7	86	6	8	0	33	38	46	0	1	87	0	388	
8:30 AM	0	2	17	29	4	43	15	4	0	24	63	41	0	4	26	1	273	
8:45 AM	0	0	12	26	6	16	8	3	0	19	19	12	0	2	21	1	145	
Count Total	1	5	105	293	32	314	80	26	0	143	191	162	0	16	279	6	1,653	
Peak Hour	1	5	65	178	19	250	46	21	0	92	146	137	0	13	204	2	1,179	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	2	0	2	1	5	7:00 AM	0	0	1	0	1	7:00 AM	0	0	0	0	0
7:15 AM	4	0	2	1	7	7:15 AM	0	0	1	0	1	7:15 AM	0	0	0	0	0
7:30 AM	2	4	2	0	8	7:30 AM	0	0	0	0	0	7:30 AM	0	0	2	0	2
7:45 AM	3	3	3	1	10	7:45 AM	0	0	0	0	0	7:45 AM	0	0	1	0	1
8:00 AM	1	6	3	0	10	8:00 AM	0	0	0	0	0	8:00 AM	0	1	0	0	1
8:15 AM	1	0	3	1	5	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	1	1	5	0	7	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	5	0	2	0	7	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	19	14	22	4	59	Count Total	0	0	2	0	2	Count Total	0	1	3	0	4
Peak Hour	6	10	14	2	32	Peak Hour	0	0	0	0	0	Peak Hour	0	1	1	0	2



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Location: 15 34TH ST & I ST AM

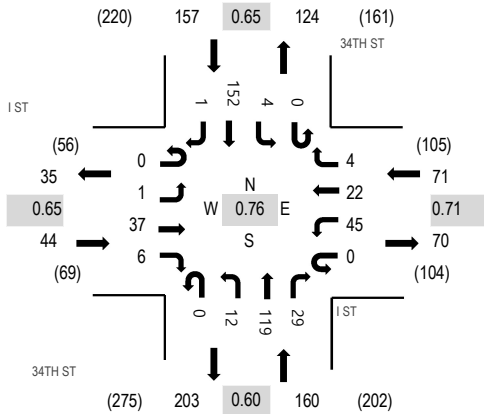
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour

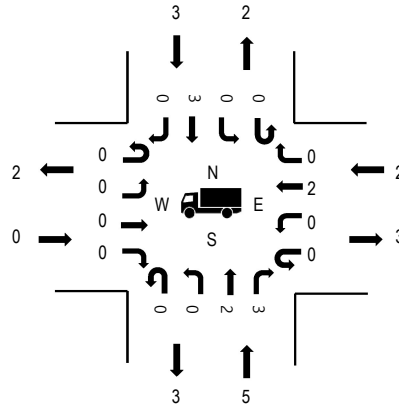
Motorized Vehicles



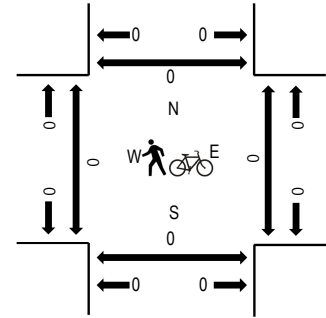
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.65
WB	2.8%	0.71
NB	3.1%	0.60
SB	1.9%	0.65
All	2.3%	0.76

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I ST Eastbound				I ST Westbound				34TH ST Northbound				34TH ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	6	0	0	1	6	1	0	0	3	2	0	0	8	0	28	190
7:15 AM	0	1	4	1	0	5	4	0	0	0	3	0	0	1	14	0	33	267
7:30 AM	0	1	5	1	0	6	6	0	0	1	15	1	0	2	16	0	54	377
7:45 AM	0	0	15	2	0	7	7	0	0	4	10	1	0	0	29	0	75	432
8:00 AM	0	0	8	1	0	13	6	1	0	0	26	5	0	1	44	0	105	406
8:15 AM	0	1	9	1	0	22	1	2	0	1	35	11	0	1	59	0	143	
8:30 AM	0	0	5	2	0	3	8	1	0	7	48	12	0	2	20	1	109	
8:45 AM	0	1	4	0	0	1	3	1	0	1	10	6	0	3	19	0	49	
Count Total	0	5	56	8	0	58	41	6	0	14	150	38	0	10	209	1	596	
Peak Hour	0	1	37	6	0	45	22	4	0	12	119	29	0	4	152	1	432	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	1	1	2	4	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	1	3	0	4	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	2	3	0	0	5	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	3	0	1	4	8:00 AM	0	0	2	0	2	8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	1	2	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	0	1	2	0	3	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	2	11	6	5	24	Count Total	0	0	2	0	2	Count Total	0	0	0	0	0
Peak Hour	0	5	2	3	10	Peak Hour	0	0	2	0	2	Peak Hour	0	0	0	0	0



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Location: 16 34TH ST & Q ST AM

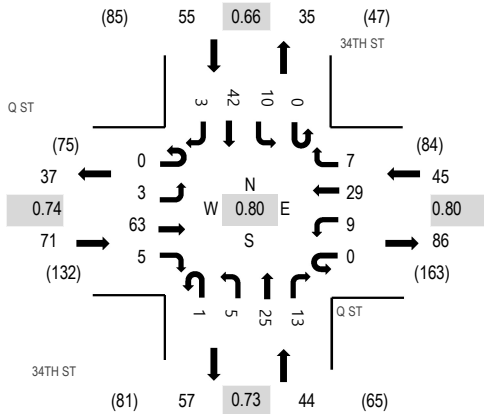
Date: Wednesday, May 24, 2023

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour

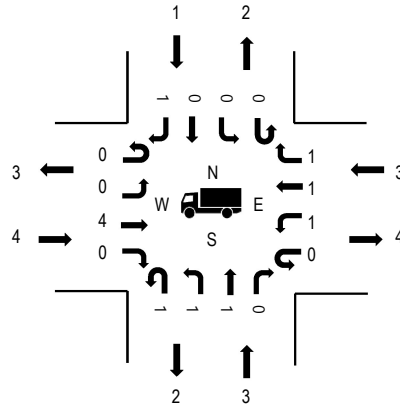
Motorized Vehicles



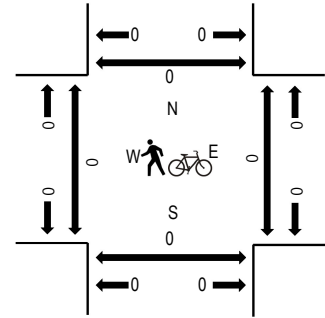
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.6%	0.74
WB	6.7%	0.80
NB	6.8%	0.73
SB	1.8%	0.66
All	5.1%	0.80

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	Q ST Eastbound				Q ST Westbound				34TH ST Northbound				34TH ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	1	0	9	0	0	1	8	3	0	2	1	3	0	1	4	0	33	159
7:15 AM	0	0	20	0	0	1	5	1	0	1	1	1	0	4	1	1	36	182
7:30 AM	0	0	18	0	0	1	6	1	0	3	2	2	0	3	6	1	43	213
7:45 AM	0	0	16	0	0	0	6	3	0	2	6	2	0	2	9	1	47	215
8:00 AM	0	1	15	1	0	3	7	0	1	2	3	1	0	5	15	2	56	207
8:15 AM	0	2	21	3	0	6	8	1	0	0	7	5	0	2	12	0	67	
8:30 AM	0	0	11	1	0	0	8	3	0	1	9	5	0	1	6	0	45	
8:45 AM	0	0	13	0	0	1	10	1	0	0	2	3	0	0	9	0	39	
Count Total	1	3	123	5	0	13	58	13	1	11	31	22	0	18	62	5	366	
Peak Hour	0	3	63	5	0	9	29	7	1	5	25	13	0	10	42	3	215	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	2	0	2	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	1	0	1	0	2	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	0	1	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	1	0	2	0	3	7:45 AM	0	0	1	1	2	7:45 AM	0	0	0	0	0
8:00 AM	0	3	1	1	5	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	3	0	0	0	3	8:15 AM	0	0	0	1	1	8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	1	2	0	0	3	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	6	6	6	1	19	Count Total	0	0	1	2	3	Count Total	0	0	0	0	0
Peak Hour	4	3	3	1	11	Peak Hour	0	0	1	2	3	Peak Hour	0	0	0	0	0

Location: 1 WATT AVE & PEACEKEEPER WAY PM

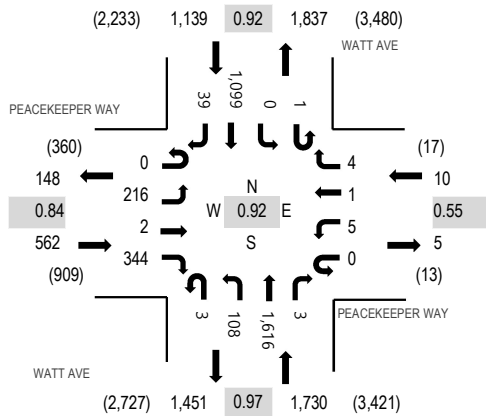
Date: Wednesday, May 24, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

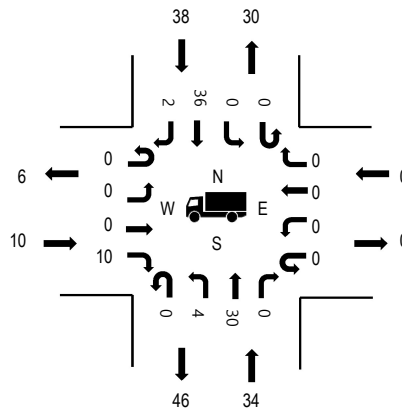
Peak Hour

Motorized Vehicles

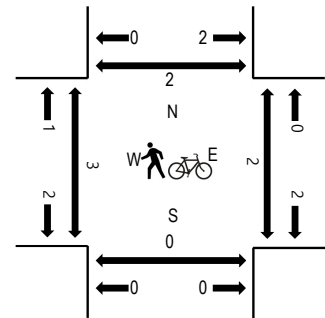


	HV%	PHF
EB	1.8%	0.84
WB	0.0%	0.55
NB	2.0%	0.97
SB	3.3%	0.92
All	2.4%	0.92

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PEACEKEEPER WAY Eastbound				PEACEKEEPER WAY Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	49	0	94	0	0	0	2	4	51	314	0	0	0	303	15	832	3,405
4:15 PM	0	50	1	80	0	0	1	1	0	26	479	1	0	0	284	8	931	3,441
4:30 PM	0	59	0	109	0	2	0	0	3	26	364	1	0	0	297	5	866	3,312
4:45 PM	0	51	0	71	0	3	0	2	0	22	363	0	0	0	249	15	776	3,193
5:00 PM	0	56	1	84	0	0	0	1	0	34	410	1	1	0	269	11	868	3,175
5:15 PM	0	43	0	63	0	1	0	1	2	34	411	1	2	1	236	7	802	
5:30 PM	0	20	0	24	0	1	0	1	2	30	385	3	0	0	270	11	747	
5:45 PM	0	16	0	38	0	1	0	0	0	53	399	2	0	1	237	11	758	
Count Total	0	344	2	563	0	8	1	8	11	276	3,125	9	3	2	2,145	83	6,580	
Peak Hour	0	216	2	344	0	5	1	4	3	108	1,616	3	1	0	1,099	39	3,441	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	26	0	12	39	4:00 PM	0	0	0	0	0	4:00 PM	1	0	2	3	6
4:15 PM	5	12	0	10	27	4:15 PM	0	0	0	0	0	4:15 PM	1	0	2	2	5
4:30 PM	2	6	0	12	20	4:30 PM	0	0	0	0	0	4:30 PM	2	0	0	0	2
4:45 PM	2	6	0	9	17	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	1	10	0	7	18	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	2	7	0	6	15	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	2	10	0	5	17	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	1	8	0	5	14	5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	1	2
Count Total	16	85	0	66	167	Count Total	0	0	0	0	0	Count Total	5	0	4	6	15
Peak Hour	10	34	0	38	82	Peak Hour	0	0	0	0	0	Peak Hour	3	0	2	2	7



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Location: 2 WATT AVE & AIRBASE DR PM

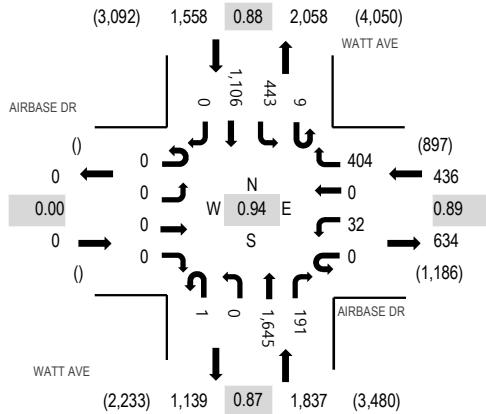
Date: Wednesday, May 24, 2023

Peak Hour: 04:15 PM - 05:15 PM

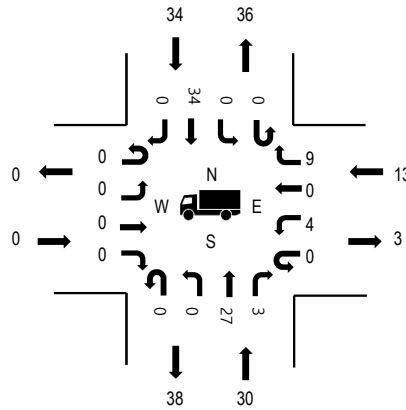
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

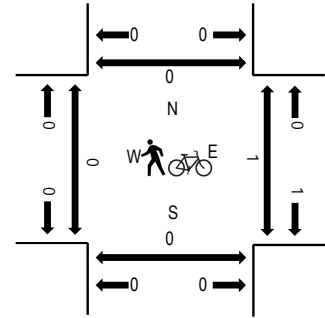
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	3.0%	0.89
NB	1.6%	0.87
SB	2.2%	0.88
All	2.0%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	AIRBASE DR Eastbound				AIRBASE DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	10	0	116	0	0	329	36	3	152	308	0	954	3,822
4:15 PM	0	0	0	0	0	6	0	97	0	0	478	52	3	97	286	0	1,019	3,831
4:30 PM	0	0	0	0	0	5	0	83	0	0	374	49	2	128	297	0	938	3,759
4:45 PM	0	0	0	0	0	12	0	122	0	0	381	35	1	108	252	0	911	3,704
5:00 PM	0	0	0	0	0	9	0	102	1	0	412	55	3	110	271	0	963	3,647
5:15 PM	0	0	0	0	0	4	0	118	0	0	420	37	4	122	242	0	947	
5:30 PM	0	0	0	0	0	5	0	107	0	0	392	14	4	85	276	0	883	
5:45 PM	0	0	0	0	0	5	0	96	0	0	401	14	2	92	244	0	854	
Count Total	0	0	0	0	0	56	0	841	1	0	3,187	292	22	894	2,176	0	7,469	
Peak Hour	0	0	0	0	0	32	0	404	1	0	1,645	191	9	443	1,106	0	3,831	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	19	4	12	35	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	9	5	8	22	4:15 PM	0	0	0	0	0	4:15 PM	0	0	1	0	1
4:30 PM	0	6	2	12	20	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	6	4	8	18	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	9	2	6	17	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	6	3	9	18	5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1
5:30 PM	0	7	5	6	18	5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1
5:45 PM	0	5	2	5	12	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	67	27	66	160	Count Total	0	0	0	0	0	Count Total	0	0	3	0	3
Peak Hour	0	30	13	34	77	Peak Hour	0	0	0	0	0	Peak Hour	0	0	1	0	1



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Location: 3 WATT AVE & PALM ST PM

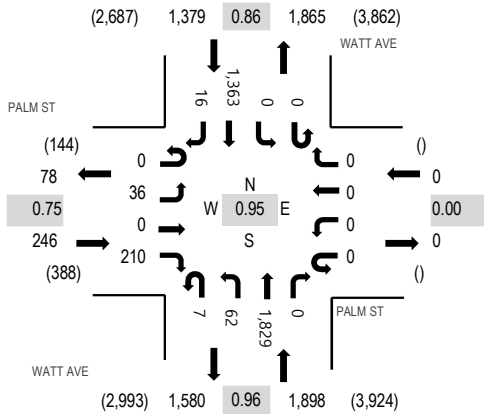
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

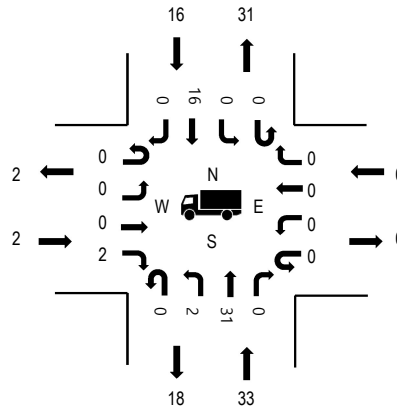
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

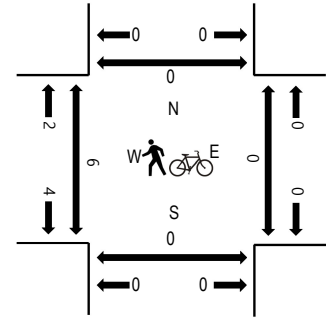
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.75
WB	0.0%	0.00
NB	1.7%	0.96
SB	1.2%	0.86
All	1.4%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	PALM ST Eastbound				PALM ST Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	12	0	70	0	0	0	0	2	19	423	0	0	0	395	6	927	3,523
4:15 PM	0	10	0	46	0	0	0	0	1	17	489	0	0	0	306	3	872	3,482
4:30 PM	0	5	0	63	0	0	0	0	0	15	443	0	0	0	356	2	884	3,506
4:45 PM	0	9	0	31	0	0	0	0	4	11	474	0	0	0	306	5	840	3,471
5:00 PM	0	5	0	35	0	0	0	0	0	13	495	0	0	0	335	3	886	3,476
5:15 PM	0	6	0	35	0	0	0	0	0	11	519	0	0	0	322	3	896	
5:30 PM	0	9	0	24	0	0	0	0	0	13	472	0	0	0	324	7	849	
5:45 PM	0	2	0	26	0	0	0	0	2	12	489	0	0	0	310	4	845	
Count Total	0	58	0	330	0	0	0	0	9	111	3,804	0	0	0	2,654	33	6,999	
Peak Hour	0	36	0	210	0	0	0	0	7	62	1,829	0	0	0	1,363	16	3,523	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	7	0	5	13	4:00 PM	0	1	0	0	1	4:00 PM	1	0	0	0	1
4:15 PM	1	13	0	2	16	4:15 PM	0	0	0	0	0	4:15 PM	4	0	0	0	4
4:30 PM	0	5	0	5	10	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	8	0	4	12	4:45 PM	0	0	0	0	0	4:45 PM	1	0	0	0	1
5:00 PM	0	10	0	2	12	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:15 PM	1	7	0	3	11	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	12	0	4	16	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	2	8	0	5	15	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	5	70	0	30	105	Count Total	0	1	0	0	1	Count Total	7	0	0	0	7
Peak Hour	2	33	0	16	51	Peak Hour	0	1	0	0	1	Peak Hour	6	0	0	0	6



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Location: 4 WATT AVE & JAMES WAY PM

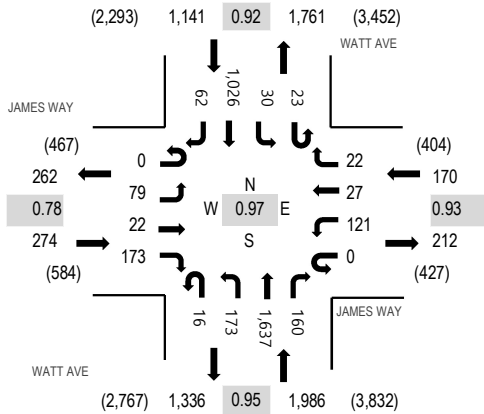
Date: Wednesday, May 24, 2023

Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

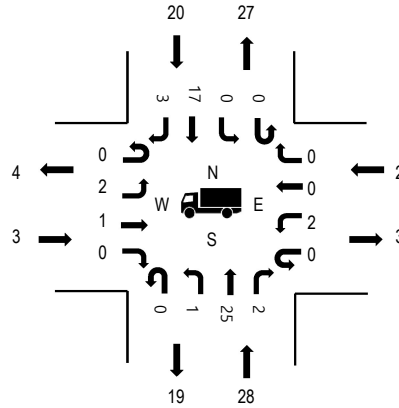
Motorized Vehicles



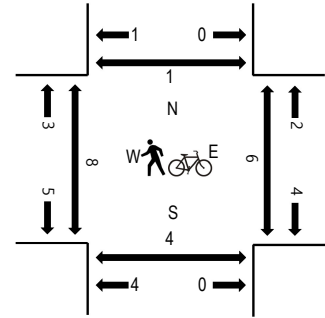
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.1%	0.78
WB	1.2%	0.93
NB	1.4%	0.95
SB	1.8%	0.92
All	1.5%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	JAMES WAY Eastbound				JAMES WAY Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	25	15	60	0	45	6	12	16	34	376	33	6	12	285	11	936	3,542
4:15 PM	0	13	9	43	0	35	11	10	1	30	415	38	10	9	243	8	875	3,514
4:30 PM	0	22	6	46	0	47	3	7	7	35	381	26	5	11	289	8	893	3,555
4:45 PM	0	18	9	44	0	42	5	11	1	38	376	39	4	8	227	16	838	3,550
5:00 PM	0	26	3	46	0	29	5	8	8	38	417	43	4	9	264	8	908	3,571
5:15 PM	0	16	6	33	0	26	8	4	3	40	434	47	6	9	265	19	916	
5:30 PM	0	16	8	33	0	40	10	5	5	46	399	25	5	6	273	17	888	
5:45 PM	0	21	5	61	0	26	4	5	0	49	387	45	8	6	224	18	859	
Count Total	0	157	61	366	0	290	52	62	41	310	3,185	296	48	70	2,070	105	7,113	
Peak Hour	0	79	22	173	0	121	27	22	16	173	1,637	160	23	30	1,026	62	3,571	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3	7	3	4	17	4:00 PM	0	0	0	0	0	4:00 PM	2	1	4	2	9
4:15 PM	0	12	1	2	15	4:15 PM	0	0	0	0	0	4:15 PM	2	5	0	2	9
4:30 PM	2	8	0	11	21	4:30 PM	0	0	0	0	0	4:30 PM	1	0	1	0	2
4:45 PM	0	9	0	6	15	4:45 PM	0	0	0	0	0	4:45 PM	0	4	0	2	6
5:00 PM	1	7	0	6	14	5:00 PM	0	0	0	0	0	5:00 PM	0	1	1	0	2
5:15 PM	0	6	1	4	11	5:15 PM	0	0	0	0	0	5:15 PM	3	1	1	1	6
5:30 PM	1	10	0	5	16	5:30 PM	0	0	0	0	0	5:30 PM	3	2	2	0	7
5:45 PM	1	5	1	5	12	5:45 PM	0	1	0	0	1	5:45 PM	2	0	2	0	4
Count Total	8	64	6	43	121	Count Total	0	1	0	0	1	Count Total	13	14	11	7	45
Peak Hour	3	28	2	20	53	Peak Hour	0	1	0	0	1	Peak Hour	8	4	6	1	19



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Location: 5 WATT AVE & KARL DR PM

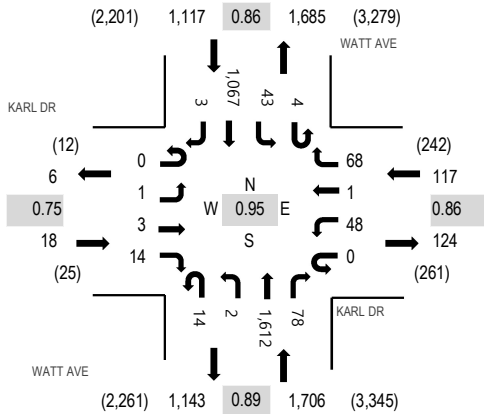
Date: Wednesday, May 24, 2023

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

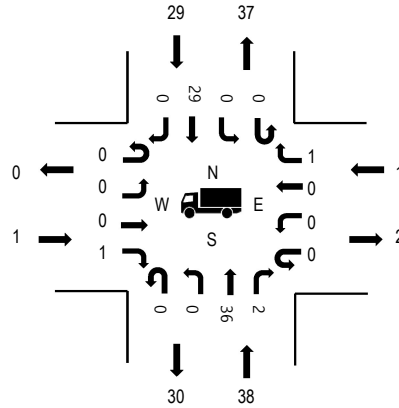
Motorized Vehicles



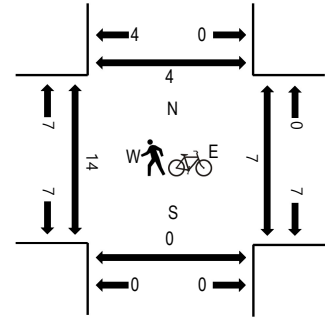
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.6%	0.75
WB	0.9%	0.86
NB	2.2%	0.89
SB	2.6%	0.86
All	2.3%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	KARL DR Eastbound				KARL DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	2	0	0	0	16	0	10	4	1	399	19	1	17	297	1	767	2,907
4:15 PM	0	1	0	0	0	15	0	11	3	1	411	24	0	16	237	0	719	2,918
4:30 PM	0	0	1	1	0	12	0	19	3	0	378	18	2	14	312	0	760	2,958
4:45 PM	0	0	1	4	0	13	1	11	5	1	365	23	0	16	220	1	661	2,899
5:00 PM	0	0	1	4	0	15	0	21	3	1	410	22	2	7	291	1	778	2,906
5:15 PM	0	1	0	5	0	8	0	17	3	0	459	15	0	6	244	1	759	
5:30 PM	0	0	0	1	0	22	0	12	4	1	366	16	0	10	269	0	701	
5:45 PM	0	0	0	3	0	28	0	11	5	0	368	17	2	18	214	2	668	
Count Total	0	4	3	18	0	129	1	112	30	5	3,156	154	7	104	2,084	6	5,813	
Peak Hour	0	1	3	14	0	48	1	68	14	2	1,612	78	4	43	1,067	3	2,958	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	12	0	4	16	4:00 PM	0	1	0	0	1	4:00 PM	6	0	0	0	6
4:15 PM	0	8	0	4	12	4:15 PM	0	0	0	0	0	4:15 PM	2	0	1	1	4
4:30 PM	0	9	0	14	23	4:30 PM	0	0	0	0	0	4:30 PM	2	0	1	2	5
4:45 PM	0	13	1	7	21	4:45 PM	0	0	0	0	0	4:45 PM	8	0	1	0	9
5:00 PM	1	8	0	5	14	5:00 PM	0	0	0	0	0	5:00 PM	0	0	4	2	6
5:15 PM	0	8	0	3	11	5:15 PM	0	0	0	0	0	5:15 PM	4	0	1	0	5
5:30 PM	1	10	2	5	18	5:30 PM	0	0	0	0	0	5:30 PM	1	0	2	0	3
5:45 PM	0	6	2	3	11	5:45 PM	0	1	0	0	1	5:45 PM	2	0	1	4	7
Count Total	2	74	5	45	126	Count Total	0	2	0	0	2	Count Total	25	0	11	9	45
Peak Hour	1	38	1	29	69	Peak Hour	0	0	0	0	0	Peak Hour	14	0	7	4	25

Location: 6 WATT AVE & FREEDOM PARK DR PM

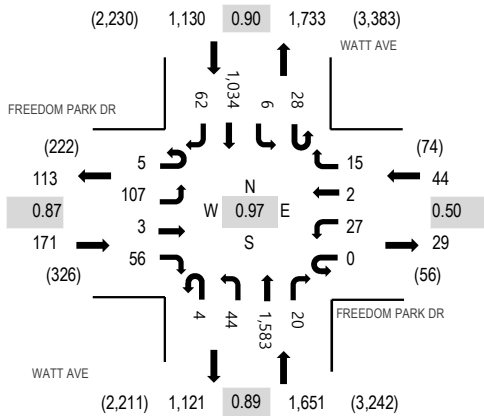
Date: Wednesday, May 24, 2023

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

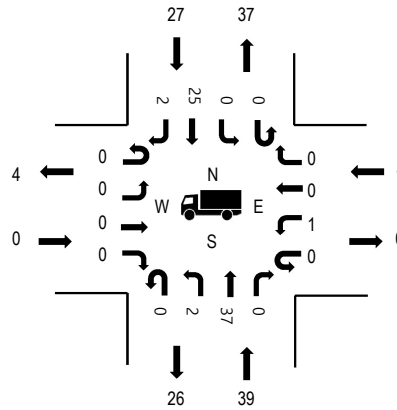
Peak Hour

Motorized Vehicles

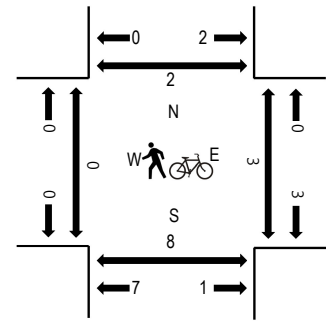


	HV%	PHF
EB	0.0%	0.87
WB	2.3%	0.50
NB	2.4%	0.89
SB	2.4%	0.90
All	2.2%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FREEDOM PARK DR Eastbound				FREEDOM PARK DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	4	24	0	11	0	2	0	2	1	17	390	4	14	3	290	7	769	2,957
4:15 PM	5	19	0	18	0	5	1	5	3	15	399	4	11	3	237	9	734	2,954
4:30 PM	2	25	0	20	0	6	0	2	0	12	375	4	7	0	301	14	768	2,996
4:45 PM	1	22	0	12	0	3	0	3	1	8	364	8	6	3	238	17	686	2,921
5:00 PM	1	31	1	17	0	14	1	10	1	10	399	5	10	2	246	18	766	2,915
5:15 PM	1	29	2	7	0	4	1	0	2	14	445	3	5	1	249	13	776	
5:30 PM	1	23	1	12	0	5	2	2	1	7	352	3	4	2	264	14	693	
5:45 PM	3	20	0	14	0	2	1	3	2	8	378	7	4	0	223	15	680	
Count Total	18	193	4	111	0	41	6	27	11	91	3,102	38	61	14	2,048	107	5,872	
Peak Hour	5	107	3	56	0	27	2	15	4	44	1,583	20	28	6	1,034	62	2,996	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	17	1	4	22	4:00 PM	0	0	0	0	0	4:00 PM	0	2	1	0	3
4:15 PM	1	11	0	3	15	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	8	0	12	20	4:30 PM	0	2	0	0	2	4:30 PM	0	1	1	1	3
4:45 PM	0	11	0	7	18	4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	1	2
5:00 PM	0	9	1	3	13	5:00 PM	0	0	0	0	0	5:00 PM	0	5	1	0	6
5:15 PM	0	11	0	5	16	5:15 PM	0	0	0	0	0	5:15 PM	0	1	1	0	2
5:30 PM	1	10	0	5	16	5:30 PM	0	0	0	0	0	5:30 PM	2	4	3	5	14
5:45 PM	0	8	0	3	11	5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	1	1
Count Total	2	85	2	42	131	Count Total	0	3	0	0	3	Count Total	2	14	7	8	31
Peak Hour	0	39	1	27	67	Peak Hour	0	2	0	0	2	Peak Hour	0	8	3	2	13



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Location: 7 WATT AVE & DON JULIO BLVD PM

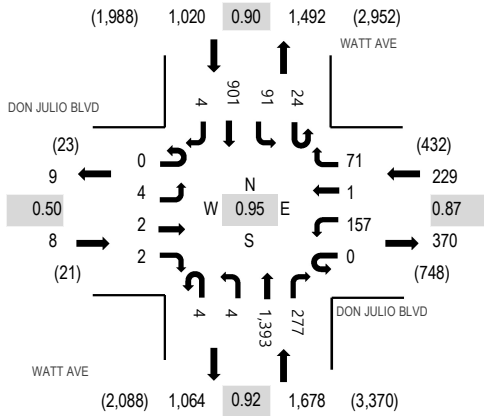
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

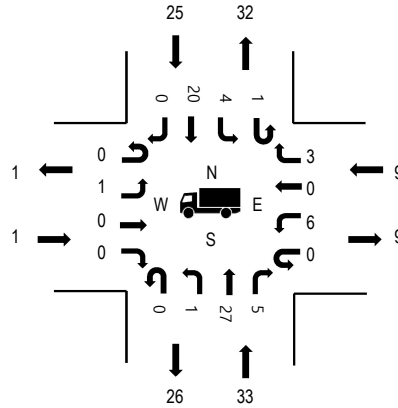
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

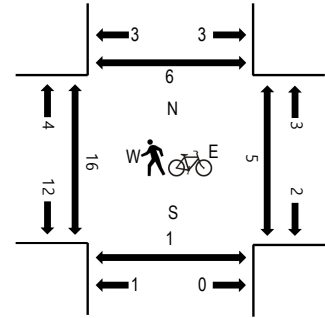
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	12.5%	0.50
WB	3.9%	0.87
NB	2.0%	0.92
SB	2.5%	0.90
All	2.3%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	DON JULIO BLVD Eastbound				DON JULIO BLVD Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	1	0	0	0	38	1	25	0	2	345	77	6	30	244	1	770	2,935
4:15 PM	0	1	1	1	0	30	0	20	1	0	360	69	9	19	220	1	732	2,883
4:30 PM	0	1	0	1	0	39	0	10	2	0	343	69	8	22	252	1	748	2,920
4:45 PM	0	1	1	0	0	50	0	16	1	2	345	62	1	20	185	1	685	2,874
5:00 PM	0	3	2	2	0	35	0	15	2	2	346	84	3	14	210	0	718	2,876
5:15 PM	0	0	0	0	0	41	1	13	1	4	385	82	4	19	219	0	769	
5:30 PM	0	0	2	1	0	41	1	14	1	2	310	69	7	20	234	0	702	
5:45 PM	0	1	2	0	0	23	1	18	2	1	335	66	6	18	212	2	687	
Count Total	0	8	8	5	0	297	4	131	10	13	2,769	578	44	162	1,776	6	5,811	
Peak Hour	0	4	2	2	0	157	1	71	4	4	1,393	277	24	91	901	4	2,935	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	11	4	4	20	4:00 PM	0	0	0	0	0	4:00 PM	4	0	4	2	10
4:15 PM	0	6	2	4	12	4:15 PM	0	0	0	0	0	4:15 PM	6	0	0	2	8
4:30 PM	0	6	2	10	18	4:30 PM	0	2	0	0	2	4:30 PM	4	0	0	1	5
4:45 PM	0	10	1	7	18	4:45 PM	0	0	0	0	0	4:45 PM	2	1	1	1	5
5:00 PM	0	8	1	3	12	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	3	4
5:15 PM	0	8	1	4	13	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	10	2	4	16	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	6	2	2	10	5:45 PM	0	1	0	0	1	5:45 PM	1	0	0	0	1
Count Total	1	65	15	38	119	Count Total	0	3	0	0	3	Count Total	18	1	5	9	33
Peak Hour	1	33	9	25	68	Peak Hour	0	2	0	0	2	Peak Hour	16	1	5	6	28



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Location: 8 WATT AVE & BOLIVAR AVE PM

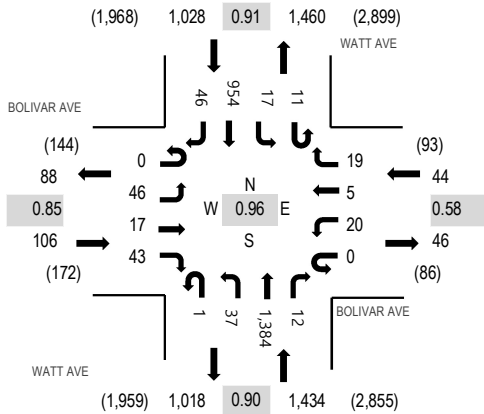
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

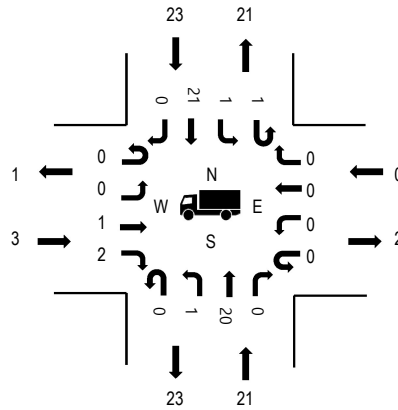
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

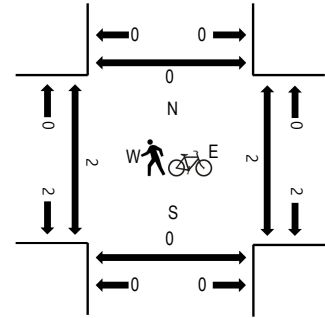
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	2.8%	0.85
WB	0.0%	0.58
NB	1.5%	0.90
SB	2.2%	0.91
All	1.8%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	BOLIVAR AVE Eastbound				BOLIVAR AVE Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	14	3	14	0	4	0	5	0	16	339	1	4	9	256	13	678	2,612
4:15 PM	0	5	3	9	0	11	4	6	1	8	348	7	2	4	226	10	644	2,529
4:30 PM	0	14	2	13	0	4	0	5	0	5	350	1	2	1	256	12	665	2,535
4:45 PM	0	13	9	7	0	1	1	3	0	8	347	3	3	3	216	11	625	2,510
5:00 PM	0	13	1	11	0	5	5	4	0	5	325	7	2	4	205	8	595	2,476
5:15 PM	0	6	3	5	0	8	2	4	0	3	400	3	1	2	204	9	650	
5:30 PM	0	8	2	6	0	10	1	2	0	4	341	5	0	6	250	5	640	
5:45 PM	0	5	1	5	0	5	1	2	0	3	324	1	2	5	227	10	591	
Count Total	0	78	24	70	0	48	14	31	1	52	2,774	28	16	34	1,840	78	5,088	
Peak Hour	0	46	17	43	0	20	5	19	1	37	1,384	12	11	17	954	46	2,612	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	8	0	5	13	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:15 PM	0	5	0	6	11	4:15 PM	0	0	0	0	0	4:15 PM	1	0	1	0	2
4:30 PM	2	4	0	6	12	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	1	4	0	6	11	4:45 PM	0	0	0	0	0	4:45 PM	1	0	0	0	1
5:00 PM	1	7	1	4	13	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	2	2	0	3	7	5:15 PM	0	0	0	0	0	5:15 PM	1	0	0	0	1
5:30 PM	0	9	0	5	14	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	3	0	1	4	5:45 PM	0	0	0	0	0	5:45 PM	2	0	0	0	2
Count Total	6	42	1	36	85	Count Total	0	0	0	0	0	Count Total	5	0	2	0	7
Peak Hour	3	21	0	23	47	Peak Hour	0	0	0	0	0	Peak Hour	2	0	2	0	4



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Location: 9 WATT AVE & VAN OWEN ST PM

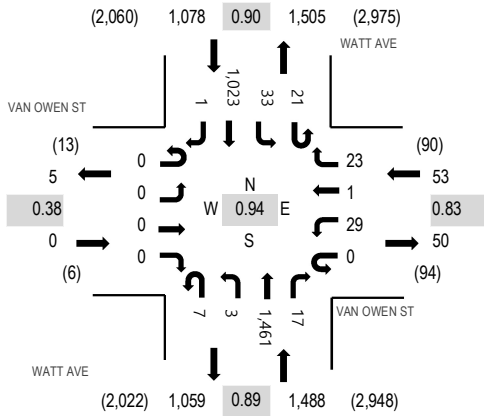
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

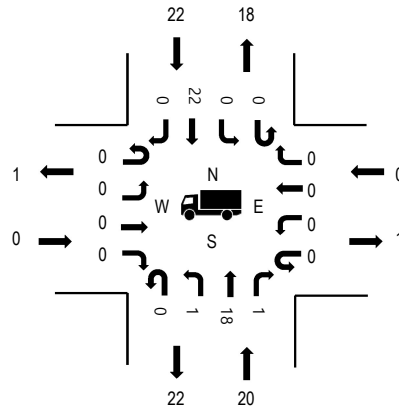
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

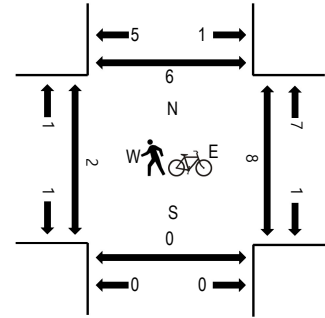
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.38
WB	0.0%	0.83
NB	1.3%	0.89
SB	2.0%	0.90
All	1.6%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	VAN OWEN ST Eastbound				VAN OWEN ST Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	5	1	3	1	0	365	4	3	8	283	0	673	2,619
4:15 PM	0	0	0	0	0	5	0	10	3	3	336	5	8	7	237	0	614	2,510
4:30 PM	0	0	0	0	0	11	0	5	2	0	372	3	5	9	287	0	694	2,568
4:45 PM	0	0	0	0	0	8	0	5	1	0	388	5	5	9	216	1	638	2,519
5:00 PM	0	0	0	1	0	6	0	3	2	0	327	5	2	6	212	0	564	2,485
5:15 PM	0	0	0	1	0	3	0	4	4	0	421	4	7	4	223	1	672	
5:30 PM	0	0	0	0	0	9	0	2	1	1	348	5	8	11	260	0	645	
5:45 PM	0	3	0	1	0	7	0	3	1	1	337	3	5	6	232	5	604	
Count Total	0	3	0	3	0	54	1	35	15	5	2,894	34	43	60	1,950	7	5,104	
Peak Hour	0	0	0	0	0	29	1	23	7	3	1,461	17	21	33	1,023	1	2,619	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	7	0	4	11	4:00 PM	0	0	0	1	1	4:00 PM	2	0	6	3	11
4:15 PM	0	6	0	6	12	4:15 PM	0	0	0	1	1	4:15 PM	0	0	2	3	5
4:30 PM	0	4	0	6	10	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	3	0	6	9	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	7	2	5	14	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	1	2
5:15 PM	1	6	0	1	8	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	10	0	4	14	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	1	1
5:45 PM	0	1	0	1	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	1	44	2	33	80	Count Total	0	0	0	2	2	Count Total	3	0	8	8	19
Peak Hour	0	20	0	22	42	Peak Hour	0	0	0	2	2	Peak Hour	2	0	8	6	16

Location: 10 WATT AVE & MILTON WAY PM

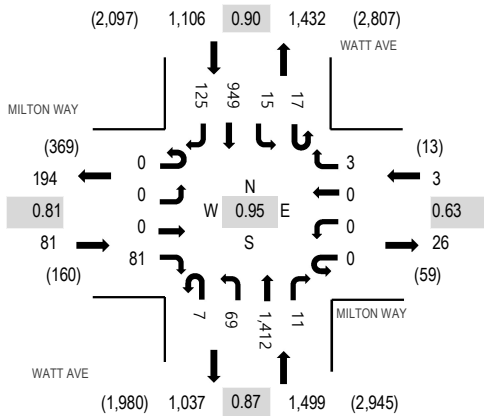
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

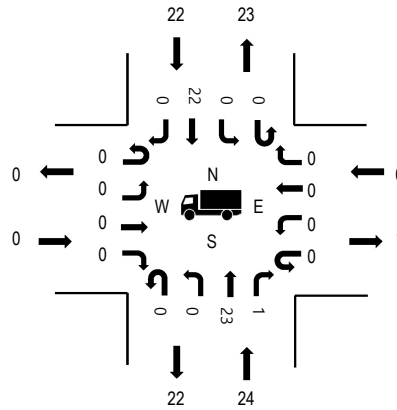
Peak Hour

Motorized Vehicles

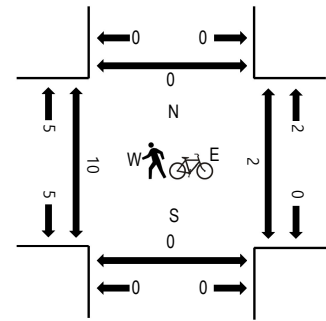


	HV%	PHF
EB	0.0%	0.81
WB	0.0%	0.63
NB	1.6%	0.87
SB	2.0%	0.90
All	1.7%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	MILTON WAY Eastbound				MILTON WAY Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	19	0	0	0	0	2	17	341	2	5	4	266	32	688	2,689
4:15 PM	0	0	0	19	0	0	0	1	0	19	339	3	5	1	226	37	650	2,557
4:30 PM	0	0	0	18	0	0	0	2	2	14	367	3	3	3	267	26	705	2,605
4:45 PM	0	0	0	25	0	0	0	0	3	19	365	3	4	7	190	30	646	2,575
5:00 PM	0	0	0	13	0	1	0	1	0	12	307	2	0	5	189	26	556	2,526
5:15 PM	0	0	0	17	0	0	0	3	0	23	411	6	0	4	208	26	698	
5:30 PM	0	0	0	23	0	0	0	1	1	15	337	3	3	7	261	24	675	
5:45 PM	0	0	0	26	0	1	0	3	0	22	305	2	4	4	203	27	597	
Count Total	0	0	0	160	0	2	0	11	8	141	2,772	24	24	35	1,810	228	5,215	
Peak Hour	0	0	0	81	0	0	0	3	7	69	1,412	11	17	15	949	125	2,689	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	11	0	3	14	4:00 PM	0	0	0	0	0	4:00 PM	4	0	1	0	5
4:15 PM	0	6	0	6	12	4:15 PM	0	0	0	0	0	4:15 PM	4	0	0	0	4
4:30 PM	0	4	0	7	11	4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1
4:45 PM	0	3	0	6	9	4:45 PM	0	0	0	0	0	4:45 PM	1	0	1	0	2
5:00 PM	0	9	1	5	15	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:15 PM	0	7	0	2	9	5:15 PM	0	0	0	0	0	5:15 PM	1	0	0	2	3
5:30 PM	0	9	0	5	14	5:30 PM	1	0	0	0	1	5:30 PM	0	0	3	2	5
5:45 PM	0	1	1	1	3	5:45 PM	0	0	0	0	0	5:45 PM	0	0	3	0	3
Count Total	0	50	2	35	87	Count Total	1	0	0	0	1	Count Total	12	0	8	4	24
Peak Hour	0	24	0	22	46	Peak Hour	0	0	0	0	0	Peak Hour	10	0	2	0	12



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Location: 11 WATT AVE & TURNER DR PM

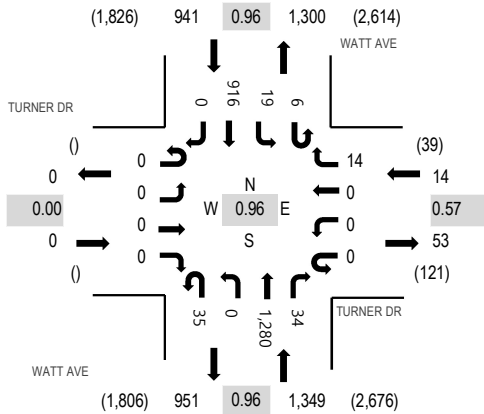
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

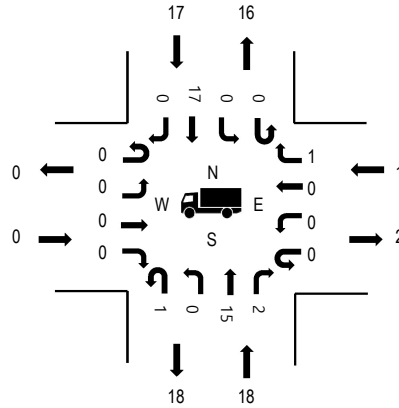
Peak Hour

Motorized Vehicles

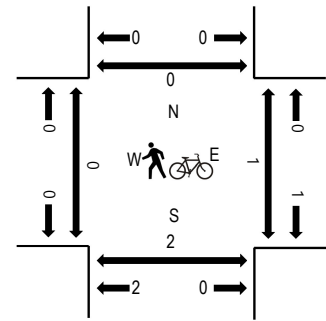


	HV%	PHF
EB	0.0%	0.00
WB	7.1%	0.57
NB	1.3%	0.96
SB	1.8%	0.96
All	1.6%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	TURNER DR Eastbound				TURNER DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	0	0	1	10	0	293	11	1	6	233	0	555	2,304
4:15 PM	0	0	0	0	0	0	0	4	10	0	314	5	2	2	241	0	578	2,288
4:30 PM	0	0	0	0	0	0	0	7	9	0	333	10	1	6	231	0	597	2,294
4:45 PM	0	0	0	0	0	0	0	2	6	0	340	8	2	5	211	0	574	2,277
5:00 PM	0	0	0	0	0	0	0	2	2	0	318	10	5	8	194	0	539	2,237
5:15 PM	0	0	0	0	0	0	0	5	4	0	352	8	2	2	211	0	584	
5:30 PM	0	0	0	0	0	0	0	7	4	0	313	13	4	11	228	0	580	
5:45 PM	0	0	0	0	0	0	0	11	5	0	292	6	3	10	207	0	534	
Count Total	0	0	0	0	0	0	0	39	50	0	2,555	71	20	50	1,756	0	4,541	
Peak Hour	0	0	0	0	0	0	0	14	35	0	1,280	34	6	19	916	0	2,304	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	9	0	3	12	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	3	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	7	1	6	14	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	1	0	5	6	4:45 PM	0	0	1	0	1	4:45 PM	0	2	1	0	3
5:00 PM	0	6	0	5	11	5:00 PM	0	0	0	1	1	5:00 PM	0	0	1	0	1
5:15 PM	0	7	0	1	8	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	5	0	5	10	5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1
5:45 PM	0	1	0	3	4	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	37	1	31	69	Count Total	0	0	1	1	2	Count Total	0	2	3	0	5
Peak Hour	0	18	1	17	36	Peak Hour	0	0	1	0	1	Peak Hour	0	2	1	0	3



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Location: 12 WATT AVE & BAINBRIDGE DR PM

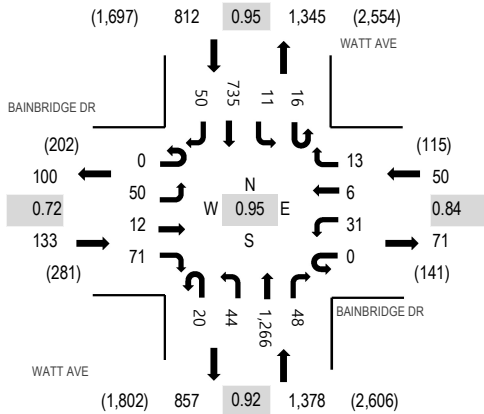
Date: Wednesday, May 24, 2023

Peak Hour: 04:30 PM - 05:30 PM

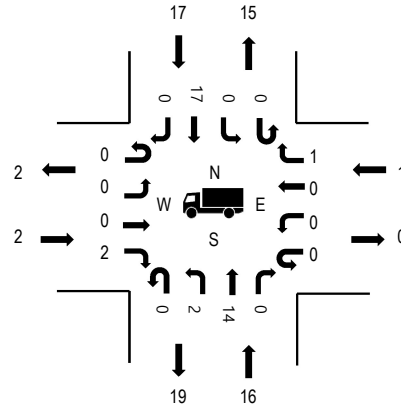
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

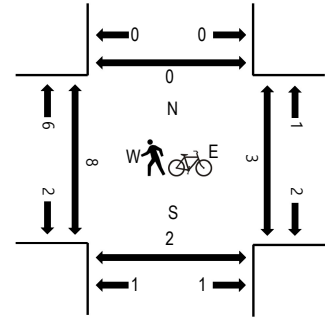
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.5%	0.72
WB	2.0%	0.84
NB	1.2%	0.92
SB	2.1%	0.95
All	1.5%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	BAINBRIDGE DR Eastbound				BAINBRIDGE DR Westbound				WATT AVE Northbound				WATT AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	16	2	17	0	10	4	1	2	11	269	9	2	3	198	21	565	2,358
4:15 PM	0	17	2	20	0	10	2	2	5	17	274	15	2	2	214	12	594	2,341
4:30 PM	0	12	1	22	0	8	1	2	4	11	305	13	6	3	195	18	601	2,373
4:45 PM	0	10	1	20	0	8	0	3	5	10	335	10	4	1	178	13	598	2,365
5:00 PM	0	14	3	14	0	7	4	6	7	15	276	13	3	2	175	9	548	2,341
5:15 PM	0	14	7	15	0	8	1	2	4	8	350	12	3	5	187	10	626	
5:30 PM	0	13	3	9	0	8	5	6	9	6	281	16	5	1	225	6	593	
5:45 PM	0	27	3	19	0	9	5	3	8	7	285	14	6	0	182	6	574	
Count Total	0	123	22	136	0	68	22	25	44	85	2,375	102	31	17	1,554	95	4,699	
Peak Hour	0	50	12	71	0	31	6	13	20	44	1,266	48	16	11	735	50	2,373	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	6	0	3	9	4:00 PM	0	0	0	0	0	4:00 PM	0	1	1	0	2
4:15 PM	1	1	2	3	7	4:15 PM	0	0	0	0	0	4:15 PM	0	0	2	0	2
4:30 PM	1	3	0	6	10	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	1	1	0	5	7	4:45 PM	0	0	0	0	0	4:45 PM	2	2	1	0	5
5:00 PM	0	4	1	5	10	5:00 PM	0	0	0	0	0	5:00 PM	1	0	1	0	2
5:15 PM	0	8	0	1	9	5:15 PM	0	0	0	0	0	5:15 PM	5	0	1	0	6
5:30 PM	1	5	0	5	11	5:30 PM	0	0	0	0	0	5:30 PM	1	0	1	0	2
5:45 PM	0	1	0	3	4	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	4	29	3	31	67	Count Total	0	0	0	0	0	Count Total	9	3	7	0	19
Peak Hour	2	16	1	17	36	Peak Hour	0	0	0	0	0	Peak Hour	8	2	3	0	13



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Location: 13 DUDLEY BLVD (34TH) & PALM ST PM

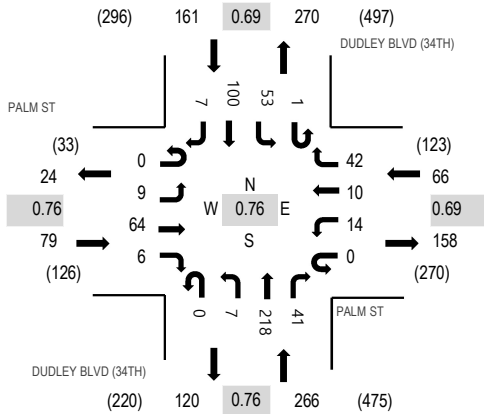
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

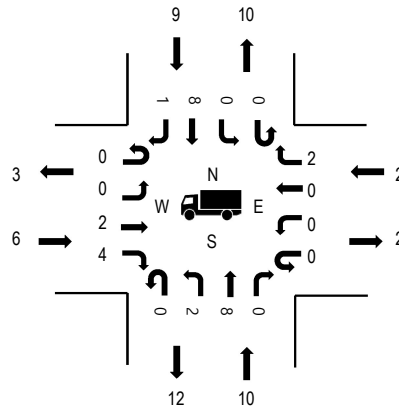
Motorized Vehicles



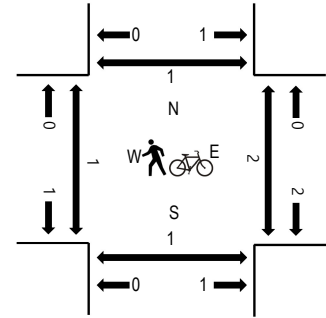
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	7.6%	0.76
WB	3.0%	0.69
NB	3.8%	0.76
SB	5.6%	0.69
All	4.7%	0.76

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PALM ST Eastbound				PALM ST Westbound				DUDLEY BLVD (34TH) Northbound				DUDLEY BLVD (34TH) Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	4	21	1	0	5	6	13	0	3	63	15	1	15	36	6	189	572
4:15 PM	0	2	16	3	0	4	3	6	0	1	42	7	0	13	24	0	121	510
4:30 PM	0	3	13	2	0	3	1	12	0	2	73	13	0	14	29	1	166	497
4:45 PM	0	0	14	0	0	2	0	11	0	1	40	6	0	11	11	0	96	431
5:00 PM	0	1	16	0	0	1	0	13	0	1	53	6	0	11	25	0	127	448
5:15 PM	0	1	11	0	0	1	1	10	0	1	42	7	0	13	21	0	108	
5:30 PM	0	0	10	0	0	6	1	7	0	1	40	4	0	13	18	0	100	
5:45 PM	0	2	6	0	0	5	3	9	1	0	49	4	0	11	22	1	113	
Count Total	0	13	107	6	0	27	15	81	1	10	402	62	1	101	186	8	1,020	
Peak Hour	0	9	64	6	0	14	10	42	0	7	218	41	1	53	100	7	572	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	2	1	4	8	4:00 PM	0	0	0	1	1	4:00 PM	0	0	1	0	1
4:15 PM	3	3	1	3	10	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	2	3	0	2	7	4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	1	2
4:45 PM	0	2	0	0	2	4:45 PM	0	0	0	0	0	4:45 PM	1	1	0	0	2
5:00 PM	1	2	0	2	5	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	2	1	1	4	5:30 PM	0	0	0	0	0	5:30 PM	2	0	1	0	3
5:45 PM	0	2	2	1	5	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	7	17	5	13	42	Count Total	0	0	0	1	1	Count Total	4	1	3	1	9
Peak Hour	6	10	2	9	27	Peak Hour	0	0	0	1	1	Peak Hour	1	1	2	1	5

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	3	0	3	4:00 PM	1	0	0	0	1	4:00 PM	0	1	0	0	1
4:15 PM	2	2	2	0	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	1	0	1
4:30 PM	0	2	2	0	4	4:30 PM	0	1	0	0	1	4:30 PM	0	0	1	0	1
4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	0	1	4:45 PM	0	0	0	0	0
5:00 PM	0	2	1	0	3	5:00 PM	0	0	3	0	3	5:00 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	2	2	2	0	6
5:30 PM	0	2	1	0	3	5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	1	1
5:45 PM	0	0	2	0	2	5:45 PM	0	3	0	0	3	5:45 PM	0	0	0	0	0
Count Total	2	8	11	0	21	Count Total	1	5	4	0	10	Count Total	2	3	5	1	11
Peak Hour	2	6	5	0	13	Peak Hour	0	2	3	0	5	Peak Hour	0	0	3	0	3



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Location: 15 34TH ST & I ST PM

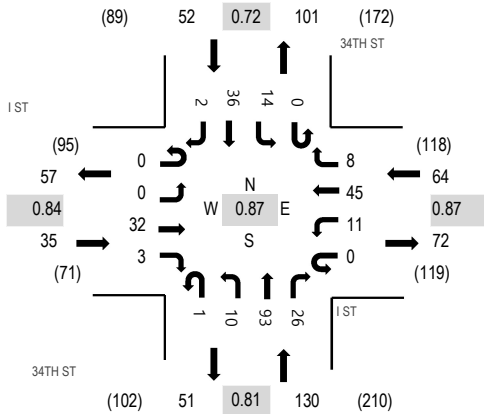
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

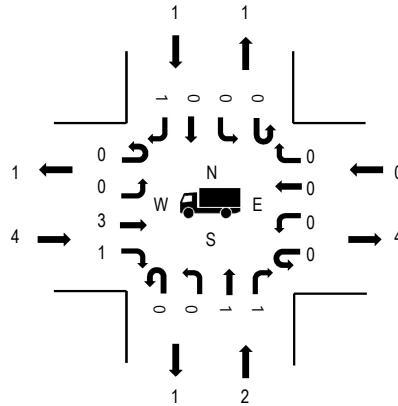
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

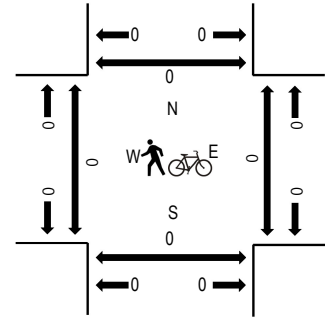
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	11.4%	0.84
WB	0.0%	0.87
NB	1.5%	0.81
SB	1.9%	0.72
All	2.5%	0.87

Traffic Counts - Motorized Vehicles

Interval Start Time	I ST Eastbound				I ST Westbound				34TH ST Northbound				34TH ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	7	2	0	0	9	3	0	1	22	4	0	4	7	0	59	281
4:15 PM	0	0	9	0	0	5	14	0	0	4	22	3	0	5	12	1	75	281
4:30 PM	0	0	8	1	0	2	11	2	0	2	28	10	0	4	12	1	81	261
4:45 PM	0	0	8	0	0	4	11	3	1	3	21	9	0	1	5	0	66	224
5:00 PM	0	0	10	1	0	3	11	0	0	1	16	9	0	1	7	0	59	207
5:15 PM	0	0	7	2	0	3	8	5	0	0	15	4	0	1	10	0	55	
5:30 PM	0	0	3	3	0	2	7	2	0	0	15	1	0	1	10	0	44	
5:45 PM	0	1	8	1	0	3	9	1	0	2	16	1	0	1	6	0	49	
Count Total	0	1	60	10	0	22	80	16	1	13	155	41	0	18	69	2	488	
Peak Hour	0	0	32	3	0	11	45	8	1	10	93	26	0	14	36	2	281	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	1	0	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	1	1	0	0	2	4:30 PM	0	0	0	2	2	4:30 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1	4:45 PM	1	1	0	0	2	4:45 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	1	0	1	1	3	5:15 PM	0	0	0	0	0	5:15 PM	0	2	0	0	2
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	5	3	1	2	11	Count Total	1	1	0	2	4	Count Total	0	2	0	0	2
Peak Hour	4	2	0	1	7	Peak Hour	1	1	0	2	4	Peak Hour	0	0	0	0	0



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Location: 16 34TH ST & Q ST PM

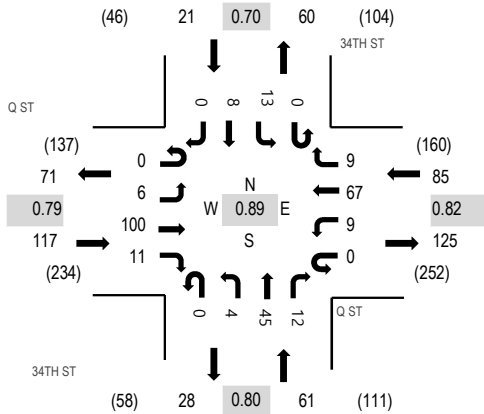
Date: Wednesday, May 24, 2023

Peak Hour: 04:00 PM - 05:00 PM

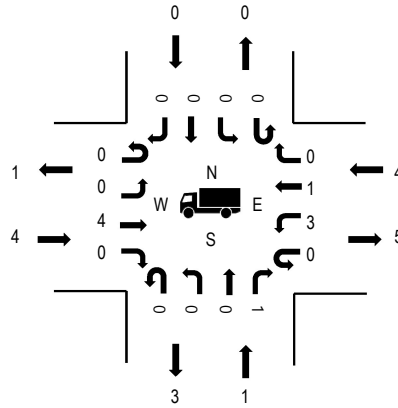
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

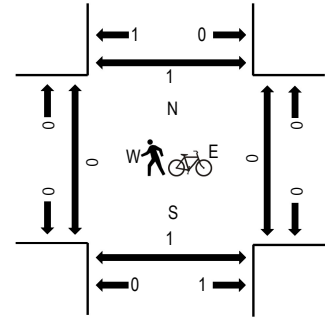
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	3.4%	0.79
WB	4.7%	0.82
NB	1.6%	0.80
SB	0.0%	0.70
All	3.2%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	Q ST Eastbound				Q ST Westbound				34TH ST Northbound				34TH ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	3	26	6	0	1	22	2	0	0	12	4	0	0	2	0	78	284
4:15 PM	0	0	28	2	0	3	20	3	0	1	16	2	0	4	1	0	80	269
4:30 PM	0	1	21	1	0	3	18	2	0	2	11	6	0	3	1	0	69	255
4:45 PM	0	2	25	2	0	2	7	2	0	1	6	0	0	6	4	0	57	251
5:00 PM	0	1	18	3	1	2	18	3	0	1	6	6	0	3	1	0	63	267
5:15 PM	0	0	28	2	0	2	14	2	0	0	8	2	0	2	4	2	66	
5:30 PM	0	0	26	2	0	0	17	0	0	0	10	4	0	1	4	1	65	
5:45 PM	1	2	32	2	0	1	11	4	0	1	8	4	0	0	7	0	73	
Count Total	1	9	204	20	1	14	127	18	0	6	77	28	0	19	24	3	551	
Peak Hour	0	6	100	11	0	9	67	9	0	4	45	12	0	13	8	0	284	

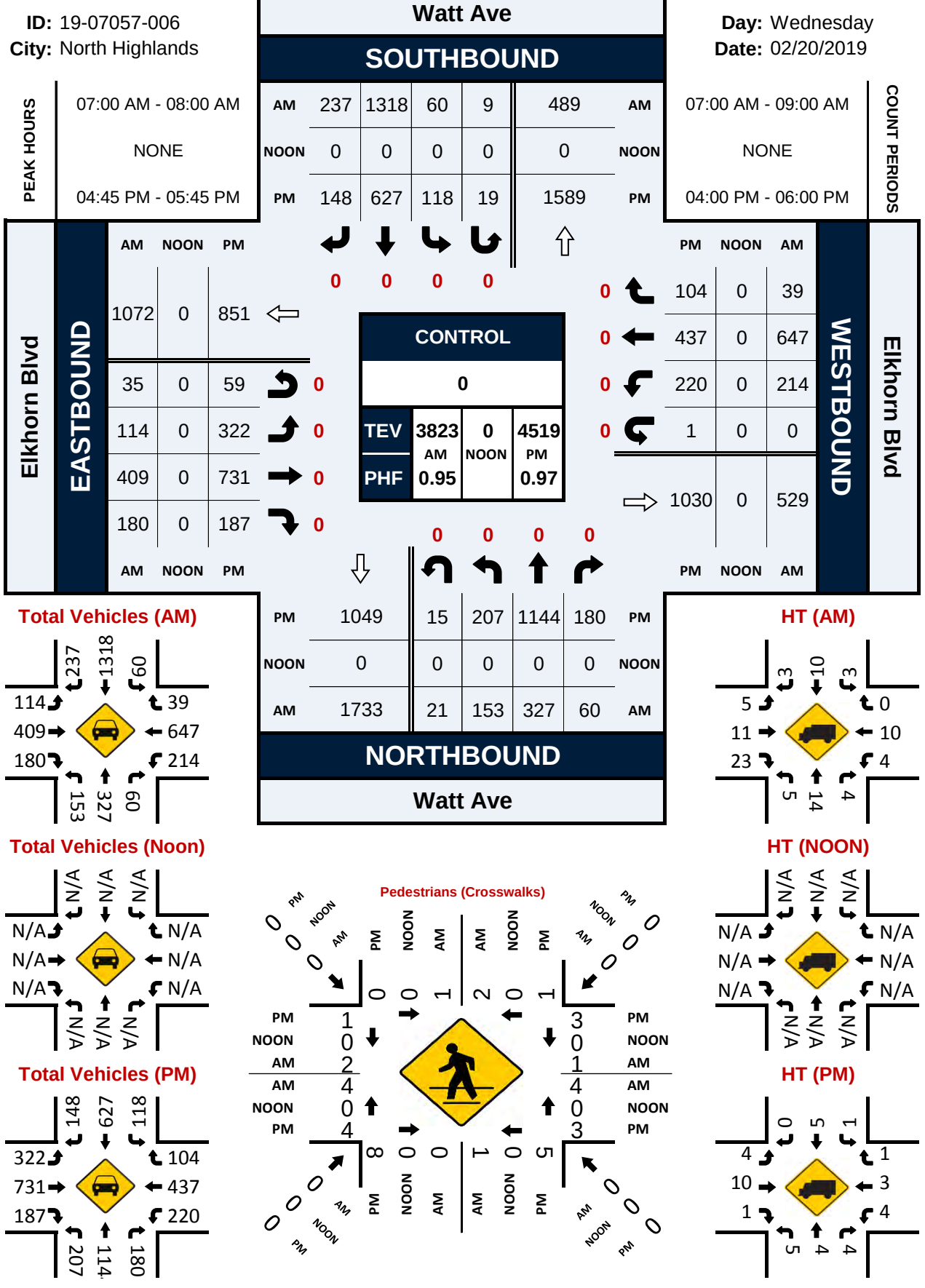
Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	1	0	1	0	2	4:15 PM	5	0	0	0	5	4:15 PM	0	0	0	0	0
4:30 PM	0	1	3	0	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	3	0	0	0	3	4:45 PM	1	0	0	1	2	4:45 PM	0	1	0	1	2
5:00 PM	0	1	1	0	2	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	2	0	0	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	2	0	0	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	9	2	5	0	16	Count Total	6	0	0	1	7	Count Total	0	1	0	1	2
Peak Hour	4	1	4	0	9	Peak Hour	6	0	0	1	7	Peak Hour	0	1	0	1	2

Prepared by National Data & Surveying Services

Watt Ave & Elkhorn Blvd

Peak Hour Turning Movement Count



National Data & Surveying Services

Location: Watt Ave & Elkhorn Blvd

City: North Highlands

Control:

Project ID: 19-07057-006

Date: 2/20/2019

Total

NS/EW Streets:	Watt Ave				Watt Ave				Elkhorn Blvd				Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	37	76	8	4	14	355	54	3	32	106	37	9	63	155	7	0	960
7:15 AM	37	92	12	4	9	375	62	1	32	118	46	8	56	144	12	0	1008
7:30 AM	38	81	17	9	17	326	65	3	26	64	44	11	46	155	16	0	918
7:45 AM	41	78	23	4	20	262	56	2	24	121	53	7	49	193	4	0	937
8:00 AM	34	115	18	4	14	254	41	2	30	90	43	5	50	137	9	2	848
8:15 AM	47	91	20	2	24	212	21	1	37	105	42	13	60	133	22	0	830
8:30 AM	38	96	21	4	23	220	41	5	32	88	37	7	43	95	11	0	761
8:45 AM	55	101	16	2	18	172	39	6	26	82	48	5	22	94	10	0	696
TOTAL VOLUMES : APPROACH %'s :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	327	730	135	33	139	2176	379	23	239	774	350	65	389	1106	91	2	6958
	26.69%	59.59%	11.02%	2.69%	5.12%	80.09%	13.95%	0.85%	16.74%	54.20%	24.51%	4.55%	24.50%	69.65%	5.73%	0.13%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	153	327	60	21	60	1318	237	9	114	409	180	35	214	647	39	0	3823
PEAK HR FACTOR :	0.933	0.889	0.652	0.583	0.750	0.879	0.912	0.750	0.891	0.845	0.849	0.795	0.849	0.838	0.609	0.000	0.948
	0.961				0.908				0.900				0.915				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	67	239	33	7	30	153	41	3	82	155	43	11	53	138	15	0	1070
4:15 PM	41	259	28	1	23	188	48	3	89	165	59	17	53	105	27	0	1106
4:30 PM	46	262	38	4	21	165	49	1	88	149	54	21	38	116	26	0	1078
4:45 PM	58	282	49	2	25	150	47	3	74	164	47	20	59	86	26	0	1092
5:00 PM	39	299	45	6	34	168	35	7	79	190	39	7	44	117	25	0	1134
5:15 PM	54	241	36	5	16	140	27	6	109	206	49	23	63	118	30	0	1123
5:30 PM	56	322	50	2	43	169	39	3	60	171	52	9	54	116	23	1	1170
5:45 PM	32	284	42	2	26	178	29	1	89	155	41	17	57	108	19	0	1080
TOTAL VOLUMES : APPROACH %'s :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	393	2188	321	29	218	1311	315	27	670	1355	384	125	421	904	191	1	8853
	13.41%	74.65%	10.95%	0.99%	11.65%	70.07%	16.84%	1.44%	26.44%	53.47%	15.15%	4.93%	27.75%	59.59%	12.59%	0.07%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	207	1144	180	15	118	627	148	19	322	731	187	59	220	437	104	1	4519
PEAK HR FACTOR :	0.892	0.888	0.900	0.625	0.686	0.928	0.787	0.679	0.739	0.887	0.899	0.641	0.873	0.926	0.867	0.250	0.966
	0.899				0.898				0.839				0.903				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Watt Ave & Elkhorn Blvd
City: North Highlands
Control: 0

Project ID: 19-07057-006
Date: 2/20/2019

Cars

NS/EW Streets:	Watt Ave				Watt Ave				Elkhorn Blvd				Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	1 NU	1 SL	1 ST	1 SR	1 SU	1 EL	1 ET	1 ER	1 EU	1 WL	1 WT	1 WR	1 WU	
7:00 AM	36	71	8	4	13	351	54	3	30	104	34	9	63	152	7	0	939
7:15 AM	35	86	12	4	7	371	62	1	31	114	39	8	56	142	12	0	980
7:30 AM	37	79	14	9	17	326	63	3	25	61	35	11	44	153	16	0	893
7:45 AM	40	77	22	4	20	260	55	2	23	119	49	7	47	190	4	0	919
8:00 AM	31	112	17	4	13	249	40	2	30	90	40	5	50	135	8	2	828
8:15 AM	46	89	20	2	24	211	21	1	36	102	41	13	60	126	22	0	814
8:30 AM	37	94	19	4	23	220	40	5	31	86	35	7	41	89	11	0	742
8:45 AM	54	95	16	2	18	170	37	6	25	81	47	5	22	92	9	0	679
TOTAL VOLUMES :	NL 316	NT 703	NR 128	NU 33	SL 135	ST 2158	SR 372	SU 23	EL 231	ET 757	ER 320	EU 65	WL 383	WT 1079	WR 89	WU 2	TOTAL 6794
APPROACH %'s :	26.78%	59.58%	10.85%	2.80%	5.02%	80.28%	13.84%	0.86%	16.82%	55.13%	23.31%	4.73%	24.66%	69.48%	5.73%	0.13%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	148	313	56	21	57	1308	234	9	109	398	157	35	210	637	39	0	3731
PEAK HR FACTOR :	0.93	0.910	0.636	0.583	0.713	0.881	0.929	0.750	0.879	0.836	0.801	0.795	0.833	0.838	0.609	0.000	0.952
	0.941				0.912				0.883				0.919				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	1 NU	1 SL	1 ST	1 SR	1 SU	1 EL	1 ET	1 ER	1 EU	1 WL	1 WT	1 WR	1 WU	
4:00 PM	65	239	32	7	30	146	41	3	81	154	40	11	53	137	15	0	1054
4:15 PM	40	258	28	1	23	184	48	3	89	164	59	17	52	105	27	0	1098
4:30 PM	46	261	38	4	20	163	48	1	87	148	54	21	37	112	26	0	1066
4:45 PM	58	281	48	2	25	150	47	3	72	160	47	20	57	85	26	0	1081
5:00 PM	36	299	44	6	34	163	35	7	79	187	38	7	44	117	25	0	1121
5:15 PM	53	238	36	5	16	140	27	6	108	205	49	23	63	117	29	0	1115
5:30 PM	55	322	48	2	42	169	39	3	59	169	52	9	52	115	23	1	1160
5:45 PM	28	280	42	2	26	177	29	1	89	154	41	17	56	108	18	0	1068
TOTAL VOLUMES :	NL 381	NT 2178	NR 316	NU 29	SL 216	ST 1292	SR 314	SU 27	EL 664	ET 1341	ER 380	EU 125	WL 414	WT 896	WR 189	WU 1	TOTAL 8763
APPROACH %'s :	13.12%	75.00%	10.88%	1.00%	11.68%	69.88%	16.98%	1.46%	26.45%	53.43%	15.14%	4.98%	27.60%	59.73%	12.60%	0.07%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	202	1140	176	15	117	622	148	19	318	721	186	59	216	434	103	1	4477
PEAK HR FACTOR :	0.87	0.885	0.917	0.625	0.696	0.920	0.787	0.679	0.736	0.879	0.894	0.641	0.857	0.927	0.888	0.250	0.965
	0.898				0.895				0.834				0.902				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Watt Ave & Elkhorn Blvd

City: North Highlands

Control: 0

Project ID: 19-07057-006

Date: 2/20/2019

HT

NS/EW Streets:	Watt Ave				Watt Ave				Elkhorn Blvd				Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	1	5	0	0	1	4	0	0	2	2	3	0	0	3	0	0	21
7:15 AM	2	6	0	0	2	4	0	0	1	4	7	0	0	2	0	0	28
7:30 AM	1	2	3	0	0	0	2	0	1	3	9	0	2	2	0	0	25
7:45 AM	1	1	1	0	0	2	1	0	1	2	4	0	2	3	0	0	18
8:00 AM	3	3	1	0	1	5	1	0	0	0	3	0	0	2	1	0	20
8:15 AM	1	2	0	0	0	1	0	0	1	3	1	0	0	7	0	0	16
8:30 AM	1	2	2	0	0	0	1	0	1	2	2	0	2	6	0	0	19
8:45 AM	1	6	0	0	0	2	2	0	1	1	1	0	0	2	1	0	17
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	11	27	7	0	4	18	7	0	8	17	30	0	6	27	2	0	164
APPROACH %'s :	24.44%	60.00%	15.56%	0.00%	13.79%	62.07%	24.14%	0.00%	14.55%	30.91%	54.55%	0.00%	17.14%	77.14%	5.71%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	5	14	4	0	3	10	3	0	5	11	23	0	4	10	0	0	92
PEAK HR FACTOR :	0.625	0.583	0.333	0.000	0.375	0.625	0.375	0.000	0.625	0.688	0.639	0.000	0.500	0.833	0.000	0.000	0.821
	0.719				0.667				0.750				0.700				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	2	0	1	0	0	7	0	0	1	1	3	0	0	1	0	0	16
4:15 PM	1	1	0	0	0	4	0	0	0	1	0	0	1	0	0	0	8
4:30 PM	0	1	0	0	1	2	1	0	1	1	0	0	1	4	0	0	12
4:45 PM	0	1	1	0	0	0	0	0	2	4	0	0	2	1	0	0	11
5:00 PM	3	0	1	0	0	5	0	0	0	3	1	0	0	0	0	0	13
5:15 PM	1	3	0	0	0	0	0	0	1	1	0	0	0	1	1	0	8
5:30 PM	1	0	2	0	1	0	0	0	1	2	0	0	2	1	0	0	10
5:45 PM	4	4	0	0	0	1	0	0	0	1	0	0	1	0	1	0	12
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	12	10	5	0	2	19	1	0	6	14	4	0	7	8	2	0	90
APPROACH %'s :	44.44%	37.04%	18.52%	0.00%	9.09%	86.36%	4.55%	0.00%	25.00%	58.33%	16.67%	0.00%	41.18%	47.06%	11.76%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	5	4	4	0	1	5	0	0	4	10	1	0	4	3	1	0	42
PEAK HR FACTOR :	0.42	0.333	0.500	0.000	0.250	0.250	0.000	0.000	0.500	0.625	0.250	0.000	0.500	0.750	0.250	0.000	0.808
	0.813				0.300				0.625				0.667				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Watt Ave & Elkhorn Blvd

City: North Highlands

Control: 0

Project ID: 19-07057-006

Date: 2/20/2019

Bikes																		
NS/EW Streets:		Watt Ave				Watt Ave				Elkhorn Blvd				Elkhorn Blvd				
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL
		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
		0.00%				0.00%	100.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :		07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :		0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Watt Ave & Elkhorn Blvd
City: North Highlands

Project ID: 19-07057-006
Date: 2/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Watt Ave		Watt Ave		Elkhorn Blvd		Elkhorn Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	0	0	0	0	2	1	1	0	4
7:15 AM	0	1	0	0	0	0	0	1	2
7:30 AM	0	1	0	1	1	0	0	1	4
7:45 AM	1	0	0	0	1	0	3	0	5
8:00 AM	0	3	3	0	1	0	0	0	7
8:15 AM	0	0	1	1	0	0	0	1	3
8:30 AM	2	0	0	1	0	2	0	1	6
8:45 AM	0	1	0	3	0	2	0	0	6
TOTAL VOLUMES :	EB 3	WB 6	EB 4	WB 6	NB 5	SB 5	NB 4	SB 4	TOTAL 37
APPROACH %'s :	33.33%	66.67%	40.00%	60.00%	50.00%	50.00%	50.00%	50.00%	
PEAK HR :	07:00 AM - 08:00 AM								TOTAL
PEAK HR VOL :	1	2	0	1	4	1	4	2	15
PEAK HR FACTOR :	0.250	0.500		0.250	0.500	0.250	0.333	0.500	0.750
	0.750		0.250		0.417		0.500		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	2	5	3	0	0	1	1	4	16
4:15 PM	0	0	0	0	3	0	0	0	3
4:30 PM	2	1	0	0	0	0	1	0	4
4:45 PM	0	0	4	1	1	1	0	0	7
5:00 PM	0	0	2	0	0	0	0	0	2
5:15 PM	0	1	1	1	1	1	0	1	6
5:30 PM	0	0	1	3	1	1	4	0	10
5:45 PM	0	0	0	2	0	0	1	4	7
TOTAL VOLUMES :	EB 4	WB 7	EB 11	WB 7	NB 6	SB 4	NB 7	SB 9	TOTAL 55
APPROACH %'s :	36.36%	63.64%	61.11%	38.89%	60.00%	40.00%	43.75%	56.25%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	1	8	5	3	3	4	1	25
PEAK HR FACTOR :		0.250	0.500	0.417	0.750	0.750	0.250	0.250	0.625
	0.250		0.650		0.750		0.313		

National Data & Surveying Services Intersection Turning Movement Count

Location: (#20) Watt Ave & Larchmont Dr
City: North Highlands
Control: Signalized

Project ID: 22-070100-037
Date: 5/12/2022

Data - Total

NS/EW Streets:	Watt Ave				Watt Ave				Larchmont Dr				Larchmont Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
6:00 AM	5	58	2	2	3	161	0	0	0	0	0	0	1	0	3	0	235
6:15 AM	2	85	1	2	0	156	0	0	1	0	1	0	4	0	3	0	255
6:30 AM	5	116	3	3	0	199	0	0	1	0	3	0	4	0	8	0	342
6:45 AM	2	129	0	4	4	229	1	1	0	0	3	0	2	1	6	0	382
7:00 AM	4	119	2	3	6	233	0	0	0	0	0	0	4	2	7	0	380
7:15 AM	1	110	5	2	2	293	0	0	1	0	3	0	4	1	9	0	431
7:30 AM	6	131	8	2	5	309	2	0	1	1	5	0	6	1	11	0	488
7:45 AM	10	150	10	8	5	318	2	0	0	1	6	0	9	7	9	0	535
8:00 AM	7	186	4	9	8	306	4	1	0	1	7	0	7	6	18	0	564
8:15 AM	13	159	0	5	13	267	2	0	2	2	9	0	2	6	17	0	497
8:30 AM	16	171	4	5	6	242	0	0	1	3	2	0	2	2	11	0	465
8:45 AM	11	122	7	2	8	190	2	0	1	1	9	0	3	3	10	0	369
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	82	1536	46	47	60	2903	13	2	8	9	48	0	48	29	112	0	4943
	4.79%	89.77%	2.69%	2.75%	2.01%	97.48%	0.44%	0.07%	12.31%	13.85%	73.85%	0.00%	25.40%	15.34%	59.26%	0.00%	
PEAK HR:	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:	36	626	22	24	31	1200	10	1	3	5	27	0	24	20	55	0	2084
PEAK HR FACTOR:	0.692	0.841	0.550	0.667	0.596	0.943	0.625	0.250	0.375	0.625	0.750	0.000	0.667	0.714	0.764	0.000	0.924
	0.859				0.955				0.673				0.798				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
4:30 PM	25	255	9	2	13	184	9	1	6	6	23	0	8	4	15	0	560
4:45 PM	20	286	5	4	13	199	3	2	6	7	23	0	1	11	15	0	595
5:00 PM	28	299	6	3	10	186	8	0	3	8	12	0	6	13	14	0	596
5:15 PM	24	305	11	0	16	189	4	0	3	10	15	0	6	9	10	0	602
5:30 PM	26	288	4	1	19	201	3	3	4	8	15	0	0	12	11	0	595
5:45 PM	20	276	6	3	11	238	8	2	3	6	13	0	2	10	14	0	612
6:00 PM	28	246	3	1	11	215	4	3	8	5	17	0	5	8	11	0	565
6:15 PM	16	219	2	2	15	216	3	1	4	1	8	0	6	4	16	0	513
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	187	2174	46	16	108	1628	42	12	37	51	126	0	34	71	106	0	4638
	7.72%	89.72%	1.90%	0.66%	6.03%	90.95%	2.35%	0.67%	17.29%	23.83%	58.88%	0.00%	16.11%	33.65%	50.24%	0.00%	
PEAK HR:	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	98	1168	27	7	56	814	23	5	13	32	55	0	14	44	49	0	2405
PEAK HR FACTOR:	0.875	0.957	0.614	0.583	0.737	0.855	0.719	0.417	0.813	0.800	0.917	0.000	0.583	0.846	0.875	0.000	0.982
	0.956				0.867				0.893				0.811				

National Data & Surveying Services Intersection Turning Movement Count

Location: (#20) Watt Ave & Larchmont Dr
City: North Highlands
Control: Signalized

Project ID: 22-070100-037
Date: 5/12/2022

Data - Cars

NS/EW Streets:	Watt Ave				Watt Ave				Larchmont Dr				Larchmont Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
6:00 AM	5	48	2	2	3	157	0	0	0	0	0	0	1	0	3	0	221
6:15 AM	2	76	1	2	0	153	0	0	1	0	1	0	4	0	3	0	243
6:30 AM	3	100	3	3	0	196	0	0	1	0	3	0	4	0	8	0	321
6:45 AM	2	112	0	4	3	226	1	1	0	0	3	0	2	1	6	0	361
7:00 AM	4	107	2	3	5	226	0	0	0	0	0	0	4	2	7	0	360
7:15 AM	1	99	4	2	1	291	0	0	1	0	3	0	3	1	9	0	415
7:30 AM	5	121	8	2	5	302	1	0	1	1	4	0	6	1	11	0	468
7:45 AM	10	142	9	8	5	309	2	0	0	1	6	0	9	7	9	0	517
8:00 AM	7	177	4	9	8	291	4	1	0	1	7	0	7	6	18	0	540
8:15 AM	13	155	0	5	12	264	2	0	2	2	9	0	1	6	17	0	488
8:30 AM	16	158	4	5	6	236	0	0	1	3	2	0	2	2	11	0	446
8:45 AM	11	110	7	2	8	185	2	0	1	1	9	0	3	3	9	0	351
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	79	1405	44	47	56	2836	12	2	8	9	47	0	46	29	111	0	4731
	5.02%	89.21%	2.79%	2.98%	1.93%	97.59%	0.41%	0.07%	12.50%	14.06%	73.44%	0.00%	24.73%	15.59%	59.68%	0.00%	
PEAK HR:	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:	35	595	21	24	30	1166	9	1	3	5	26	0	23	20	55	0	2013
PEAK HR FACTOR:	0.673	0.840	0.583	0.667	0.625	0.943	0.563	0.250	0.375	0.625	0.722	0.000	0.639	0.714	0.764	0.000	0.932
	0.857				0.954				0.654				0.790				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
4:30 PM	25	248	8	2	13	179	9	1	6	6	23	0	8	4	14	0	546
4:45 PM	20	283	5	4	13	194	3	2	6	7	23	0	1	11	15	0	587
5:00 PM	28	297	6	3	10	175	8	0	3	8	12	0	6	13	14	0	583
5:15 PM	23	299	11	0	16	184	4	0	3	10	14	0	6	9	10	0	589
5:30 PM	25	284	4	1	18	194	3	3	4	8	15	0	0	12	11	0	582
5:45 PM	20	271	6	3	11	236	8	2	3	6	13	0	2	10	14	0	605
6:00 PM	28	246	3	1	10	206	4	3	8	5	17	0	5	8	11	0	555
6:15 PM	16	216	2	2	15	213	3	1	4	1	8	0	6	4	16	0	507
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	185	2144	45	16	106	1581	42	12	37	51	125	0	34	71	105	0	4554
	7.74%	89.71%	1.88%	0.67%	6.09%	90.81%	2.41%	0.69%	17.37%	23.94%	58.69%	0.00%	16.19%	33.81%	50.00%	0.00%	
PEAK HR:	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	96	1151	27	7	55	789	23	5	13	32	54	0	14	44	49	0	2359
PEAK HR FACTOR:	0.857	0.962	0.614	0.583	0.764	0.836	0.719	0.417	0.813	0.800	0.900	0.000	0.583	0.846	0.875	0.000	0.975
	0.959				0.848				0.917				0.811				

National Data & Surveying Services Intersection Turning Movement Count

Location: (#20) Watt Ave & Larchmont Dr
City: North Highlands
Control: Signalized

Project ID: 22-070100-037
Date: 5/12/2022

Data - HT

NS/EW Streets:	Watt Ave				Watt Ave				Larchmont Dr				Larchmont Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
6:00 AM	0	10	0	0	0	4	0	0	0	0	0	0	0	0	0	0	14
6:15 AM	0	9	0	0	0	3	0	0	0	0	0	0	0	0	0	0	12
6:30 AM	2	16	0	0	0	3	0	0	0	0	0	0	0	0	0	0	21
6:45 AM	0	17	0	0	1	3	0	0	0	0	0	0	0	0	0	0	21
7:00 AM	0	12	0	0	1	7	0	0	0	0	0	0	0	0	0	0	20
7:15 AM	0	11	1	0	1	2	0	0	0	0	0	0	1	0	0	0	16
7:30 AM	1	10	0	0	0	7	1	0	0	0	1	0	0	0	0	0	20
7:45 AM	0	8	1	0	0	9	0	0	0	0	0	0	0	0	0	0	18
8:00 AM	0	9	0	0	0	15	0	0	0	0	0	0	0	0	0	0	24
8:15 AM	0	4	0	0	1	3	0	0	0	0	0	0	1	0	0	0	9
8:30 AM	0	13	0	0	0	6	0	0	0	0	0	0	0	0	0	0	19
8:45 AM	0	12	0	0	0	5	0	0	0	0	0	0	0	0	1	0	18
TOTAL VOLUMES:	NL 3	NT 131	NR 2	NU 0	SL 4	ST 67	SR 1	SU 0	EL 0	ET 0	ER 1	EU 0	WL 2	WT 0	WR 1	WU 0	TOTAL 212
APPROACH %'s:	2.21%	96.32%	1.47%	0.00%	5.56%	93.06%	1.39%	0.00%	0.00%	0.00%	100.00%	0.00%	66.67%	0.00%	33.33%	0.00%	
PEAK HR:	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:	1	31	1	0	1	34	1	0	0	0	1	0	1	0	0	0	71
PEAK HR FACTOR:	0.250	0.775	0.250	0.000	0.250	0.567	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.000	0.740
	0.750				0.600				0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	0.5 ET	0.5 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
4:30 PM	0	7	1	0	0	5	0	0	0	0	0	0	0	0	1	0	14
4:45 PM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8
5:00 PM	0	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	13
5:15 PM	1	6	0	0	0	5	0	0	0	0	1	0	0	0	0	0	13
5:30 PM	1	4	0	0	1	7	0	0	0	0	0	0	0	0	0	0	13
5:45 PM	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7
6:00 PM	0	0	0	0	1	9	0	0	0	0	0	0	0	0	0	0	10
6:15 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
TOTAL VOLUMES:	NL 2	NT 30	NR 1	NU 0	SL 2	ST 47	SR 0	SU 0	EL 0	ET 0	ER 1	EU 0	WL 0	WT 0	WR 1	WU 0	TOTAL 84
APPROACH %'s:	6.06%	90.91%	3.03%	0.00%	4.08%	95.92%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR:	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	2	17	0	0	1	25	0	0	0	0	1	0	0	0	0	0	46
PEAK HR FACTOR:	0.500	0.708	0.000	0.000	0.250	0.568	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.885
	0.679				0.591				0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: (#20) Watt Ave & Larchmont Dr
City: North Highlands

Project ID: 22-070100-037
Date: 5/12/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Watt Ave		Watt Ave		Larchmont Dr		Larchmont Dr	
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	1	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	1	0
6:30 AM	0	0	0	1	0	0	1	0
6:45 AM	0	0	0	0	0	0	0	1
7:00 AM	0	0	1	1	0	0	0	0
7:15 AM	0	0	1	2	0	0	0	0
7:30 AM	0	0	2	1	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	2	0	0	0	0
8:15 AM	0	1	1	1	1	1	0	1
8:30 AM	0	0	2	0	0	0	0	1
8:45 AM	0	1	0	0	1	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB
APPROACH %'s :	0	2	9	8	2	1	2	3
	0.00%	100.00%	52.94%	47.06%	66.67%	33.33%	40.00%	60.00%
PEAK HR :	07:30 AM - 08:30 AM							
PEAK HR VOL :	0	1	4	4	1	1	0	1
PEAK HR FACTOR :		0.250	0.500	0.500	0.250	0.250		0.250
		0.250		0.667		0.250		0.250
								0.500

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	2	0	1	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	1	0	1	0	0	0	0	0
5:45 PM	1	0	0	1	0	0	0	2
6:00 PM	0	1	1	0	0	0	0	0
6:15 PM	1	0	0	0	1	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB
APPROACH %'s :	4	1	2	3	1	1	0	2
	80.00%	20.00%	40.00%	60.00%	50.00%	50.00%	0.00%	100.00%
PEAK HR :	05:00 PM - 06:00 PM							
PEAK HR VOL :	3	0	1	3	0	1	0	2
PEAK HR FACTOR :	0.750		0.250	0.375		0.250		0.250
		0.750		0.500		0.250		0.250
								0.625

National Data & Surveying Services Intersection Turning Movement Count

Location: (#16) Watt Ave & U St/Antelope Rd
City: Antelope
Control: Signalized

Project ID: 22-070100-016
Date: 5/12/2022

Data - Total

NS/EW Streets:	Watt Ave				Watt Ave				U St/Antelope Rd				U St/Antelope Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
6:00 AM	1	47	14	2	12	124	3	0	9	17	9	0	33	13	9	1	294
6:15 AM	7	58	16	2	23	101	7	0	5	19	2	0	52	14	14	0	320
6:30 AM	1	111	16	0	20	141	3	0	6	23	10	0	52	22	15	0	420
6:45 AM	7	113	23	2	18	160	4	0	6	21	17	0	52	26	17	1	467
7:00 AM	6	81	28	1	33	169	16	0	11	22	11	1	59	38	12	0	488
7:15 AM	4	88	28	5	33	201	7	1	8	40	23	0	73	42	26	0	579
7:30 AM	6	109	32	4	31	222	11	0	8	33	9	0	86	37	40	2	630
7:45 AM	6	106	45	4	50	219	10	0	8	45	23	0	93	59	62	2	732
8:00 AM	10	152	43	1	36	208	10	2	10	35	13	0	87	59	68	2	736
8:15 AM	7	129	44	0	49	205	9	2	12	30	14	0	72	29	44	0	646
8:30 AM	9	113	47	1	33	161	14	0	13	27	9	0	73	32	47	0	579
8:45 AM	7	104	37	3	30	140	15	1	15	36	10	1	61	34	23	0	517
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	4.23%	72.08%	22.20%	1.49%	14.52%	80.94%	4.30%	0.24%	18.17%	56.96%	24.55%	0.33%	50.09%	25.58%	23.82%	0.51%	6408
PEAK HR:	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:	29	496	164	9	166	854	40	4	38	143	59	0	338	184	214	6	2744
PEAK HR FACTOR:	0.725	0.816	0.911	0.563	0.830	0.962	0.909	0.500	0.792	0.794	0.641	0.000	0.909	0.780	0.787	0.750	0.932
	0.847				0.953				0.789				0.859				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:30 PM	15	198	70	7	37	131	12	1	25	43	10	0	44	45	43	3	684
4:45 PM	16	196	77	8	27	144	17	3	20	59	11	1	61	57	40	2	739
5:00 PM	13	216	82	12	46	142	18	1	24	61	13	0	45	41	48	0	762
5:15 PM	10	189	97	6	44	139	17	2	28	60	11	0	61	49	53	2	768
5:30 PM	12	220	83	2	41	172	13	1	17	57	9	0	55	49	42	1	774
5:45 PM	16	172	94	4	32	150	13	3	22	63	12	1	74	52	47	3	758
6:00 PM	17	155	74	8	42	145	11	0	26	66	16	0	63	54	34	1	712
6:15 PM	15	144	70	4	42	158	11	2	25	51	10	0	65	39	30	1	667
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	4.95%	64.73%	28.11%	2.22%	19.23%	73.04%	6.93%	0.80%	25.24%	62.08%	12.42%	0.27%	38.87%	32.06%	27.99%	1.08%	5864
PEAK HR:	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	51	797	356	24	163	603	61	7	91	241	45	1	235	191	190	6	3062
PEAK HR FACTOR:	0.797	0.906	0.918	0.500	0.886	0.876	0.847	0.583	0.813	0.956	0.865	0.250	0.794	0.918	0.896	0.500	0.989
	0.950				0.919				0.955				0.884				

National Data & Surveying Services Intersection Turning Movement Count

Location: (#16) Watt Ave & U St/Antelope Rd
City: Antelope
Control: Signalized

Project ID: 22-070100-016
Date: 5/12/2022

Data - Cars

NS/EW Streets:	Watt Ave				Watt Ave				U St/Antelope Rd				U St/Antelope Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
6:00 AM	0	40	14	2	12	122	3	0	9	17	9	0	32	13	9	1	283
6:15 AM	7	53	12	2	23	100	6	0	4	19	2	0	51	14	14	0	307
6:30 AM	1	95	13	0	18	140	3	0	6	20	8	0	51	19	15	0	389
6:45 AM	7	100	22	2	17	158	4	0	6	21	17	0	50	26	17	1	448
7:00 AM	6	75	27	1	33	162	16	0	9	21	10	1	59	38	11	0	469
7:15 AM	4	80	27	5	33	199	7	1	7	39	21	0	73	42	24	0	562
7:30 AM	5	102	31	4	30	217	11	0	7	33	8	0	83	37	40	2	610
7:45 AM	6	101	43	4	49	214	9	0	8	44	22	0	91	58	61	2	712
8:00 AM	9	143	43	1	35	197	9	2	9	34	11	0	86	59	66	2	706
8:15 AM	7	126	44	0	49	202	9	2	12	29	14	0	71	28	43	0	636
8:30 AM	8	106	46	1	32	156	12	0	13	26	8	0	70	32	46	0	556
8:45 AM	6	94	33	3	29	135	15	1	15	34	9	1	59	34	22	0	490
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	66	1115	355	25	360	2002	104	6	105	337	139	2	776	400	368	8	6168
	4.23%	71.43%	22.74%	1.60%	14.56%	80.99%	4.21%	0.24%	18.01%	57.80%	23.84%	0.34%	50.00%	25.77%	23.71%	0.52%	
PEAK HR:	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:	27	472	161	9	163	830	38	4	36	140	55	0	331	182	210	6	2664
PEAK HR FACTOR:	0.750	0.825	0.915	0.563	0.832	0.956	0.864	0.500	0.750	0.795	0.625	0.000	0.909	0.771	0.795	0.750	0.935
	0.853				0.951				0.780				0.856				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:30 PM	14	196	70	6	37	127	12	1	25	43	10	0	43	44	42	3	673
4:45 PM	16	191	77	8	27	141	17	3	20	57	11	1	59	57	40	2	727
5:00 PM	13	213	82	12	46	133	17	1	24	61	13	0	44	41	48	0	748
5:15 PM	10	186	95	6	44	135	17	2	28	60	10	0	61	49	52	2	757
5:30 PM	12	217	82	2	40	166	13	1	17	55	9	0	52	48	42	1	757
5:45 PM	16	170	92	4	32	150	13	3	22	63	12	1	71	52	47	3	751
6:00 PM	17	155	74	8	42	137	11	0	24	66	16	0	62	53	34	1	700
6:15 PM	15	141	69	4	42	157	11	2	25	51	9	0	62	38	30	1	657
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	113	1469	641	50	310	1146	111	13	185	456	90	2	454	382	335	13	5770
	4.97%	64.63%	28.20%	2.20%	19.62%	72.53%	7.03%	0.82%	25.24%	62.21%	12.28%	0.27%	38.34%	32.26%	28.29%	1.10%	
PEAK HR:	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	51	786	351	24	162	584	60	7	91	239	44	1	228	190	189	6	3013
PEAK HR FACTOR:	0.797	0.906	0.924	0.500	0.880	0.880	0.882	0.583	0.813	0.948	0.846	0.250	0.803	0.913	0.909	0.500	0.995
	0.947				0.924				0.957				0.886				

National Data & Surveying Services Intersection Turning Movement Count

Location: (#16) Watt Ave & U St/Antelope Rd
City: Antelope
Control: Signalized

Project ID: 22-070100-016
Date: 5/12/2022

Data - HT

NS/EW Streets:	Watt Ave				Watt Ave				U St/Antelope Rd				U St/Antelope Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
6:00 AM	1	7	0	0	0	2	0	0	0	0	0	0	1	0	0	0	11
6:15 AM	0	5	4	0	0	1	1	0	1	0	0	0	1	0	0	0	13
6:30 AM	0	16	3	0	2	1	0	0	0	3	2	0	1	3	0	0	31
6:45 AM	0	13	1	0	1	2	0	0	0	0	0	0	2	0	0	0	19
7:00 AM	0	6	1	0	0	7	0	0	2	1	1	0	0	0	1	0	19
7:15 AM	0	8	1	0	0	2	0	0	1	1	2	0	0	0	2	0	17
7:30 AM	1	7	1	0	1	5	0	0	1	0	1	0	3	0	0	0	20
7:45 AM	0	5	2	0	1	5	1	0	0	1	1	0	2	1	1	0	20
8:00 AM	1	9	0	0	1	11	1	0	1	1	2	0	1	0	2	0	30
8:15 AM	0	3	0	0	0	3	0	0	0	1	0	0	1	1	1	0	10
8:30 AM	1	7	1	0	1	5	2	0	0	1	1	0	3	0	1	0	23
8:45 AM	1	10	4	0	1	5	0	0	0	2	1	0	2	0	1	0	27
TOTAL VOLUMES:	NL 5	NT 96	NR 18	NU 0	SL 8	ST 49	SR 5	SU 0	EL 6	ET 11	ER 11	EU 0	WL 17	WT 5	WR 9	WU 0	TOTAL 240
APPROACH %'s:	4.20%	80.67%	15.13%	0.00%	12.90%	79.03%	8.06%	0.00%	21.43%	39.29%	39.29%	0.00%	54.84%	16.13%	29.03%	0.00%	
PEAK HR:	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL:	2	24	3	0	3	24	2	0	2	3	4	0	7	2	4	0	80
PEAK HR FACTOR:	0.500	0.667	0.375	0.000	0.750	0.545	0.500	0.000	0.500	0.750	0.500	0.000	0.583	0.500	0.500	0.000	0.667
	0.725				0.558				0.563				0.813				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:30 PM	1	2	0	1	0	4	0	0	0	0	0	0	1	1	1	0	11
4:45 PM	0	5	0	0	0	3	0	0	0	2	0	0	2	0	0	0	12
5:00 PM	0	3	0	0	0	9	1	0	0	0	0	0	1	0	0	0	14
5:15 PM	0	3	2	0	0	4	0	0	0	0	1	0	0	0	1	0	11
5:30 PM	0	3	1	0	1	6	0	0	0	2	0	0	3	1	0	0	17
5:45 PM	0	2	2	0	0	0	0	0	0	0	0	0	3	0	0	0	7
6:00 PM	0	0	0	0	0	8	0	0	2	0	0	0	1	1	0	0	12
6:15 PM	0	3	1	0	0	1	0	0	0	0	1	0	3	1	0	0	10
TOTAL VOLUMES:	NL 1	NT 21	NR 6	NU 1	SL 1	ST 35	SR 1	SU 0	EL 2	ET 4	ER 2	EU 0	WL 14	WT 4	WR 2	WU 0	TOTAL 94
APPROACH %'s:	3.45%	72.41%	20.69%	3.45%	2.70%	94.59%	2.70%	0.00%	25.00%	50.00%	25.00%	0.00%	70.00%	20.00%	10.00%	0.00%	
PEAK HR:	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	0	11	5	0	1	19	1	0	0	2	1	0	7	1	1	0	49
PEAK HR FACTOR:	0.000	0.917	0.625	0.000	0.250	0.528	0.250	0.000	0.000	0.250	0.250	0.000	0.583	0.250	0.250	0.000	0.721
	0.800				0.525				0.375				0.563				

National Data & Surveying Services Intersection Turning Movement Count

Location: (#16) Watt Ave & U St/Antelope Rd
City: Antelope

Project ID: 22-070100-016
Date: 5/12/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Watt Ave		Watt Ave		U St/Antelope Rd		U St/Antelope Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	1	0	0	0	1	0	2
6:30 AM	0	0	0	0	1	0	1	0	2
6:45 AM	0	0	0	0	0	0	0	1	1
7:00 AM	0	0	0	2	0	0	0	0	2
7:15 AM	0	0	0	0	1	0	0	0	1
7:30 AM	0	1	0	0	0	0	1	1	3
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	1
8:30 AM	0	0	1	3	0	1	1	0	6
8:45 AM	2	0	1	1	0	0	0	0	4
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	2	1	3	6	2	1	4	3	22
	66.67%	33.33%	33.33%	66.67%	66.67%	33.33%	57.14%	42.86%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	1	0	0	0	0	1	2	4
PEAK HR FACTOR :		0.250					0.250	0.500	0.333
	0.250						0.375		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:30 PM	0	0	0	2	0	0	2	0	4
4:45 PM	0	0	0	1	0	1	0	0	2
5:00 PM	0	0	0	1	0	0	1	0	2
5:15 PM	1	1	2	0	0	0	0	0	4
5:30 PM	0	0	1	0	1	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	1	0	0	0	0	0	1
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	1	1	4	4	1	1	3	0	15
	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	1	1	3	1	1	0	1	0	8
PEAK HR FACTOR :	0.250	0.250	0.375	0.250	0.250	0.250	0.250	0.250	0.500
	0.250		0.500		0.250		0.250		

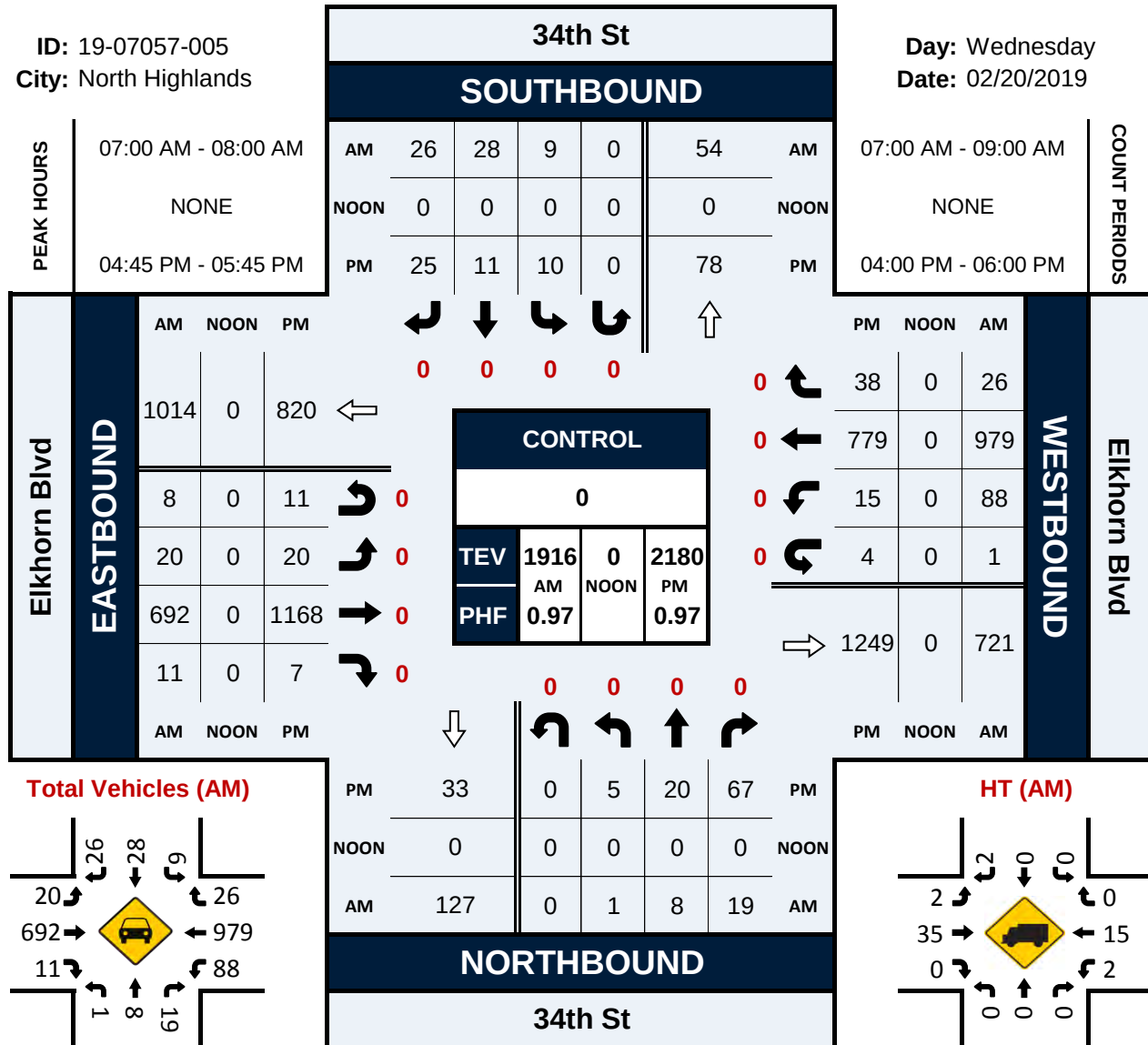
Prepared by National Data & Surveying Services

34th St & Elkhorn Blvd

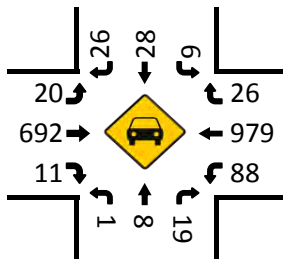
Peak Hour Turning Movement Count

ID: 19-07057-005
City: North Highlands

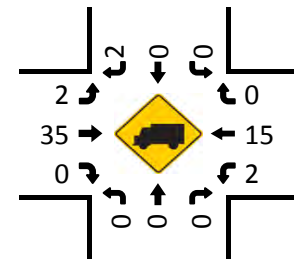
Day: Wednesday
Date: 02/20/2019



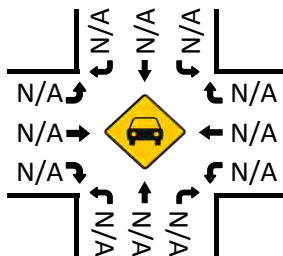
Total Vehicles (AM)



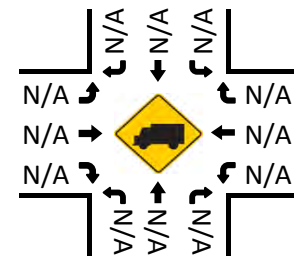
HT (AM)



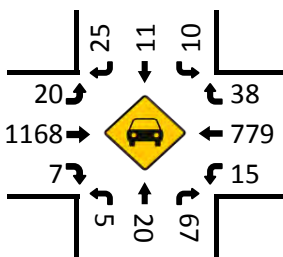
Total Vehicles (Noon)



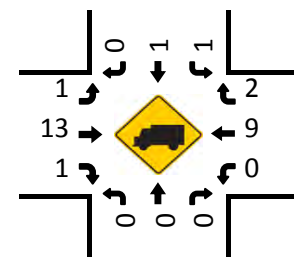
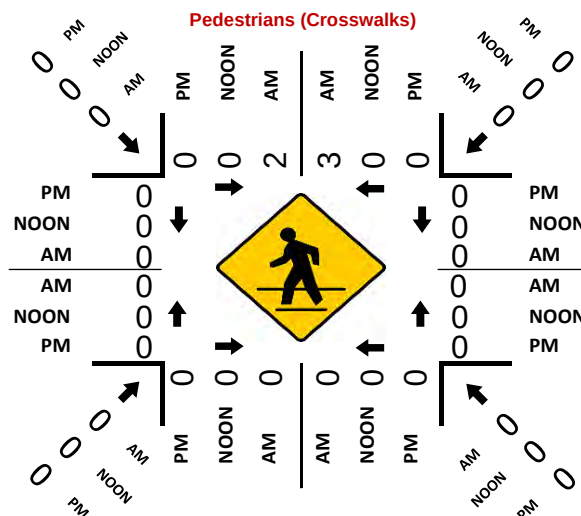
HT (NOON)



Total Vehicles (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: 34th St & Elkhorn Blvd
City: North Highlands
Control:

Project ID: 19-07057-005
Date: 2/20/2019

Total																			
NS/EW Streets:		34th St				34th St				Elkhorn Blvd				Elkhorn Blvd					
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
		0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU		
	7:00 AM	0	0	4	0	7	4	9	0	5	164	1	0	17	243	13	0	467	
	7:15 AM	0	2	5	0	0	12	5	0	4	196	3	0	29	209	5	1	471	
	7:30 AM	0	4	4	0	1	8	8	0	3	153	4	2	21	268	6	0	482	
	7:45 AM	1	2	6	0	1	4	4	0	8	179	3	6	21	259	2	0	496	
	8:00 AM	0	2	8	0	4	4	8	0	2	163	0	4	5	210	6	1	417	
	8:15 AM	1	1	1	0	5	1	2	0	4	164	3	1	6	181	9	0	379	
	8:30 AM	6	1	2	0	3	5	4	0	5	161	2	2	6	170	9	0	376	
	8:45 AM	0	1	5	0	3	4	6	0	5	146	0	3	8	177	4	0	362	
TOTAL VOLUMES :		NL 8	NT 13	NR 35	NU 0	SL 24	ST 42	SR 46	SU 0	EL 36	ET 1326	ER 16	EU 18	WL 113	WT 1717	WR 54	WU 2	TOTAL 3450	
APPROACH %'s :		14.29%	23.21%	62.50%	0.00%	21.43%	37.50%	41.07%	0.00%	2.58%	94.99%	1.15%	1.29%	5.99%	91.04%	2.86%	0.11%		
PEAK HR :		07:00 AM - 08:00 AM																TOTAL	
PEAK HR VOL :		1	8	19	0	9	28	26	0	20	692	11	8	88	979	26	1	1916	
PEAK HR FACTOR :		0.250	0.500	0.792	0.000	0.321	0.583	0.722	0.000	0.625	0.883	0.688	0.333	0.759	0.913	0.500	0.250	0.966	
		0.778				0.788				0.900				0.927					
PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
		0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU		
	4:00 PM	3	9	16	0	7	2	6	0	4	242	1	3	7	226	5	3	534	
	4:15 PM	1	6	17	0	3	4	4	0	5	288	3	0	7	205	5	2	550	
	4:30 PM	4	6	18	0	2	1	3	0	8	267	2	2	4	194	4	0	515	
	4:45 PM	2	8	18	0	5	1	8	0	2	263	3	3	1	213	8	1	536	
	5:00 PM	0	5	14	0	2	3	7	0	5	317	2	1	5	190	7	2	560	
	5:15 PM	3	4	19	0	0	2	5	0	8	310	0	4	0	172	12	0	539	
	5:30 PM	0	3	16	0	3	5	5	0	5	278	2	3	9	204	11	1	545	
	5:45 PM	1	1	12	0	2	1	4	0	3	242	0	1	5	172	4	1	449	
TOTAL VOLUMES :		NL 14	NT 42	NR 130	NU 0	SL 24	ST 19	SR 42	SU 0	EL 40	ET 2207	ER 13	EU 17	WL 38	WT 1576	WR 56	WU 10	TOTAL 4228	
APPROACH %'s :		7.53%	22.58%	69.89%	0.00%	28.24%	22.35%	49.41%	0.00%	1.76%	96.93%	0.57%	0.75%	2.26%	93.81%	3.33%	0.60%		
PEAK HR :		04:45 PM - 05:45 PM																TOTAL	
PEAK HR VOL :		5	20	67	0	10	11	25	0	20	1168	7	11	15	779	38	4	2180	
PEAK HR FACTOR :		0.417	0.625	0.882	0.000	0.500	0.550	0.781	0.000	0.625	0.921	0.583	0.688	0.417	0.914	0.792	0.500	0.973	
		0.821				0.821				0.928				0.929					

National Data & Surveying Services

Intersection Turning Movement Count

Location: 34th St & Elkhorn Blvd
City: North Highlands
Control: 0

Project ID: 19-07057-005
Date: 2/20/2019

Cars

NS/EW Streets:		34th St				34th St				Elkhorn Blvd				Elkhorn Blvd				
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		1 NL	1 NT	1 NR	1 NU	1 SL	1 ST	1 SR	1 SU	1 EL	1 ET	1 ER	1 EU	1 WL	1 WT	1 WR	1 WU	
	7:00 AM	0	0	4	0	7	4	8	0	5	159	1	0	17	238	13	0	456
	7:15 AM	0	2	5	0	0	12	5	0	4	183	3	0	29	205	5	1	454
	7:30 AM	0	4	4	0	1	8	7	0	3	141	4	2	21	265	6	0	466
	7:45 AM	1	2	6	0	1	4	4	0	6	174	3	6	19	256	2	0	484
	8:00 AM	0	2	8	0	4	3	7	0	2	160	0	3	5	205	5	1	405
	8:15 AM	1	1	1	0	5	1	1	0	4	158	3	1	6	176	9	0	367
	8:30 AM	5	1	2	0	3	5	3	0	5	157	2	2	6	160	9	0	360
	8:45 AM	0	1	5	0	3	4	5	0	4	143	0	3	8	172	4	0	352
TOTAL VOLUMES :		NL 7	NT 13	NR 35	NU 0	SL 24	ST 41	SR 40	SU 0	EL 33	ET 1275	ER 16	EU 17	WL 111	WT 1677	WR 53	WU 2	TOTAL 3344
APPROACH %'s :		12.73%	23.64%	63.64%	0.00%	22.86%	39.05%	38.10%	0.00%	2.46%	95.08%	1.19%	1.27%	6.02%	90.99%	2.88%	0.11%	
PEAK HR :		07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :		1	8	19	0	9	28	24	0	18	657	11	8	86	964	26	1	1860
PEAK HR FACTOR :		0.25	0.500	0.792	0.000	0.321	0.583	0.750	0.000	0.750	0.898	0.688	0.333	0.741	0.909	0.500	0.250	0.961
		0.778				0.803				0.913				0.922				

PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		1 NL	1 NT	1 NR	1 NU	1 SL	1 ST	1 SR	1 SU	1 EL	1 ET	1 ER	1 EU	1 WL	1 WT	1 WR	1 WU	
	4:00 PM	3	9	16	0	7	2	5	0	4	237	1	3	7	224	5	3	526
	4:15 PM	1	6	17	0	3	4	4	0	5	287	3	0	7	203	5	2	547
	4:30 PM	4	5	18	0	2	1	3	0	8	265	2	2	4	191	4	0	509
	4:45 PM	2	8	18	0	4	1	8	0	2	258	3	3	1	211	8	1	528
	5:00 PM	0	5	14	0	2	3	7	0	5	313	1	1	5	186	7	2	551
	5:15 PM	3	4	19	0	0	2	5	0	7	309	0	4	0	172	10	0	535
	5:30 PM	0	3	16	0	3	4	5	0	5	275	2	3	9	201	11	1	538
	5:45 PM	1	1	12	0	2	1	4	0	3	241	0	1	5	168	4	1	444
TOTAL VOLUMES :		NL 14	NT 41	NR 130	NU 0	SL 23	ST 18	SR 41	SU 0	EL 39	ET 2185	ER 12	EU 17	WL 38	WT 1556	WR 54	WU 10	TOTAL 4178
APPROACH %'s :		7.57%	22.16%	70.27%	0.00%	28.05%	21.95%	50.00%	0.00%	1.73%	96.98%	0.53%	0.75%	2.29%	93.85%	3.26%	0.60%	
PEAK HR :		04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :		5	20	67	0	9	10	25	0	19	1155	6	11	15	770	36	4	2152
PEAK HR FACTOR :		0.42	0.625	0.882	0.000	0.563	0.625	0.781	0.000	0.679	0.923	0.500	0.688	0.417	0.912	0.818	0.500	0.976
		0.821				0.846				0.930				0.929				

National Data & Surveying Services

Intersection Turning Movement Count

Location: 34th St & Elkhorn Blvd

City: North Highlands

Control: 0

Project ID: 19-07057-005

Date: 2/20/2019

HT																			
NS/EW Streets:		34th St				34th St				Elkhorn Blvd				Elkhorn Blvd					
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
7:00 AM 7:15 AM 7:30 AM 7:45 AM	7:00 AM	0	0	0	0	0	0	1	0	0	5	0	0	0	5	0	0	11	
	7:15 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	4	0	0	17	
	7:30 AM	0	0	0	0	0	0	1	0	0	12	0	0	0	3	0	0	16	
	7:45 AM	0	0	0	0	0	0	0	0	2	5	0	0	2	3	0	0	12	
8:00 AM 8:15 AM 8:30 AM 8:45 AM	8:00 AM	0	0	0	0	0	1	1	0	0	3	0	1	0	5	1	0	12	
	8:15 AM	0	0	0	0	0	0	1	0	0	6	0	0	0	5	0	0	12	
	8:30 AM	1	0	0	0	0	0	1	0	0	4	0	0	0	10	0	0	16	
	8:45 AM	0	0	0	0	0	0	1	0	1	3	0	0	0	5	0	0	10	
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :		1	0	0	0	0	1	6	0	3	51	0	1	2	40	1	0	106	
PEAK HR :		07:00 AM - 08:00 AM																TOTAL	
PEAK HR VOL :		0	0	0	0	0	0	2	0	2	35	0	0	2	15	0	0	56	
PEAK HR FACTOR :		0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.673	0.000	0.000	0.250	0.750	0.000	0.000	0.824	
						0.500				0.712				0.850					
PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
4:00 PM 4:15 PM 4:30 PM 4:45 PM	4:00 PM	0	0	0	0	0	0	1	0	0	5	0	0	0	2	0	0	8	
	4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	
	4:30 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0	0	6	
	4:45 PM	0	0	0	0	1	0	0	0	0	5	0	0	0	2	0	0	8	
5:00 PM 5:15 PM 5:30 PM 5:45 PM	5:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	4	0	0	9	
	5:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	4	
	5:30 PM	0	0	0	0	0	1	0	0	0	3	0	0	0	3	0	0	7	
	5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5	
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :		0	1	0	0	1	1	1	0	1	22	1	0	0	20	2	0	50	
PEAK HR :		04:45 PM - 05:45 PM																TOTAL	
PEAK HR VOL :		0	0	0	0	1	1	0	0	1	13	1	0	0	9	2	0	28	
PEAK HR FACTOR :		0.00	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.650	0.250	0.000	0.000	0.563	0.250	0.000	0.778	
						0.500				0.750				0.688					

National Data & Surveying Services

Intersection Turning Movement Count

Location: 34th St & Elkhorn Blvd
City: North Highlands
Control: 0

Project ID: 19-07057-005
Date: 2/20/2019

Bikes																			
NS/EW Streets:		34th St				34th St				Elkhorn Blvd				Elkhorn Blvd					
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
7:00 AM 7:15 AM 7:30 AM 7:45 AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
	7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
8:00 AM 8:15 AM 8:30 AM 8:45 AM	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :		0	0	0	0	0	1	0	0	0	1	0	0	0	3	1	0	6	
		0.00%				100.00%				0.00%				75.00%				0.00%	
PEAK HR :		07:00 AM - 08:00 AM																TOTAL	
PEAK HR VOL :		0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	4	
PEAK HR FACTOR :		0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.500	
						0.250				0.250				0.250					
PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
4:00 PM 4:15 PM 4:30 PM 4:45 PM	4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
	4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
	4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
	4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
5:00 PM 5:15 PM 5:30 PM 5:45 PM	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
	5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :		0	1	0	0	0	1	0	0	0	4	0	0	0	1	0	0	7	
		0.00%				100.00%				100.00%				100.00%				0.00%	
PEAK HR :		04:45 PM - 05:45 PM																TOTAL	
PEAK HR VOL :		0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	4	
PEAK HR FACTOR :		0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.500	
		0.250								0.500				0.250					

Attachment C: Existing Conditions Traffic Analysis

Attachment Superseded. See Re-Imagine North
Watt Corridor Plan Appendix on Synchro Analysis

Appendix H: Collision Data

DRAFT

Accident Number	Report Number	Collision date	Collision Time	Collision Day of Week	Primary Road	Secondary Road	NOT WATT	Distance in Feet	Direction	Highest Degree of Injury	Number Injured	Number Killed	Party at Fault	Primary Collision Factor	Hit and Run	Collision Type	Involved With	Pedestrian Action	Violation	Violation Subsection	Weather	Road Surface Condition	Road Condition1	Lighting	Right of Way Controls
13881172516747	00014	02-Jan-18	5:25 PM	Tuesday	WATT AVE	A ST	A ST	205	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
13884220518899	00067	05-Jan-18	10:05 PM	Friday	WATT AVE	WINGS WAY	WINGS WAY	120	North	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Raining	Wet	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
13888185020176	00142	09-Jan-18	6:50 PM	Tuesday	WATT AVE	I ST	I ST	200	South	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Raining	Wet	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
13896030519535	00259	17-Jan-18	3:05 AM	Wednesday	ELKHORN BLVD	WATT AVE	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	C	Fog	Dry	No Unusual Condition	Dark - Street Lights	Functioning
13898211019300	00317	19-Jan-18	9:10 PM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	100	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
13899160019047	00338	20-Jan-18	4:00 PM	Saturday	WATT AVE	A ST	A ST	80	North	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
13901063519051	00353	22-Jan-18	6:35 AM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	Functioning
13901082815745	00355	22-Jan-18	8:28 AM	Monday	WATT AVE	PALM ST	PALM ST	275	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	No Controls Present / Factor
13907162020268	00476	28-Jan-18	4:20 PM	Sunday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dusk - Dawn	Functioning
13908120115836	00485	29-Jan-18	12:01 PM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights Not Functioning	No Controls Present / Factor
13913102519069	00583	03-Feb-18	10:25 AM	Saturday	WATT AVE	KARL DR	KARL DR	120	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
13918135616747	00668	08-Feb-18	1:56 PM	Thursday	WATT AVE	VAN OWEN ST	VAN OWEN ST	95	South	Property Damage Only	0	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	C	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13919193618785	00688	09-Feb-18	7:36 PM	Friday	WATT AVE	ANTELOPE RD	ANTELOPE RD	150	South	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
13920101919069	00710	10-Feb-18	10:19 AM	Saturday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	20	South	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22100	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
13928105519090	00844	18-Feb-18	10:55 AM	Sunday	WATT AVE	KARL DR	KARL DR	100	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
13931183518785	00892	21-Feb-18	6:35 PM	Wednesday	WATT AVE	A ST	A ST	350	North	Complaint of Pain	1	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
13934154519047	00940	24-Feb-18	3:45 PM	Saturday	WATT AVE	BAINBRIDGE DR	BAINBRIDGE DR	200	South	Property Damage Only	0	0	2	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13936081917445	00988	26-Feb-18	8:19 AM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	54	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	Functioning
13936083514845	00999	26-Feb-18	8:35 AM	Monday	WATT AVE	Q ST	Q ST	40	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	No Controls Present / Factor
13938174016747	01030	28-Feb-18	5:40 PM	Wednesday	WATT AVE	KAREN LN	KAREN LN	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Raining	Wet	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
13939214216605	01129	01-Mar-18	9:42 PM	Thursday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	382	North	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Raining	Wet	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
13943185016747	01137	05-Mar-18	6:50 PM	Monday	WATT AVE	TURNER DR	TURNER DR	110	South	Property Damage Only	0	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
13944154516747	01155	06-Mar-18	3:45 PM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	330	South	Property Damage Only	0	0	1		No	Hit Object	Other Object	No Pedestrian Involved	23114		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13944184516747	01155	06-Mar-18	6:45 PM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	330	South	Property Damage Only	0	0	1	Other Hazardous Movement	No	Hit Object	Other Object	No Pedestrian Involved	23116	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13952172516747	01321	14-Mar-18	5:25 PM	Wednesday	WATT AVE	HAVEN DR	HAVEN DR	200	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Wet	No Unusual Condition	Daylight	No Controls Present / Factor
13951383018785	01332	15-Mar-18	6:30 PM	Thursday	WATT AVE	A ST	A ST	225	North	Complaint of Pain	1	0	1	Other Improper Driving	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved			Raining	Wet	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
13955024520910	01363	17-Mar-18	2:45 AM	Saturday	WATT AVE	MILTON WAY	MILTON WAY	12	North	Complaint of Pain	1	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
13957044419535	01384	19-Mar-18	4:44 AM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	Functioning
13957190020176	01397	19-Mar-18	7:00 PM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Cloudy	Dry	No Unusual Condition	Daylight	Functioning
13959184015423	01470	21-Mar-18	6:40 PM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	20	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
13961184518785	01500	23-Mar-18	6:45 PM	Friday	WATT AVE	KARL DR	KARL DR	0	Not Stated	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dusk - Dawn	Functioning
13963165020176	01524	25-Mar-18	4:50 PM	Sunday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	551	South	Fatal	0	1	2	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	C	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13963202019047	01525	25-Mar-18	8:20 PM	Sunday	WATT AVE	U ST	U ST	20	North	Property Damage Only	0	0	2	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
13969164019047	01616	31-Mar-18	4:40 PM	Saturday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	200	North	Property Damage Only	0	0	3	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
13972170020397	01683	03-Apr-18	5:00 PM	Tuesday	WATT AVE	KAREN LN	KAREN LN	20	South	Complaint of Pain	2	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13973154018872	01701	04-Apr-18	3:40 PM	Wednesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	50	South	Property Damage Only	0	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	F	Clear	Dry	No Unusual Condition	Daylight	Functioning
13975075516624	01730	06-Apr-18	7:55 AM	Friday	WATT AVE	A ST	A ST	25	South	Complaint of Pain	1	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	Functioning
13978143016747	01792	09-Apr-18	2:30 PM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
13985071019051	01901	16-Apr-18	7:10 AM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	400	North	Complaint of Pain	1	0	1	Improper Passing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21755		Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
13985180516747	01929	16-Apr-18	6:05 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	528	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	Functioning
13985181016747	01932	16-Apr-18	6:10 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	528	South	Complaint of Pain	1	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	Functioning
14002172019047	02259	03-May-18	5:20 PM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	528	North	Complaint of Pain	1	0	3	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14004181518785	02296	05-May-18	6:15 PM	Saturday	WATT AVE	KARL DR	KARL DR	445	South	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14006161016747	02355	07-May-18	4:10 PM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	380	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14008142018542	02369	09-May-18	2:20 PM	Wednesday	WATT AVE	AIRBASE DR	AIRBASE DR	80	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14012225519151	02458	13-May-18	10:55 PM	Sunday	WATT AVE	KARL DR	KARL DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14014081017796	02661	15-May-18	8:10 AM	Tuesday	WATT AVE	BOLIVAR AVE	BOLIVAR AVE	112	South	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14016074016141	02524	17-May-18	7:40 AM	Thursday	WATT AVE	Q ST	Q ST	355	North	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14016153118785	02534	17-May-18	3:31 PM	Thursday	WATT AVE	PALM ST	PALM ST	10	South	Complaint of Pain	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14017073017445	02545	18-May-18	7:30 AM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	230	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14028093017620	02756	29-May-18	9:30 AM	Tuesday	WATT AVE	KARL DR	KARL DR	300	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14031130020507	02821	01-Jun-18	1:00 PM	Friday	WATT AVE	A ST	A ST	200	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14035113516141	02883	05-Jun-18	11:35 AM	Tuesday	WATT AVE	TURNER DR	TURNER DR	207	South	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14038171818785	02953	08-Jun-18	5:18 PM	Friday	WATT AVE	GRATTAN WAY	GRATTAN WAY	23	North	Complaint of Pain	2	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14039115518667	01258	09-Jun-18	11:55 AM	Saturday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Daylight	Functioning
14041170016747	03015	11-Jun-18	5:00 PM	Monday	WATT AVE	PALM ST	PALM ST	100	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14047100018115	03092	17-Jun-18	10:00 AM	Sunday	WATT AVE	ANTELOPE RD	ANTELOPE RD	60	North	Complaint of Pain															

14139114515577	04669	17-Sep-18	11:45 AM	Monday	WATT AVE	A ST	A ST	18	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14141084015745	04722	19-Sep-18	8:40 AM	Wednesday	WATT AVE	KARL DR	KARL DR	100	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14143172520176	04753	21-Sep-18	5:25 PM	Friday	WATT AVE	ANTELOPE RD	ANTELOPE RD	120	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14147072515577	04802	25-Sep-18	7:25 AM	Tuesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	95	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14147113516141	04807	25-Sep-18	11:35 AM	Tuesday	WATT AVE	I ST	I ST	215	South	Property Damage Only	0	0	2	Unsafe Speed	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14149171520176	04851	27-Sep-18	5:15 PM	Thursday	WATT AVE	TURNER DR	TURNER DR	0	Not Stated	Other Visible Injury	2	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14149185520865	04876	27-Sep-18	6:55 PM	Thursday	WATT AVE	VAN OWEN ST	VAN OWEN ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14154141515719	04977	02-Oct-18	2:15 PM	Thursday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14156175520176	05018	04-Oct-18	5:55 PM	Thursday	WATT AVE	MILTON WAY	MILTON WAY	350	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14157080016747	05138	05-Oct-18	8:00 AM	Friday	WATT AVE	HAVEN DR	HAVEN DR	60	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14157220520024	05063	05-Oct-18	10:05 PM	Friday	WATT AVE	GRATTAN WAY	GRATTAN WAY	13	North	Severe Injury	1	0	1	Pedestrian Violation	No	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21954	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
14162153519047	05119	10-Oct-18	3:35 PM	Wednesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	150	South	Property Damage Only	0	0	3	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14162170520397	05116	10-Oct-18	5:05 PM	Wednesday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	50	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14163003518971	05131	11-Oct-18	12:35 AM	Thursday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14163172020176	05158	11-Oct-18	5:20 PM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	250	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14167130515836	05219	15-Oct-18	1:05 PM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	100	North	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14167160519047	05227	15-Oct-18	4:05 PM	Monday	WATT AVE	KARL DR	KARL DR	60	North	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14168073015577	05241	16-Oct-18	7:30 AM	Tuesday	WATT AVE	BAINBRIDGE DR	BAINBRIDGE DR	250	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14175091516141	05394	23-Oct-18	9:15 AM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	32	South	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14176151520397	05433	24-Oct-18	3:15 PM	Wednesday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	20	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14176182520397	05447	24-Oct-18	6:25 PM	Wednesday	WATT AVE	WINGS WAY	WINGS WAY	100	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
14178152020176	05462	26-Oct-18	3:20 PM	Friday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	0	Not Stated	Severe Injury	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14182075016747	05534	30-Oct-18	7:50 AM	Tuesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	528	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14185074016141	05584	02-Nov-18	7:40 AM	Friday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	0	Not Stated	Complaint of Pain	1	0	2	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14186090019090	05629	03-Nov-18	9:00 AM	Saturday	WATT AVE	LARCHMONT DR	LARCHMONT DR	40	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	Functioning
14186132819090	05618	03-Nov-18	1:28 PM	Saturday	WATT AVE	A ST	A ST	150	North	Other Visible Injury	2	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	Functioning
14186143020507	05619	03-Nov-18	2:30 PM	Saturday	WATT AVE	Q ST	Q ST	500	South	Property Damage Only	0	0	1	Unsafe Speed	No	Other	Bicycle	In Road	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14190133515836	05696	07-Nov-18	1:35 PM	Wednesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Other Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14196130016747	06033	13-Nov-18	1:00 PM	Tuesday	WATT AVE	MILTON WAY	MILTON WAY	5	South	Property Damage Only	0	0	1	Ped R/W Violation	No	Broadside	Pedestrian	Not In Road	21952		Clear	Dry	No Unusual Condition	Daylight	Functioning
14199164020176	05867	16-Nov-18	4:40 PM	Friday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	200	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14206151518766	05997	23-Nov-18	3:15 PM	Friday	WATT AVE	PALM ST	PALM ST	40	South	Complaint of Pain	3	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	Functioning
14213185018899	06143	30-Nov-18	6:50 PM	Friday	WATT AVE	A ST	A ST	315	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14214122518766	06174	01-Dec-18	12:25 PM	Saturday	WATT AVE	GRATTAN WAY	GRATTAN WAY	125	North	Complaint of Pain	1	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14216090016141	06179	03-Dec-18	9:00 AM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	95	North	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14222194920865	06434	09-Dec-18	7:49 PM	Sunday	WATT AVE	CLARA WAY	CLARA WAY	27	North	Other Visible Injury	1	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14224172019047	06344	11-Dec-18	5:20 PM	Tuesday	WATT AVE	PALM ST	PALM ST	40	North	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14226121915577	06371	13-Dec-18	12:19 PM	Thursday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Improper Passing	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21755		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14252064515577	06344	08-Jan-19	6:45 AM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21453	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14254051219151	00180	10-Jan-19	5:12 AM	Thursday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Severe Injury	1	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Cloudy	Wet	No Unusual Condition	Dark - Street Lights	Functioning
14255231219535	00198	11-Jan-19	11:12 PM	Friday	WATT AVE	OWENS WAY	OWENS WAY	180	North	Property Damage Only	0	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Fog	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14258050020268	00230	14-Jan-19	5:00 AM	Monday	WATT AVE	OWENS WAY	OWENS WAY	0	Not Stated	Severe Injury	1	0	1	Pedestrian Violation	No	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21954	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14261190020176	00230	17-Jan-19	7:00 PM	Thursday	WATT AVE	LARCHMONT DR	LARCHMONT DR	15	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14265182119047	00230	21-Jan-19	6:21 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	20	South	Complaint of Pain	1	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14267123215745	00230	23-Jan-19	12:32 PM	Wednesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	200	North	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14267183218863	00230	23-Jan-19	6:32 PM	Wednesday	WATT AVE	A ST	A ST	25	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14269114518766	00230	25-Jan-19	11:45 AM	Friday	WATT AVE	KAREN LN	KAREN LN	205	South	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14270190518941	00230	26-Jan-19	7:05 PM	Saturday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	8	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14271103518115	00230	27-Jan-19	10:35 AM	Sunday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	50	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	Functioning
14275110516141	00521	31-Jan-19	11:05 AM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	575	North	Property Damage Only	0	0	2	Auto R/W Violation	No	Broadside	Bicycle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14278055019069	00230	03-Feb-19	5:50 AM	Sunday	WATT AVE	WINGS WAY	WINGS WAY	100	North	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Hit Object	Fixed Object	No Pedestrian Involved	22107		Raining	Wet	No Unusual Condition	Dark - No Street Lights	Functioning
14281160918863	00230	06-Feb-19	4:09 PM	Wednesday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	B	Clear	Dry	No Unusual Condition	Daylight	Functioning
14282163018863	00230	07-Feb-19	4:30 PM	Thursday	WATT AVE	GRATTAN WAY	GRATTAN WAY	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14283061515577	00230	08-Feb-19	6:15 AM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	50	South	Complaint of Pain	1	0	1	Unsafe Lane Change	Felony	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14283092019090	00230	08-Feb-19	9:20 AM	Friday	WATT AVE	A ST	A ST	0	Not Stated	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14286174018863	00230	11-Feb-19	5:40 PM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	0	Not Stated	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14287155018941	00230	12-Feb-19	3:50 PM	Tuesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	10	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Daylight	Functioning
14288063515577	00230	13-Feb-19	6:35 AM	Wednesday	WATT AVE	I ST	I ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	A	Raining	Wet	No Unusual Condition	Dark - Street Lights	Functioning
14288180718863	00230	13-Feb-19	6:07 PM	Wednesday	WATT AVE	KARL DR	KARL DR	150	North	Property															

14376183020602	3250	12-May-19	6:30 PM	Sunday	WATT AVE	PLYMOUTH DR	PLYMOUTH DR	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21802	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14378125017796	3250	14-May-19	12:50 PM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14378164020602	3250	14-May-19	4:40 PM	Tuesday	WATT AVE	AIRBASE DR	AIRBASE DR	200	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14381095018542	3250	17-May-19	9:50 AM	Friday	WATT AVE	AIRBASE DR	AIRBASE DR	50	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14382140020602	3250	18-May-19	2:00 PM	Saturday	WATT AVE	AIRBASE DR	AIRBASE DR	200	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14384180018941	3250	20-May-19	6:00 PM	Monday	WATT AVE	DAVIDSON DR	DAVIDSON DR	32	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Not Functioning
14385024018899	3250	21-May-19	2:40 AM	Tuesday	WATT AVE	FLORAL DR	FLORAL DR	22	North	Other Visible Injury	1	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14387050617999	3250	23-May-19	5:06 AM	Thursday	WATT AVE	HAVEN DR	HAVEN DR	75	South	Complaint of Pain	1	0	1	Auto R/W Violation	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
14391192017317	3250	27-May-19	7:20 PM	Monday	WATT AVE	WINGS WAY	WINGS WAY	30	South	Other Visible Injury	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14394144018649	3250	30-May-19	2:40 PM	Thursday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Wrong Side of Road	Misdemeanor	Other	Bicycle	No Pedestrian Involved	21650	1	Clear	Dry	No Unusual Condition	Daylight	Functioning
143971325020143	3250	02-Jun-19	1:25 PM	Sunday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	75	North	Complaint of Pain	1	0	1	Unsafe Speed	Felony	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14398131520143	3250	03-Jun-19	1:15 PM	Monday	WATT AVE	I ST	I ST	75	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14417173820602	3250	22-Jun-19	5:38 PM	Saturday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	Functioning
14418130020143	3250	23-Jun-19	1:00 PM	Sunday	WATT AVE	I ST	I ST	50	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14422164015184	3250	27-Jun-19	4:40 PM	Thursday	AIRBASE DR	WATT AVE	AIRBASE DR	0	Not Stated	Property Damage Only	0	0	2	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Daylight	Functioning
14426093017796	3250	01-Jul-19	9:30 AM	Monday	WATT AVE	GRATTAN WAY	GRATTAN WAY	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14427123518649	3250	02-Jul-19	12:35 PM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	130	North	Other Visible Injury	1	0	2	Auto R/W Violation	Felony	Other	Bicycle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14427173518947	3250	02-Jul-19	5:35 PM	Tuesday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	325	North	Property Damage Only	0	0	1	Driving Under Influence	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14430064519069	3250	05-Jul-19	6:45 AM	Friday	WATT AVE	VAN OWEN ST	VAN OWEN ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14430142020920	3250	05-Jul-19	2:20 PM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	100	North	Severe Injury	1	0	1	Improper Turning	No	Other	Bicycle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14433134215184	3250	08-Jul-19	1:42 PM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	150	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14434140020507	3250	09-Jul-19	2:00 PM	Tuesday	WATT AVE	AIRBASE DR	AIRBASE DR	60	North	Complaint of Pain	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14434163515184	3250	09-Jul-19	4:35 PM	Tuesday	WATT AVE	LARRY WAY	LARRY WAY	75	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14435140020910	3250	10-Jul-19	2:00 PM	Wednesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	150	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14435150018947	3250	10-Jul-19	3:00 PM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	30	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14439160020454	3250	14-Jul-19	4:00 PM	Sunday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Driving Under Influence	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	C	Clear	Dry	No Unusual Condition	Daylight	Functioning
14441095018649	3250	16-Jul-19	9:50 AM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	110	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
144441625020910	3250	19-Jul-19	4:25 PM	Friday	WATT AVE	AIRBASE DR	AIRBASE DR	230	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14445032519572	3250	20-Jul-19	3:25 AM	Saturday	ELKHORN BLVD	WATT AVE	ELKHORN BLVD	0	Not Stated	Other Visible Injury	1	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14446134518649	3250	21-Jul-19	1:45 PM	Sunday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14448093015577	3250	23-Jul-19	9:30 AM	Tuesday	WATT AVE	Q ST	Q ST	350	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14449120517796	3250	24-Jul-19	12:05 PM	Wednesday	WATT AVE	POPLAR BLVD	POPLAR BLVD	25	South	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14449161019047	3250	24-Jul-19	4:10 PM	Wednesday	WATT AVE	A ST	A ST	200	North	Complaint of Pain	1	0	2	Wrong Side of Road	No	Other	Bicycle	No Pedestrian Involved	21650	1	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14457164719047	3250	01-Aug-19	4:47 PM	Thursday	WATT AVE	U ST	U ST	110	South	Property Damage Only	0	0	2	Auto R/W Violation	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14465174520176	3250	09-Aug-19	5:45 PM	Friday	WATT AVE	LARCHMONT DR	LARCHMONT DR	142	South	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14466183420910	3250	10-Aug-19	6:34 PM	Saturday	WATT AVE	AIRBASE DR	AIRBASE DR	315	North	Other Visible Injury	2	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14470211517762	3250	14-Aug-19	9:15 PM	Wednesday	WATT AVE	KARL DR	KARL DR	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14472095819266	3250	16-Aug-19	9:58 AM	Friday	WATT AVE	Q ST	Q ST	200	North	Property Damage Only	0	0	1	Improper Passing	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21755		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14475083018649	3250	19-Aug-19	8:30 AM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	200	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14475104818649	3250	19-Aug-19	10:48 AM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	50	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14477130019266	3250	21-Aug-19	1:00 PM	Wednesday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	50	North	Property Damage Only	0	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14483061718649	3250	27-Aug-19	6:17 AM	Tuesday	WATT AVE	LARRY WAY	LARRY WAY	50	South	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
14486223018899	3250	30-Aug-19	10:30 PM	Friday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	615	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	Misdemeanor	Other	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	Other	Dark - Street Lights	Functioning
14490170517762	3250	03-Sep-19	5:05 PM	Tuesday	WATT AVE	MCCLELLAN DR	MCCLELLAN DR	255	North	Complaint of Pain	1	0	1	Auto R/W Violation	No	Other	Bicycle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14490180515184	3250	03-Sep-19	6:05 PM	Tuesday	AIRBASE DR	WATT AVE	AIRBASE DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14491004519300	3250	04-Sep-19	12:45 AM	Wednesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	400	South	Complaint of Pain	1	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
14497065018816	3250	10-Sep-19	6:50 AM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	450	North	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14498083016141	3250	11-Sep-19	8:30 AM	Wednesday	WATT AVE	AIRBASE DR	AIRBASE DR	10	North	Property Damage Only	0	0	2	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	B	Clear	Dry	No Unusual Condition	Daylight	Functioning
14500103018649	3250	13-Sep-19	10:30 AM	Friday	WATT AVE	MCCLELLAN DR	MCCLELLAN DR	0	Not Stated	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14501133518649	3250	14-Sep-19	1:35 PM	Saturday	WATT AVE	VAN OWEN ST	VAN OWEN ST	60	North	Other Visible Injury	3	0	1	Driving Under Influence	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14502092018649	3250	15-Sep-19	9:20 AM	Sunday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Complaint of Pain	4	0	Unknown	No	Broadside	Other Motor Vehicle	No Pedestrian Involved				Clear	Dry	No Unusual Condition	Daylight	Functioning
14503102015577	3250	16-Sep-19	10:20 AM	Monday	WATT AVE	A ST	A ST	100	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Wet	No Unusual Condition	Daylight	No Controls Present / Factor
14506074518816	3250	19-Sep-19	7:45 AM	Thursday	WATT AVE	U ST	U ST	70	South	Complaint of Pain	1	0	1	Unsafe Lane Change	Felony	Hit Object	Fixed Object	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14507163518947	3250	20-Sep-19	4:35 PM	Friday	WATT AVE	HAVEN DR	HAVEN DR	35	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14510114020329	3250	23-Sep-19	11:40 AM	Monday	WATT AVE	BAINBRIDGE DR	BAINBRIDGE DR	140	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14511094017796	3250	24-Sep-19	9:40 AM	Tuesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
1451121518116	3250	24-Sep-19	12:15 PM	Tuesday	WATT AVE	KAREN LN	KAREN LN	62	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14512112516624	3250	25-Sep-19	11:25 AM	Wednesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Broadside	B								

14595175518941	3230	17-Dec-19	5:55 PM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	32	South	Property Damage Only	0	0	1	Unsafe Lane Change	Felony	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14597114019825	3230	19-Dec-19	11:40 AM	Thursday	WATT AVE	VAN OWEN ST	VAN OWEN ST	70	North	Complaint of Pain	1	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	No Controls Present / Factor
14597114119825	3230	19-Dec-19	11:41 AM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	200	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14601142017762	3230	23-Dec-19	2:20 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	8	East	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	Functioning
14610015520865	3230	01-Jan-20	1:55 AM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	40	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14615074518941	3230	06-Jan-20	7:45 AM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	39	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Daylight	Functioning
14618173020920	3230	09-Jan-20	5:30 PM	Thursday	WATT AVE	AIRBASE DR	AIRBASE DR	100	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14624180017762	3230	15-Jan-20	6:00 PM	Wednesday	WATT AVE	DAVIDSON DR	DAVIDSON DR	16	South	Other Visible Injury	1	0	1	Traffic Signals and Signs	Felony	Other	Bicycle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14626113516141	3230	17-Jan-20	11:35 AM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	70	North	Property Damage Only	0	0	2	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14637114018766	3230	28-Jan-20	11:40 AM	Tuesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Cloudy	Wet	No Unusual Condition	Daylight	Functioning
14645221720452	3230	05-Feb-20	10:17 PM	Wednesday	ELKHORN BLVD	WATT AVE	ELKHORN BLVD	0	Not Stated	Other Visible Injury	2	0	2	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14651195017762	3230	11-Feb-20	7:50 PM	Tuesday	WATT AVE	KARL DR	KARL DR	302	North	Fatal	0	1	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14653124019071	3230	13-Feb-20	12:40 PM	Thursday	WATT AVE	VAN OWEN ST	VAN OWEN ST	40	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14653125318791	3230	13-Feb-20	12:53 PM	Thursday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	25	South	Property Damage Only	0	0	1	Other Hazardous Movement	No	Overturned	Fixed Object	No Pedestrian Involved	23112	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14653192014532	3230	13-Feb-20	7:20 PM	Thursday	WATT AVE	U ST	U ST	150	South	Other Visible Injury	1	0	1	Auto R/W Violation	Felony	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21804	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14656210020910	3230	16-Feb-20	9:00 PM	Sunday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14660191515184	3230	20-Feb-20	7:15 PM	Thursday	WATT AVE	I ST	I ST	284	South	Severe Injury	1	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14661141118791	3230	21-Feb-20	2:11 PM	Friday	WATT AVE	KARL DR	KARL DR	250	South	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14662233019535	3230	22-Feb-20	11:30 PM	Saturday	WATT AVE	PALM ST	PALM ST	40	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14663205020937	3230	23-Feb-20	8:50 PM	Sunday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Other Visible Injury	1	0	1	Auto R/W Violation	Felony	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21453	B	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14666160019047	3230	26-Feb-20	4:00 PM	Wednesday	WATT AVE	A ST	A ST	300	South	Property Damage Only	0	0	2	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14671074018941	3230	02-Mar-20	7:40 AM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	15	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14671140415184	3230	02-Mar-20	2:04 PM	Monday	WATT AVE	MILTON WAY	MILTON WAY	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14671210515184	3230	02-Mar-20	9:05 PM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Other Hazardous Movement	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21711		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14678162019047	3230	09-Mar-20	4:20 PM	Monday	WATT AVE	KARL DR	KARL DR	30	North	Property Damage Only	0	0	2	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	Functioning
14679182019047	3230	10-Mar-20	6:20 PM	Tuesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	80	South	Complaint of Pain	1	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14682130018649	3230	13-Mar-20	1:00 PM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	Functioning
14685134016624	3230	16-Mar-20	1:40 PM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	20	South	Complaint of Pain	1	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	Functioning
14690190620234	3230	21-Mar-20	7:06 PM	Saturday	WATT AVE	TURNER DR	TURNER DR	275	North	Other Visible Injury	2	0	1	Unsafe Lane Change	No	Other	Bicycle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14690212520176	3230	21-Mar-20	9:25 PM	Saturday	WATT AVE	HAVEN DR	HAVEN DR	48	North	Complaint of Pain	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14692074519266	3230	23-Mar-20	7:45 AM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	40	South	Complaint of Pain	1	0	1	Driving Under Influence	Felony	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14692221719151	3230	23-Mar-20	10:17 PM	Monday	WATT AVE	KARL DR	KARL DR	125	South	Severe Injury	1	0	1	Unsafe Speed	Felony	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14695170819047	3230	26-Mar-20	5:08 PM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	528	South	Property Damage Only	0	0	2	Auto R/W Violation	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14706123018649	3230	06-Apr-20	12:30 PM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	30	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14707200320003	3230	07-Apr-20	8:03 PM	Tuesday	WATT AVE	A ST	A ST	50	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14715144019047	3230	15-Apr-20	2:40 PM	Wednesday	WATT AVE	KARL DR	KARL DR	60	North	Complaint of Pain	2	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14717143020176	3230	17-Apr-20	2:30 PM	Friday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Severe Injury	1	0	1	Ped R/W Violation	No	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21950	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14724144521324	3230	24-Apr-20	2:45 PM	Friday	WATT AVE	A ST	A ST	30	South	Complaint of Pain	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14729162017762	3230	29-Apr-20	4:20 PM	Wednesday	WATT AVE	A ST	A ST	12	North	Complaint of Pain	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14732030320937	3230	02-May-20	12:30 AM	Saturday	WATT AVE	PALM ST	PALM ST	10	North	Complaint of Pain	1	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14735195517762	3230	05-May-20	7:55 PM	Tuesday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Other Visible Injury	1	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dusk - Dawn	Functioning
14737075515184	3230	07-May-20	7:55 AM	Thursday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14737174519047	3230	07-May-20	5:45 PM	Thursday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	2	Traffic Signals and Signs	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14738115018941	3230	08-May-20	11:50 AM	Friday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14741072518941	3230	11-May-20	7:25 AM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	205	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14748152719047	3230	18-May-20	3:27 PM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	60	North	Property Damage Only	0	0	3	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14748175719266	3230	18-May-20	5:57 PM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	350	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14750105520465	3230	20-May-20	10:55 AM	Wednesday	WATT AVE	PALM ST	PALM ST	15	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Not Functioning
14751104519851	3230	21-May-20	10:45 AM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	18	South	Property Damage Only	0	0	1	Auto R/W Violation	Misdemeanor	Hit Object	Non-Collision	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14752065518941	3230	22-May-20	6:55 AM	Friday	WATT AVE	A ST	A ST	25	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14755095019169	3230	25-May-20	9:50 AM	Monday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Other Visible Injury	1	0	1	Traffic Signals and Signs	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14758204517762	3230	28-May-20	8:45 PM	Thursday	WATT AVE	Q ST	Q ST	0	Not Stated	Property Damage Only	0	0	1	Unsafe Starting or Backing	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14762165515184	3230	01-Jun-20	4:55 PM	Monday	WATT AVE	LARCHMONT DR	LARCHMONT DR	25	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14762173020507	3230	01-Jun-20	5:30 PM	Monday	WATT AVE	A ST	A ST	0	Not Stated	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
1251786	3230	08-Jun-20	5:57 PM	Monday	WATT AVE	POPLAR BLVD	POPLAR BLVD	282	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14770074419431	3230	09-Jun-20	7:44 AM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	15	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14771121518766	3230	10-Jun-20	12:15 PM	Wednesday	WATT AVE	Q ST	Q ST	160	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14771182519266	3230	10-Jun-20	6:25 PM	Wednesday	WATT AVE	PALM ST	PALM ST	125	North	Property Damage Only	0	0	1												

14857111519301	2020	04-Sep-20	11:15 AM	Friday	WATT AVE	VAN OWEN ST	VAN OWEN ST	75	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14860114019169	2020	07-Sep-20	11:40 AM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	35	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14863132319301	2020	10-Sep-20	1:23 PM	Thursday	WATT AVE	ANTELOPE RD	ANTELOPE RD	0	Not Stated	Other Visible Injury	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14865204021405	2020	12-Sep-20	8:40 PM	Saturday	WATT AVE	HAVEN DR	HAVEN DR	15	North	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21802	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14866222019535	2020	13-Sep-20	10:20 PM	Sunday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	20	South	Other Visible Injury	3	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14867085519169	2020	14-Sep-20	8:55 AM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	35	North	Other Visible Injury	2	0	1	Driving Under Influence	Felony	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14869150518542	2020	16-Sep-20	3:05 PM	Wednesday	WATT AVE	HAVEN DR	HAVEN DR	230	North	Severe Injury	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14872000120252	2020	19-Sep-20	12:01 AM	Saturday	WATT AVE	A ST	A ST	245	South	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Fixed Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14872200920507	2020	19-Sep-20	8:09 PM	Saturday	WATT AVE	I ST	I ST	414	South	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
14874153017762	2020	21-Sep-20	3:30 PM	Monday	WATT AVE	ANTELOPE RD	ANTELOPE RD	75	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14880183520507	2020	27-Sep-20	6:35 PM	Sunday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	190	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14880213020507	2020	27-Sep-20	9:30 PM	Sunday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14895154017762	2020	12-Oct-20	3:40 PM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	730	North	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14896080416114	2020	13-Oct-20	8:04 AM	Tuesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14896141017738	2020	13-Oct-20	2:10 PM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	30	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14899114020085	2020	16-Oct-20	11:40 AM	Friday	WATT AVE	KAREN LN	KAREN LN	28	North	Property Damage Only	0	0	1	Unsafe Speed	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	Construction Or Repair Zone	Daylight	No Controls Present / Factor
14901211321405	2020	18-Oct-20	9:13 PM	Sunday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	400	North	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14902142019047	2020	19-Oct-20	2:20 PM	Monday	WATT AVE	HAVEN DR	HAVEN DR	60	South	Complaint of Pain	2	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14903075418374	2020	20-Oct-20	7:54 AM	Tuesday	WATT AVE	DAVIDSON DR	DAVIDSON DR	20	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14911192017762	2020	28-Oct-20	7:20 PM	Wednesday	WATT AVE	KAREN LN	KAREN LN	220	South	Complaint of Pain	2	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14911193017762	2020	28-Oct-20	7:30 PM	Wednesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	400	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14912155017762	2020	29-Oct-20	3:50 PM	Thursday	WATT AVE	VAN OWEN ST	VAN OWEN ST	50	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14913095519169	2020	30-Oct-20	9:55 AM	Friday	WATT AVE	KAREN LN	KAREN LN	200	South	Other Visible Injury	3	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
14913173021405	2020	30-Oct-20	5:30 PM	Friday	WATT AVE	POPLAR BLVD	POPLAR BLVD	35	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14916112515745	2020	02-Nov-20	11:25 AM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	200	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14916193819253	2020	02-Nov-20	7:38 PM	Monday	DON JULIO BLVD	WATT AVE	DON JULIO BLVD	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14922180021405	2020	08-Nov-20	6:00 PM	Sunday	WATT AVE	PALM ST	PALM ST	30	South	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14923083518766	2020	09-Nov-20	8:35 AM	Monday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	25	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
14926172219047	2020	12-Nov-20	5:22 PM	Thursday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	528	South	Property Damage Only	0	0	2	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14927133518115	2020	13-Nov-20	1:35 PM	Friday	WATT AVE	VAN OWEN ST	VAN OWEN ST	50	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	Functioning
14928202020452	2020	14-Nov-20	8:20 PM	Saturday	WATT AVE	KAREN LN	KAREN LN	114	North	Severe Injury	1	0	1	Pedestrian Violation	Felony	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21954	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14929221719535	2020	15-Nov-20	10:17 PM	Sunday	WATT AVE	LARCHMONT DR	LARCHMONT DR	700	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14932142517762	2020	18-Nov-20	2:25 PM	Wednesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	20	South	Property Damage Only	0	0	1	Auto R/W Violation	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21453	B	Cloudy	Dry	No Unusual Condition	Daylight	Functioning
14934053518093	2020	20-Nov-20	5:35 AM	Friday	WATT AVE	PALM ST	PALM ST	15	North	Other Visible Injury	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
14939124517752	2020	25-Nov-20	12:45 PM	Wednesday	WATT AVE	A ST	A ST	210	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14954003019151	2020	10-Dec-20	12:30 AM	Thursday	WATT AVE	KAREN LN	KAREN LN	250	South	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14954102516957	2020	10-Dec-20	10:25 AM	Thursday	WATT AVE	ANTELOPE RD	ANTELOPE RD	180	North	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14955185019266	2020	11-Dec-20	6:50 PM	Friday	WATT AVE	AIRBASE DR	AIRBASE DR	15	North	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22108		Cloudy	Wet	No Unusual Condition	Dark - Street Lights	Functioning
14957152620493	2020	13-Dec-20	3:26 PM	Sunday	WATT AVE	KAREN LN	KAREN LN	282	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Raining	Wet	No Unusual Condition	Daylight	Functioning
14960134619047	2020	16-Dec-20	1:46 PM	Wednesday	WATT AVE	KAREN LN	KAREN LN	380	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14964004820234	2020	20-Dec-20	12:48 AM	Sunday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Other Visible Injury	1	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
14966161017762	2020	22-Dec-20	4:10 PM	Tuesday	WATT AVE	A ST	A ST	165	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14967121019944	2020	23-Dec-20	12:10 PM	Wednesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	100	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14981210518542	2020	06-Jan-21	9:05 PM	Wednesday	WATT AVE	MILTON WAY	MILTON WAY	108	South	Severe Injury	1	0	1	Pedestrian Violation	No	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21954	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	Functioning
14986145020398	2020	11-Jan-21	2:50 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	85	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14987125519301	2020	12-Jan-21	12:55 PM	Tuesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	15	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
14988085718159	2020	13-Jan-21	8:57 AM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
14995172518159	2020	20-Jan-21	5:25 PM	Wednesday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Complaint of Pain	1	0	1	Unsafe Lane Change	Felony	Hit Object	Non-Collision	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dusk - Dawn	Functioning
15000130518339	2020	25-Jan-21	1:05 PM	Monday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	0	Not Stated	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15003123518159	2020	28-Jan-21	12:35 PM	Thursday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	500	South	Other Visible Injury	2	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	No Controls Present / Factor
15004152520398	2020	29-Jan-21	3:25 PM	Friday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	400	South	Other Visible Injury	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15007202019169	2020	01-Feb-21	8:20 PM	Monday	WATT AVE	A ST	A ST	0	Not Stated	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
15011154517762	2020	05-Feb-21	3:45 PM	Friday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Daylight	Functioning
15016115017748	2020	10-Feb-21	11:50 AM	Wednesday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	150	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15022423020753	2020	18-Feb-21	10:30 PM	Thursday	WATT AVE	I ST	I ST	30	North	Complaint of Pain	1	0	1	Unsafe Speed	Felony	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15027005520865	2020	21-Feb-21	12:55 AM	Sunday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	328	South	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15030120017748	2020	24-Feb-21	12:00 PM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	750	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	Construction Or Repair Zone	Daylight	Obscured
15030134517748	2020	24-Feb-21	1:45 PM	Wednesday	WATT AVE	I ST	I ST</																		

15114230019535	2023	19-May-21	11:00 PM	Wednesday	WATT AVE	POPLAR BLVD	POPLAR BLVD	300	South	Property Damage Only	0	0	0	Other Than Driver	No	Hit Object	Other Object	No Pedestrian Involved			Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
15115172017762	2023	20-May-21	5:20 PM	Thursday	WATT AVE	BOLIVAR AVE	BOLIVAR AVE	80	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15117231021405	2023	22-May-21	11:10 PM	Saturday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	40	South	Property Damage Only	0	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15118191020859	2023	23-May-21	7:10 PM	Sunday	WATT AVE	DAVIDSON DR	DAVIDSON DR	10	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15120222020910	2023	25-May-21	10:20 PM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	16	North	Other Visible Injury	1	0	1	Pedestrian Violation	No	Vehicle - Pedestrian	Pedestrian	Crossing Not In Crosswalk	21954	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15121143217568	2023	26-May-21	2:32 PM	Wednesday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	20	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15122213020577	2023	27-May-21	9:30 PM	Thursday	WATT AVE	VAN OWEN ST	VAN OWEN ST	0	Not Stated	Property Damage Only	0	0	1	Improper Passing	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21755		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15123140319047	2023	28-May-21	2:03 PM	Friday	WATT AVE	AIRBASE DR	AIRBASE DR	55	South	Property Damage Only	0	0	3	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15124164520507	2023	29-May-21	4:45 PM	Saturday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	81	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15129141015577	2023	03-Jun-21	2:10 PM	Thursday	WATT AVE	PALM ST	PALM ST	200	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15134133919047	2023	08-Jun-21	1:39 PM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	25	North	Property Damage Only	0	0	2	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15142102020017	2023	16-Jun-21	10:20 AM	Wednesday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15142185019047	2023	16-Jun-21	6:50 PM	Wednesday	WATT AVE	PLYMOUTH DR	PLYMOUTH DR	210	South	Other Visible Injury	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Slippery	No Unusual Condition	Daylight	No Controls Present / Factor
15146072318542	2023	20-Jun-21	7:23 AM	Sunday	WATT AVE	DAVIDSON DR	DAVIDSON DR	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	Felony	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15148123018542	2023	22-Jun-21	12:30 PM	Tuesday	WATT AVE	LARCHMONT DR	LARCHMONT DR	40	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15152233021405	2023	26-Jun-21	11:30 PM	Saturday	WATT AVE	DAVIDSON DR	DAVIDSON DR	0	Not Stated	Property Damage Only	0	0	2	Unsafe Starting or Backing	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15156200017762	2023	30-Jun-21	8:00 PM	Wednesday	WATT AVE	PLYMOUTH DR	PLYMOUTH DR	0	Not Stated	Other Visible Injury	2	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15157181519047	2023	01-Jul-21	6:15 PM	Thursday	WATT AVE	TURNER DR	TURNER DR	5	North	Other Visible Injury	1	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15161103017762	2023	05-Jul-21	10:30 AM	Monday	WATT AVE	MILTON WAY	MILTON WAY	20	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15163083517762	2023	07-Jul-21	8:35 AM	Wednesday	WATT AVE	DAVIDSON DR	DAVIDSON DR	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15163231019151	2023	07-Jul-21	11:10 PM	Wednesday	WATT AVE	ANTELOPE RD	ANTELOPE RD	150	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15168172320507	2023	12-Jul-21	5:23 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
1517712518542	2023	21-Jul-21	11:25 AM	Wednesday	WATT AVE	PLYMOUTH DR	PLYMOUTH DR	65	North	Property Damage Only	0	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	C	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15178144219047	2023	22-Jul-21	2:42 PM	Thursday	WATT AVE	PALM ST	PALM ST	528	Not Stated	Complaint of Pain	3	0	3	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15178205518941	2023	22-Jul-21	8:55 PM	Thursday	WATT AVE	A ST	A ST	85	South	Property Damage Only	0	0	1	Auto R/W Violation	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15185095518863	2023	29-Jul-21	9:55 AM	Thursday	WATT AVE	A ST	A ST	40	North	Property Damage Only	0	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15186171120910	2023	30-Jul-21	5:11 PM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	52	South	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22100	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15193134418766	2023	06-Aug-21	1:44 PM	Friday	WATT AVE	U ST	U ST	0	Not Stated	Complaint of Pain	1	0	1	Wrong Side of Road	No	Broadside	Bicycle	No Pedestrian Involved	21650	1	Clear	Dry	No Unusual Condition	Daylight	Functioning
15194204520910	2023	07-Aug-21	8:45 PM	Saturday	WATT AVE	ANTELOPE RD	ANTELOPE RD	33	North	Property Damage Only	0	0	1	Driving Under Influence	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15199212020507	2023	12-Aug-21	9:20 PM	Thursday	WATT AVE	A ST	A ST	60	North	Property Damage Only	0	0	1	Driving Under Influence	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
15200160519047	2023	13-Aug-21	4:05 PM	Friday	WATT AVE	I ST	I ST	460	South	Property Damage Only	0	0	2	Auto R/W Violation	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15202095018115	2023	15-Aug-21	9:50 AM	Sunday	WATT AVE	TURNER DR	TURNER DR	385	North	Property Damage Only	0	0	1	Wrong Side of Road	Misdemeanor	Other	Bicycle	No Pedestrian Involved	21650	1	Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15207063518116	2023	20-Aug-21	6:35 AM	Friday	WATT AVE	ANTELOPE RD	ANTELOPE RD	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15213234920084	2023	26-Aug-21	11:49 PM	Thursday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	120	South	Property Damage Only	0	0	Not Stated	No	Hit Object	Other Object	No Pedestrian Involved			Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor	
15213235020084	2023	26-Aug-21	11:50 PM	Thursday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	110	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
15214002720252	2023	27-Aug-21	12:27 AM	Friday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Property Damage Only	0	0	2	Hazardous Parking	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	22515	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15214223720234	2023	27-Aug-21	10:37 PM	Friday	ELKHORN BLVD	WATT AVE	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	Functioning
15221194521843	2023	03-Sep-21	7:45 PM	Friday	WATT AVE	TURNER DR	TURNER DR	0	Not Stated	Other Visible Injury	2	0	1	Auto R/W Violation	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15223122521719	2023	05-Sep-21	12:25 PM	Sunday	WATT AVE	TURNER DR	TURNER DR	20	South	Complaint of Pain	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15223171020859	2023	05-Sep-21	5:10 PM	Sunday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	318	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15227093821719	2023	09-Sep-21	9:38 AM	Thursday	WATT AVE	KAREN LN	KAREN LN	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Slippery	No Unusual Condition	Daylight	No Controls Present / Factor
15228154021864	2023	10-Sep-21	3:40 PM	Friday	WATT AVE	Q ST	Q ST	60	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15231134520017	2023	13-Sep-21	1:45 PM	Monday	WATT AVE	KAREN LN	KAREN LN	100	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15234134520017	2023	16-Sep-21	1:45 PM	Thursday	WATT AVE	HAVEN DR	HAVEN DR	200	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15235074021719	2023	17-Sep-21	7:40 AM	Friday	WATT AVE	ANTELOPE RD	ANTELOPE RD	200	North	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15237162322013	2023	19-Sep-21	4:23 PM	Sunday	WATT AVE	A ST	A ST	125	North	Other Visible Injury	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15238161020017	2023	20-Sep-21	4:10 PM	Monday	WATT AVE	POPLAR BLVD	POPLAR BLVD	150	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15242100816624	2023	24-Sep-21	10:08 AM	Friday	WATT AVE	CLARA WAY	CLARA WAY	19	North	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15243135522064	2023	25-Sep-21	1:55 PM	Saturday	WATT AVE	PALM ST	PALM ST	530	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15248144022064	2023	30-Sep-21	2:40 PM	Thursday	WATT AVE	DAVIDSON DR	DAVIDSON DR	15	North	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15248163022064	2023	30-Sep-21	4:30 PM	Thursday	WATT AVE	GRATTAN WAY	GRATTAN WAY	25	North	Complaint of Pain	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15249134022013	2023	01-Oct-21	1:40 PM	Friday	WATT AVE	A ST	A ST	100	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15250010321864	2023	02-Oct-21	1:03 AM	Saturday	WATT AVE	A ST	A ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15250124515745	2023	02-Oct-21	12:45 PM	Saturday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	125	North	Property Damage Only	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15252145221460	2023	04-Oct-21	2:52 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	50	South	Property Damage Only	0	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15252154421460	2023	04-Oct-21	3:44 PM	Monday	WATT AVE	PALM ST	PALM ST	0	Not Stated	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15258150021736	2023	10-Oct-21	3:00 PM	Sunday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Complaint of Pain	1	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15263101519572	2023	15-Oct-21	10:15 AM	Friday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Complaint of Pain	1	0	1												

15421151016957	22-Mar-22	3:10 PM	Tuesday	WATT AVE	VAN OWEN ST	VAN OWEN ST	0	Not Stated	Complaint of Pain	3	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15424152921460	25-Mar-22	3:29 PM	Friday	WATT AVE	LARCHMONT DR	LARCHMONT DR	20	North	Complaint of Pain	3	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15429160020815	30-Mar-22	4:00 PM	Wednesday	WATT AVE	I ST	I ST	515	South	Property Damage Only	0	0	1	Auto R/W Violation	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21804	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15430173021743	31-Mar-22	5:30 PM	Thursday	WATT AVE	I ST	I ST	80	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15433100020024	03-Apr-22	10:00 AM	Sunday	WATT AVE	KARL DR	KARL DR	217	South	Property Damage Only	0	0	1	Improper Passing	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21750		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15437142521405	07-Apr-22	2:25 PM	Thursday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	45	South	Property Damage Only	0	0	1	Driving Under Influence	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15438055020024	08-Apr-22	5:50 AM	Friday	WATT AVE	MILTON WAY	MILTON WAY	57	North	Property Damage Only	0	0	1	Driving Under Influence	Misdemeanor	Sideswipe	Parked Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
15438123520003	08-Apr-22	12:35 PM	Friday	WATT AVE	A ST	A ST	10	North	Complaint of Pain	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15445181421920	15-Apr-22	6:14 PM	Friday	WATT AVE	PALM ST	PALM ST	164	North	Other Visible Injury	1	0	1	Driving Under Influence	Misdemeanor	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15459120819825	29-Apr-22	12:08 PM	Friday	WATT AVE	I ST	I ST	55	North	Fatal	3	1	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15460190022484	30-Apr-22	7:00 PM	Saturday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	0	Not Stated	Other Visible Injury	1	0	1	Unsafe Speed	Felony	Hit Object	Bicycle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15460205522483	30-Apr-22	8:55 PM	Saturday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	450	North	Property Damage Only	0	0	1	Auto R/W Violation	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	21801	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15460225021864	30-Apr-22	10:50 PM	Saturday	WATT AVE	Q ST	Q ST	0	Not Stated	Property Damage Only	0	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15463194321460	03-May-22	7:43 PM	Tuesday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Daylight	Functioning
15470125117425	10-May-22	12:51 PM	Tuesday	WATT AVE	VAN OWEN ST	VAN OWEN ST	170	South	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15480151022484	20-May-22	3:10 PM	Friday	WATT AVE	BAINBRIDGE DR	BAINBRIDGE DR	500	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15483172522484	23-May-22	5:25 PM	Monday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	300	North	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15487125020024	27-May-22	12:50 PM	Friday	WATT AVE	MCCELLELAN DR	MCCELLELAN DR	55	South	Other Visible Injury	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15488013020864	28-May-22	1:30 AM	Saturday	WATT AVE	DON JULIO BLVD	DON JULIO BLVD	300	North	Property Damage Only	0	0	1	Driving Under Influence	No	Hit Object	Fixed Object	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15491141022484	31-May-22	2:10 PM	Tuesday	WATT AVE	PALM ST	PALM ST	10	South	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	Functioning
15492065518115	01-Jun-22	6:55 AM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	190	South	Complaint of Pain	1	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15492164022127	01-Jun-22	4:40 PM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	2	Auto R/W Violation	No	Head-On	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Daylight	Functioning
15494123620024	03-Jun-22	12:36 PM	Friday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	212	South	Other Visible Injury	1	0	1	Pedestrian Violation	Felony	Vehicle - Pedestrian	Pedestrian	In Road	21954	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15497092520024	06-Jun-22	9:25 AM	Monday	WATT AVE	U ST	U ST	154	North	Property Damage Only	0	0	1	Driving Under Influence	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	23152		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15497142522483	06-Jun-22	2:25 PM	Monday	WATT AVE	BAINBRIDGE DR	BAINBRIDGE DR	60	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15498171421460	07-Jun-22	5:14 PM	Tuesday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	350	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15503083020084	12-Jun-22	8:30 AM	Sunday	WATT AVE	KARL DR	KARL DR	0	Not Stated	Property Damage Only	0	0	Not Stated	No	Hit Object	Other Object	No Pedestrian Involved				Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15504180022483	13-Jun-22	6:00 PM	Monday	WATT AVE	LANKERSHIM WAY	LANKERSHIM WAY	0	Not Stated	Other Visible Injury	1	0	1	Improper Turning	No	Hit Object	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15504182522484	13-Jun-22	6:25 PM	Monday	WATT AVE	U ST	U ST	40	North	Severe Injury	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15505170021460	14-Jun-22	5:00 PM	Tuesday	WATT AVE	KAREN LN	KAREN LN	45	North	Complaint of Pain	2	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	Not In Road	21658	a	Clear	Dry	No Unusual Condition	Daylight	Functioning
15507054521710	16-Jun-22	5:45 AM	Thursday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	20	North	Property Damage Only	0	0	1	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15508090015577	17-Jun-22	9:00 AM	Friday	WATT AVE	MCCELLELAN DR	MCCELLELAN DR	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15509130020428	18-Jun-22	1:00 PM	Saturday	WATT AVE	VAN OWEN ST	VAN OWEN ST	428	North	Other Visible Injury	2	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15509204522483	18-Jun-22	8:45 PM	Saturday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Property Damage Only	0	0	Not Stated	No	Broadside	Other Motor Vehicle	No Pedestrian Involved				Clear	Dry	No Unusual Condition	Dusk - Dawn	Functioning
15514150321460	23-Jun-22	3:03 PM	Thursday	WATT AVE	AIRBASE DR	AIRBASE DR	100	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15515161722483	24-Jun-22	4:17 PM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	125	South	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15522130019825	01-Jul-22	1:00 PM	Friday	WATT AVE	A ST	A ST	55	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15525130020252	04-Jul-22	1:00 PM	Monday	WATT AVE	BOLIVAR AVE	BOLIVAR AVE	0	Not Stated	Complaint of Pain	1	0	1	Wrong Side of Road	Felony	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21460	A	Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15530130022381	09-Jul-22	1:00 PM	Saturday	WATT AVE	HAVEN DR	HAVEN DR	26	South	Complaint of Pain	1	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15536200721460	15-Jul-22	8:07 PM	Friday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Complaint of Pain	1	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	C	Clear	Dry	No Unusual Condition	Daylight	Functioning
15538190822272	17-Jul-22	7:08 PM	Sunday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Severe Injury	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15541133020428	20-Jul-22	1:30 PM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	20	South	Property Damage Only	0	0	Not Stated	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved				Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15541135022087	20-Jul-22	1:50 PM	Wednesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	26	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15552000522483	31-Jul-22	12:05 AM	Sunday	WATT AVE	BOLIVAR AVE	BOLIVAR AVE	0	Not Stated	Property Damage Only	0	0	Not Stated	No	Broadside	Other Motor Vehicle	No Pedestrian Involved				Clear	Dry	No Unusual Condition	Dark - Street Lights Not Functioning	Functioning
15553092019535	01-Aug-22	9:20 AM	Monday	WATT AVE	FREEDOM PARK DR	FREEDOM PARK DR	15	South	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Dry	No Unusual Condition	Daylight	Functioning
15554092021953	02-Aug-22	9:20 AM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	280	North	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15557142022272	05-Aug-22	2:20 PM	Friday	WATT AVE	KARL DR	KARL DR	475	South	Complaint of Pain	1	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15559224522092	07-Aug-22	10:45 PM	Sunday	WATT AVE	TURNER DR	TURNER DR	90	South	Property Damage Only	0	0	1	Improper Turning	No	Rear-End	Parked Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
15560123020024	08-Aug-22	12:30 PM	Monday	WATT AVE	PALM ST	PALM ST	240	North	Complaint of Pain	2	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15564092019572	12-Aug-22	9:20 AM	Friday	WATT AVE	LARCHMONT DR	LARCHMONT DR	0	Not Stated	Complaint of Pain	2	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15565172522288	13-Aug-22	5:25 PM	Saturday	WATT AVE	PALM ST	PALM ST	100	North	Property Damage Only	0	0	1	Driving Under Influence	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15567141022272	15-Aug-22	2:10 PM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	38	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15567204022272	15-Aug-22	8:40 PM	Monday	WATT AVE	POPLAR BLVD	POPLAR BLVD	175	South	Severe Injury	1	0	1	Auto R/W Violation	No	Vehicle - Pedestrian	Pedestrian	In Road	21804	A	Clear	Dry	No Unusual Condition	Dark - No Street Lights	No Controls Present / Factor
15569084021953	17-Aug-22	8:40 AM	Wednesday	WATT AVE	BOLIVAR AVE	BOLIVAR AVE	350	South	Property Damage Only	0	0	2	Unsafe Starting or Backing	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22106		Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15573143522288	21-Aug-22	2:35 PM	Sunday	WATT AVE	ANTELOPE RD	ANTELOPE RD	150	South	Property Damage Only	0	0	1	Unsafe Lane Change	Misdemeanor	Broadside	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15576122519572	24-Aug-22	12:25 PM	Wednesday	WATT AVE	A ST	A ST	70	South	Property Damage Only	0	0	1	Improper Turning	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22100	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15580175822013	28-Aug-22	5:58 PM	Sunday	WATT AVE	AIRBASE DR	AIRBASE DR	95	North	Other Visible Injury	1	0	1	Unsafe Lane Change	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	21658	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15582015021972	30-Aug-22	1:50 AM	Tuesday	WATT AVE	TURNER DR	TURNER DR	130	South	Property Damage Only	0	0	1	Unsafe Speed	Misdemeanor	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15584151521710	01-Sep-22	3:15 PM	Thursday	ELKHORN BLVD	WATT AVE	ELKHORN BLVD	0	Not Stated	Other Visible Injury	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Clear	Dry	No Unusual Condition	Daylight	Functioning
15585082119577	02-Sep-22	8:21 AM	Friday	WATT AVE	GRATTAN WAY	GRATTAN WAY	60	South	Complaint of Pain	3	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15585141921460	02-Sep-22	2:19 PM	Friday	WATT AVE	PAL																			

15660072517425	2022-11-16	16-Nov-22	7:25 AM	Wednesday	LARCHMONT DR	WATT AVE	LARCHMONT DR	0	Not Stated	Complaint of Pain	0	0	1	Auto R/W Violation	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21802	A	Clear	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15661135522207	2022-11-17	17-Nov-22	1:55 PM	Thursday	AIRBASE DR	WATT AVE	AIRBASE DR	0	Not Stated	Property Damage Only	0	0	1	Improper Turning	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Daylight	Functioning
15665171322082	2022-11-21	21-Nov-22	5:13 PM	Monday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	68	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15666175520024	2022-11-22	22-Nov-22	5:55 PM	Tuesday	WATT AVE	A ST	A ST	150	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15668205820821	2022-11-24	24-Nov-22	8:58 PM	Thursday	WATT AVE	CLARA WAY	CLARA WAY	0	Not Stated	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Hit Object	Other Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15673224021710	2022-11-29	29-Nov-22	10:40 PM	Tuesday	WATT AVE	GRATTAN WAY	GRATTAN WAY	0	Not Stated	Complaint of Pain	1	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15678135021972	2022-12-04	04-Dec-22	1:50 PM	Sunday	WATT AVE	LARCHMONT DR	LARCHMONT DR	20	North	Property Damage Only	0	0	1	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Cloudy	Wet	No Unusual Condition	Daylight	Functioning
15679162721460	2022-12-05	05-Dec-22	4:27 PM	Monday	WATT AVE	KARL DR	KARL DR	0	Not Stated	Complaint of Pain	2	0	2	Unsafe Speed	No	Rear-End	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Daylight	Functioning
15683201921141	2022-12-09	09-Dec-22	8:19 PM	Friday	WATT AVE	AIRBASE DR	AIRBASE DR	0	Not Stated	Complaint of Pain	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Cloudy	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15685214021864	2022-12-11	11-Dec-22	9:40 PM	Sunday	WATT AVE	PEACEKEEPER WAY	PEACEKEEPER WAY	475	South	Fatal	0	1	1	Pedestrian Violation	No	Vehicle - Pedestrian	Pedestrian	In Road	21954	A	Cloudy	Wet	Holes - Deep Ruts	Dark - No Street Lights	No Controls Present / Factor
15687165521046	2022-12-13	13-Dec-22	4:55 PM	Tuesday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	403	North	Property Damage Only	0	0	1	Improper Turning	No	Hit Object	Fixed Object	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
15690192621046	2022-12-16	16-Dec-22	7:26 PM	Friday	WATT AVE	PLYMOUTH DR	PLYMOUTH DR	0	Not Stated	Complaint of Pain	4	0	1	Unsafe Speed	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	22350		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15693081821141	2022-12-19	19-Dec-22	8:18 AM	Monday	WATT AVE	AIRBASE DR	AIRBASE DR	155	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Slippery	No Unusual Condition	Dusk - Dawn	No Controls Present / Factor
15694044821864	2022-12-20	20-Dec-22	4:48 AM	Tuesday	WATT AVE	A ST	A ST	0	Not Stated	Other Visible Injury	1	0	1	Driving Under Influence	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	23152	A	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15694174520821	2022-12-20	20-Dec-22	5:45 PM	Tuesday	WATT AVE	VAN OWEN ST	VAN OWEN ST	0	Not Stated	Complaint of Pain	1	0	1	Wrong Side of Road	No	Broadside	Bicycle	No Pedestrian Involved	21650	.1	Clear	Dry	No Unusual Condition	Dark - Street Lights	Functioning
15695154820821	2022-12-21	21-Dec-22	3:48 PM	Wednesday	WATT AVE	KAREN LN	KAREN LN	15	North	Property Damage Only	0	0	1	Unsafe Lane Change	No	Sideswipe	Other Motor Vehicle	No Pedestrian Involved	21658	A	Cloudy	Dry	No Unusual Condition	Daylight	No Controls Present / Factor
15699221521710	2022-12-25	25-Dec-22	10:15 PM	Sunday	WATT AVE	KARL DR	KARL DR	120	North	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Rear-End	Parked Motor Vehicle	No Pedestrian Involved	22107		Clear	Dry	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15704010020252	2022-12-30	30-Dec-22	1:00 AM	Friday	WATT AVE	ELKHORN BLVD	ELKHORN BLVD	0	Not Stated	Property Damage Only	0	0	1	Improper Turning	Misdemeanor	Hit Object	Fixed Object	No Pedestrian Involved	22107		Raining	Wet	No Unusual Condition	Dark - Street Lights	No Controls Present / Factor
15705085819572	2022-12-31	31-Dec-22	8:58 AM	Saturday	WATT AVE	ANTELOPE RD	ANTELOPE RD	0	Not Stated	Other Visible Injury	1	0	1	Traffic Signals and Signs	No	Broadside	Other Motor Vehicle	No Pedestrian Involved	21453	A	Cloudy	Wet	No Unusual Condition	Daylight	Functioning

Appendix I: Synchro Analysis Results

DRAFT

Existing Conditions AM Synchro Reports

HCM Signalized Intersection Capacity Analysis

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	128	5	0	5	400	968	1	0	1640	184
Future Volume (vph)	42	0	128	5	0	5	400	968	1	0	1640	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	6.3	6.3	6.3		5.5		5.5	4.8			5.3	5.3
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.95			0.91	1.00
Frt	1.00	1.00	0.85		0.93		1.00	0.99			1.00	0.85
Flt Protected	0.95	0.95	1.00		0.97		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1633	1633	2707		1811		3335	3438			4940	1538
Flt Permitted	0.95	0.95	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1633	1633	2707		1856		3335	3438			4940	1538
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	0	128	5	0	5	400	968	1	0	1640	184
RTOR Reduction (vph)	0	0	123	0	10	0	0	0	0	0	0	71
Lane Group Flow (vph)	21	21	5	0	0	0	400	969	0	0	1640	113
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	3			4		1	6		5	2	
Permitted Phases			3	4								2
Actuated Green, G (s)	5.1	5.1	5.1		0.7		18.0	97.6			73.6	73.6
Effective Green, g (s)	5.1	5.1	5.1		0.7		18.0	97.6			73.6	73.6
Actuated g/C Ratio	0.04	0.04	0.04		0.01		0.15	0.81			0.61	0.61
Clearance Time (s)	6.3	6.3	6.3		5.5		5.5	4.8			5.3	5.3
Vehicle Extension (s)	1.0	1.0	1.0		1.0		1.0	1.0			1.0	1.0
Lane Grp Cap (vph)	69	69	115		10		500	2796			3029	943
v/s Ratio Prot	c0.01	0.01					c0.12	0.28			c0.33	
v/s Ratio Perm			0.00		c0.00							0.07
v/c Ratio	0.30	0.30	0.04		0.00		0.80	0.34			0.54	0.11
Uniform Delay, d1	55.7	55.7	55.1		59.3		49.2	2.9			13.4	9.6
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			0.43	0.17
Incremental Delay, d2	0.9	0.9	0.0		0.0		8.4	0.3			0.6	0.2
Delay (s)	56.6	56.6	55.1		59.3		57.6	3.2			6.5	1.9
Level of Service	E	E	E		E		E	A			A	A
Approach Delay (s/veh)		55.5			59.3			19.1			6.0	
Approach LOS		E			E			B			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			14.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			22.6		
Intersection Capacity Utilization			61.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

12/06/2024

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	140	621	0	1062	35	597	1469
Future Volume (vph)	140	621	0	1062	35	597	1469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.89	0.85		0.99		1.00	1.00
Flt Protected	0.98	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3129	1413		4964		3367	4988
Flt Permitted	0.98	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3129	1413		4964		3367	4988
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	621	0	1062	35	597	1469
RTOR Reduction (vph)	280	280	0	2	0	0	0
Lane Group Flow (vph)	171	30	0	1095	0	597	1469
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm	Prot	NA		Prot	NA
Protected Phases	3		1	6		5	2
Permitted Phases		3					
Actuated Green, G (s)	11.8	11.8		67.2		24.9	97.1
Effective Green, g (s)	11.8	11.8		67.2		24.9	97.1
Actuated g/C Ratio	0.10	0.10		0.56		0.21	0.81
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	307	138		2779		698	4036
v/s Ratio Prot	c0.05			c0.22		c0.18	0.29
v/s Ratio Perm		0.02					
v/c Ratio	0.55	0.22		0.39		0.85	0.36
Uniform Delay, d1	51.5	49.8		14.9		45.8	3.0
Progression Factor	1.00	1.00		0.93		1.27	0.14
Incremental Delay, d2	1.2	0.2		0.4		8.8	0.2
Delay (s)	52.8	50.1		14.2		67.0	0.6
Level of Service	D	D		B		E	A
Approach Delay (s/veh)	51.7			14.2			19.8
Approach LOS	D			B			B
Intersection Summary							
HCM 2000 Control Delay (s/veh)			24.5		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.52				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			62.3%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

12/06/2024

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	154	259	1419	1814	53
Future Volume (veh/h)	25	154	259	1419	1814	53
Initial Q (Qb), veh	0	0	0	0	0	0
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	154	259	1419	1814	53
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	127	200	316	4227	3536	1098
Arrive On Green	0.07	0.07	0.09	0.83	0.23	0.23
Sat Flow, veh/h	1767	2768	3428	5233	5233	1572
Grp Volume(v), veh/h	25	154	259	1419	1814	53
Grp Sat Flow(s),veh/h/ln	1767	1384	1714	1689	1689	1572
Q Serve(g_s), s	1.6	6.6	8.9	7.7	37.5	3.1
Cycle Q Clear(g_c), s	1.6	6.6	8.9	7.7	37.5	3.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	127	200	316	4227	3536	1098
V/C Ratio(X)	0.20	0.77	0.82	0.34	0.51	0.05
Avail Cap(c_a), veh/h	325	510	980	4227	3536	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.88	0.88	0.61	0.61
Uniform Delay (d), s/veh	52.4	54.7	53.5	2.3	28.4	15.2
Incr Delay (d2), s/veh	0.3	2.4	1.8	0.2	0.3	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	3.9	1.7	17.0	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	52.7	57.1	55.3	2.5	28.7	15.2
LnGrp LOS	D	E	E	A	C	B
Approach Vol, veh/h	179			1678	1867	
Approach Delay, s/veh	56.5			10.6	28.3	
Approach LOS	E			B	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	16.4	89.5			105.8	14.2
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	34.3	* 47			* 48	22.1
Max Q Clear Time (g_c+I1), s	10.9	39.5			9.7	8.6
Green Ext Time (p_c), s	0.2	3.8			4.5	0.1
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			21.7			
HCM 6th LOS			C			
Notes						

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

4: Watt Avenue & A Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	32	307	253	71	23	306	1025	62	35	1326	123
Future Volume (vph)	74	32	307	253	71	23	306	1025	62	35	1326	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		4.6	4.8		4.7	4.8	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	0.98	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1665	1718	1568	1665	1679		1752	4993		1752	4972	
Flt Permitted	0.95	0.98	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1665	1718	1568	1665	1679		1752	4993		1752	4972	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	32	307	253	71	23	306	1025	62	35	1326	123
RTOR Reduction (vph)	0	0	286	0	5	0	0	3	0	0	7	0
Lane Group Flow (vph)	53	53	21	172	170	0	306	1084	0	35	1442	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)	8.1	8.1	8.1	15.9	15.9		26.9	63.8		11.7	48.7	
Effective Green, g (s)	8.1	8.1	8.1	15.9	15.9		26.9	63.8		11.7	48.7	
Actuated g/C Ratio	0.07	0.07	0.07	0.13	0.13		0.22	0.53		0.10	0.41	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		4.6	4.8		4.7	4.8	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	112	115	105	220	222		392	2654		170	2017	
v/s Ratio Prot	c0.03	0.03		c0.10	0.10		c0.17	0.22		0.02	c0.29	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.46	0.19	0.78	0.76		0.78	0.40		0.20	0.71	
Uniform Delay, d1	53.8	53.8	52.8	50.3	50.2		43.7	16.8		49.8	29.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.88	0.78		0.91	0.86	
Incremental Delay, d2	1.1	1.0	0.3	15.2	13.1		8.6	0.4		0.1	1.9	
Delay (s)	55.0	54.9	53.2	65.6	63.3		47.3	13.7		45.8	27.8	
Level of Service	E	D	D	E	E		D	B		D	C	
Approach Delay (s/veh)		53.6			64.4			21.1			28.3	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			31.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			20.5		
Intersection Capacity Utilization			74.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Watt Avenue & Driveway/Karl Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	6	150	1	94	8	976	47	34	1572	3
Future Volume (vph)	0	0	6	150	1	94	8	976	47	34	1572	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.0	4.8		4.3	4.8	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frt		0.85			0.94		1.00	0.99		1.00	0.99	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1553			1681		1736	4953		1736	4986	
Flt Permitted		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1553			1681		1736	4953		1736	4986	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	6	150	1	94	8	976	47	34	1572	3
RTOR Reduction (vph)	0	6	0	0	21	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	224	0	8	1020	0	34	1575	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)		2.0			19.5		1.6	64.4		14.0	76.1	
Effective Green, g (s)		2.0			19.5		1.6	64.4		14.0	76.1	
Actuated g/C Ratio		0.02			0.16		0.01	0.54		0.12	0.63	
Clearance Time (s)		5.5			5.5		5.0	4.8		4.3	4.8	
Vehicle Extension (s)		1.0			1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)		25			273		23	2658		202	3161	
v/s Ratio Prot		c0.00			c0.13		0.00	c0.21		0.02	c0.32	
v/s Ratio Perm												
v/c Ratio		0.00			0.82		0.34	0.38		0.16	0.49	
Uniform Delay, d1		58.0			48.5		58.6	16.2		47.7	11.7	
Progression Factor		1.00			1.00		1.18	0.36		0.73	0.69	
Incremental Delay, d2		0.0			16.8		3.1	0.3		0.1	0.5	
Delay (s)		58.0			65.4		72.5	6.3		35.4	8.6	
Level of Service		E			E		E	A		D	A	
Approach Delay (s/veh)		58.0			65.4			6.8			9.2	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			13.3									
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			120.0							20.8		
Intersection Capacity Utilization			59.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	29	66	84	33	51	104	897	71	64	1363	176
Future Volume (veh/h)	130	29	66	84	33	51	104	897	71	64	1363	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	130	29	66	84	33	51	104	897	71	64	1363	176
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	156	49	112	106	44	68	126	991	78	807	2686	347
Arrive On Green	0.09	0.10	0.10	0.06	0.07	0.07	0.14	0.42	0.42	0.92	1.00	1.00
Sat Flow, veh/h	1753	499	1137	1753	652	1007	1753	4749	375	1753	4505	582
Grp Volume(v), veh/h	130	0	95	84	0	84	104	632	336	64	1014	525
Grp Sat Flow(s),veh/h/ln	1753	0	1636	1753	0	1659	1753	1675	1773	1753	1675	1736
Q Serve(g_s), s	8.8	0.0	6.7	5.7	0.0	6.0	6.9	21.2	21.3	0.4	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	6.7	5.7	0.0	6.0	6.9	21.2	21.3	0.4	0.0	0.0
Prop In Lane	1.00		0.69	1.00		0.61	1.00		0.21	1.00		0.34
Lane Grp Cap(c), veh/h	156	0	162	106	0	113	126	699	370	807	1998	1035
V/C Ratio(X)	0.84	0.00	0.59	0.80	0.00	0.75	0.82	0.90	0.91	0.08	0.51	0.51
Avail Cap(c_a), veh/h	270	0	468	275	0	481	225	868	460	807	1998	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95	0.86	0.86	0.86
Uniform Delay (d), s/veh	53.8	0.0	51.7	55.7	0.0	54.9	50.6	33.8	33.9	2.6	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	1.3	5.0	0.0	3.7	4.7	16.6	27.4	0.0	0.8	1.5
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	4.0	0.0	2.8	2.7	0.0	2.6	3.0	8.3	10.0	0.1	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.3	0.0	53.0	60.7	0.0	58.6	55.3	50.5	61.3	2.6	0.8	1.5
LnGrp LOS	E		D	E		E	E	D	E	A	A	A
Approach Vol, veh/h	225		168			1072			1603			
Approach Delay, s/veh	56.0		59.6			54.3			1.1			
Approach LOS	E		E			D			A			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.7	76.8	16.1	13.4	60.5	29.9	12.4	17.2				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	15.4	* 31	18.5	* 35	15.2	31.1	18.8	34.3				
Max Q Clear Time (g_c+I1), s	8.9	2.0	10.8	8.0	2.4	23.3	7.7	8.7				
Green Ext Time (p_c), s	0.0	4.4	0.0	0.2	0.0	1.7	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	26.9											
HCM 6th LOS	C											
Notes												

HCM Signalized Intersection Capacity Analysis

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	4	457	5	54	10	685	281	122	1400	3
Future Volume (vph)	1	2	4	457	5	54	10	685	281	122	1400	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		6.8	6.8		4.8	5.0	5.0	4.6	5.3	
Lane Util. Factor		1.00		0.95	0.95		1.00	0.95	1.00	1.00	0.91	
Frt		0.92		1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1674		1649	1618		1736	3471	1553	1736	4986	
Flt Permitted		1.00		0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1686		1649	1618		1736	3471	1553	1736	4986	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	2	4	457	5	54	10	685	281	122	1400	3
RTOR Reduction (vph)	0	4	0	0	8	0	0	0	135	0	0	0
Lane Group Flow (vph)	0	3	0	260	248	0	10	685	146	122	1403	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	3		1	6		5	2	
Permitted Phases	4								6			
Actuated Green, G (s)		1.4		22.4	22.4		2.6	62.5	62.5	11.8	71.2	
Effective Green, g (s)		1.4		22.4	22.4		2.6	62.5	62.5	11.8	71.2	
Actuated g/C Ratio		0.01		0.19	0.19		0.02	0.52	0.52	0.10	0.59	
Clearance Time (s)		5.5		6.8	6.8		4.8	5.0	5.0	4.6	5.3	
Vehicle Extension (s)		1.0		1.0	1.0		1.0	4.9	4.9	1.0	4.9	
Lane Grp Cap (vph)		19		307	302		37	1807	808	170	2958	
v/s Ratio Prot				c0.16	0.15		0.01	c0.20		c0.07	c0.28	
v/s Ratio Perm		c0.00							0.09			
v/c Ratio		0.16		0.84	0.82		0.27	0.37	0.18	0.71	0.47	
Uniform Delay, d1		58.7		47.1	46.8		57.7	17.1	15.2	52.4	13.8	
Progression Factor		1.00		1.00	1.00		1.11	0.96	1.97	1.00	1.00	
Incremental Delay, d2		1.4		18.2	15.4		1.3	0.5	0.4	11.3	0.5	
Delay (s)		60.1		65.3	62.3		65.5	17.0	30.5	63.8	14.3	
Level of Service		E		E	E		E	B	C	E	B	
Approach Delay (s/veh)		60.1			63.8			21.4			18.3	
Approach LOS		E			E			C			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			27.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			22.4			
Intersection Capacity Utilization			65.6%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	14	22	38	16	27	20	646	13	20	1444	63
Future Volume (vph)	19	14	22	38	16	27	20	646	13	20	1444	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.3		4.3	5.0		4.2	5.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.97	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1776	1553		1705		1736	3461		1736	3449	
Flt Permitted		0.69	1.00		0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1278	1553		1455		1736	3461		1736	3449	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	14	22	38	16	27	20	646	13	20	1444	63
RTOR Reduction (vph)	0	0	21	0	12	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	33	1	0	69	0	20	659	0	20	1506	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3		3	4								
Actuated Green, G (s)		5.4	5.4		8.2		2.2	68.6		2.2	68.1	
Effective Green, g (s)		5.4	5.4		8.2		2.2	68.6		2.2	68.1	
Actuated g/C Ratio		0.05	0.05		0.08		0.02	0.66		0.02	0.65	
Clearance Time (s)		5.5	5.5		5.3		4.3	5.0		4.2	5.4	
Vehicle Extension (s)		1.0	1.0		1.0		1.0	2.1		1.0	1.7	
Lane Grp Cap (vph)		66	80		114		36	2274		36	2249	
v/s Ratio Prot							c0.01	0.19		0.01	c0.44	
v/s Ratio Perm		c0.03	0.00		c0.05							
v/c Ratio		0.50	0.01		0.60		0.55	0.28		0.55	0.66	
Uniform Delay, d1		48.1	46.9		46.5		50.6	7.5		50.6	11.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		6.0		10.1	0.0		10.1	0.5	
Delay (s)		50.3	47.0		52.6		60.7	7.6		60.7	11.7	
Level of Service		D	D		D		E	A		E	B	
Approach Delay (s/veh)		49.0			52.6			9.1			12.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			13.7				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			104.4				Sum of lost time (s)			20.5		
Intersection Capacity Utilization			63.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Watt Avenue & Van Owen Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷		↶↷		↶	↶↷		↶	↶↷	
Traffic Volume (vph)	0	0	0	41	0	16	6	726	2	13	1527	0
Future Volume (vph)	0	0	0	41	0	16	6	726	2	13	1527	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.8		4.2	5.0		4.3	5.0	
Lane Util. Factor					1.00		1.00	0.95		1.00	0.95	
Frt					0.96		1.00	0.99		1.00	1.00	
Flt Protected					0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)					1697		1736	3470		1736	3471	
Flt Permitted					0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)					1727		1736	3470		1736	3471	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	41	0	16	6	726	2	13	1527	0
RTOR Reduction (vph)	0	0	0	0	49	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	8	0	6	728	0	13	1527	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type			Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			3		1	6		5	2	
Permitted Phases	3		3	3								
Actuated Green, G (s)					3.5		0.7	59.6		0.9	59.9	
Effective Green, g (s)					3.5		0.7	59.6		0.9	59.9	
Actuated g/C Ratio					0.04		0.01	0.76		0.01	0.77	
Clearance Time (s)					4.8		4.2	5.0		4.3	5.0	
Vehicle Extension (s)					1.0		1.0	4.9		1.0	4.9	
Lane Grp Cap (vph)					77		15	2648		20	2662	
v/s Ratio Prot							0.00	0.21		c0.01	c0.44	
v/s Ratio Perm					c0.00							
v/c Ratio					0.10		0.40	0.27		0.65	0.57	
Uniform Delay, d1					35.8		38.4	2.7		38.4	3.7	
Progression Factor					1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2					0.2		6.2	0.1		45.4	0.4	
Delay (s)					36.0		44.7	2.8		83.8	4.2	
Level of Service					D		D	A		F	A	
Approach Delay (s/veh)		0.0			36.0			3.2			4.9	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			5.2									
HCM 2000 Level of Service										A		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			78.1							14.1		
Intersection Capacity Utilization			53.7%									
ICU Level of Service										A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
10: Watt Avenue & Commercial Drveway/Milton Way

12/06/2024

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱	↱↑↑↑			↱↑↑↑		
Traffic Vol, veh/h	0	0	20	0	0	12	19	760	6	31	1486	26
Future Vol, veh/h	0	0	20	0	0	12	19	760	6	31	1486	26
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	20	0	0	12	19	760	6	31	1486	26

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	756	-	-	383	1512	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	5.36	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	3.13	-
Pot Cap-1 Maneuver	0	0	299	0	0	523	218	-
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	299	-	-	523	218	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.9	12	0.6	0.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	218	-	-	299	523	504	-
HCM Lane V/C Ratio	0.087	-	-	0.067	0.023	0.062	-
HCM Control Delay (s/veh)	23.1	-	-	17.9	12	12.6	-
HCM Lane LOS	C	-	-	C	B	B	-
HCM 95th %tile Q (veh)	0.3	-	-	0.2	0.1	0.2	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	409	180	214	647	39	174	327	60	69	1318	237
Future Volume (veh/h)	149	409	180	214	647	39	174	327	60	69	1318	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	149	409	180	214	647	39	174	327	60	69	1318	237
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	219	855	381	287	918	409	246	1629	506	342	1509	271
Arrive On Green	0.06	0.24	0.24	0.08	0.26	0.26	0.07	0.32	0.32	0.10	0.35	0.35
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4317	776
Grp Volume(v), veh/h	149	409	180	214	647	39	174	327	60	69	1031	524
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1716
Q Serve(g_s), s	3.9	9.0	8.9	5.5	15.1	1.2	4.5	4.3	2.4	1.7	26.0	26.0
Cycle Q Clear(g_c), s	3.9	9.0	8.9	5.5	15.1	1.2	4.5	4.3	2.4	1.7	26.0	26.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	219	855	381	287	918	409	246	1629	506	342	1181	600
V/C Ratio(X)	0.68	0.48	0.47	0.74	0.70	0.10	0.71	0.20	0.12	0.20	0.87	0.87
Avail Cap(c_a), veh/h	736	1332	594	736	1332	594	736	3593	1115	736	2373	1206
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	41.6	29.5	29.4	40.6	30.4	12.4	41.2	22.3	21.7	37.5	27.6	27.6
Incr Delay (d2), s/veh	1.4	0.8	1.8	1.4	2.0	0.2	1.4	0.1	0.2	0.1	0.8	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	1.6	3.7	3.4	2.3	6.2	0.6	1.9	1.7	0.9	0.7	9.7	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.0	30.3	31.3	42.1	32.5	12.6	42.6	22.5	21.9	37.6	28.5	29.3
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h	738			900			561			1624		
Approach Delay, s/veh	33.1			33.9			28.7			29.1		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	37.9	11.5	29.3	14.6	35.4	13.1	27.7				
Change Period (Y+Rc), s	5.5	* 6.2	* 5.7	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	19.5	* 64	* 20	* 34	19.5	* 64	19.5	34.3				
Max Q Clear Time (g_c+l1), s	6.5	28.0	5.9	17.1	3.7	6.3	7.5	11.0				
Green Ext Time (p_c), s	0.1	3.8	0.1	6.5	0.0	5.0	0.1	5.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				30.9								
HCM 6th LOS				C								
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
12: Watt Avenue & Commercial Driveway/Turner Drive

12/06/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱	↱	↱↲		↱	↱↲	
Traffic Vol, veh/h	0	0	0	0	0	21	25	672	15	23	1301	0
Future Vol, veh/h	0	0	0	0	0	21	25	672	15	23	1301	0
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	-	-	0	-	-	0	210	-	-	230	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	0	0	0	21	25	672	15	23	1301	0

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	651	-	-	344	1301	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.98	-	-	6.98	4.18	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.34	-	-	3.34	2.24	-
Pot Cap-1 Maneuver	0	0	406	0	0	646	518	-
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	406	-	-	646	518	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	10.8	0.4	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	518	-	-	-	646	890	-
HCM Lane V/C Ratio	0.048	-	-	-	0.033	0.026	-
HCM Control Delay (s/veh)	12.3	-	-	0	10.8	9.2	-
HCM Lane LOS	B	-	-	A	B	A	-
HCM 95th %tile Q (veh)	0.2	-	-	-	0.1	0.1	-

HCM Signalized Intersection Capacity Analysis

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	13	44	79	10	15	43	600	49	15	1227	23
Future Volume (vph)	29	13	44	79	10	15	43	600	49	15	1227	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.0	5.0	4.5	5.6		4.5	5.0	5.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.88			1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1631			1766	1568	1752	3465		1752	3505	1568
Flt Permitted	0.95	1.00			0.70	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	1631			1308	1568	1752	3465		1752	3505	1568
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	29	13	44	79	10	15	43	600	49	15	1227	23
RTOR Reduction (vph)	0	42	0	0	0	13	0	2	0	0	0	9
Lane Group Flow (vph)	29	15	0	0	89	2	43	647	0	15	1227	14
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Split	NA		Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	3	3			4		1	6		5	2	
Permitted Phases				4		4						2
Actuated Green, G (s)	4.6	4.6			10.8	10.8	5.4	68.7		2.0	65.9	65.9
Effective Green, g (s)	4.6	4.6			10.8	10.8	5.4	68.7		2.0	65.9	65.9
Actuated g/C Ratio	0.04	0.04			0.10	0.10	0.05	0.64		0.02	0.62	0.62
Clearance Time (s)	5.5	5.5			5.0	5.0	4.5	5.6		4.5	5.0	5.0
Vehicle Extension (s)	1.0	1.0			1.0	1.0	1.0	4.3		1.0	4.3	4.3
Lane Grp Cap (vph)	75	70			132	158	88	2230		32	2164	968
v/s Ratio Prot	c0.02	0.01					c0.02	c0.19		0.01	c0.35	
v/s Ratio Perm					c0.07	0.00						0.01
v/c Ratio	0.38	0.21			0.67	0.00	0.48	0.29		0.46	0.56	0.01
Uniform Delay, d1	49.6	49.3			46.2	43.1	49.3	8.3		51.8	12.0	7.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	0.5			10.1	0.0	1.5	0.3		3.9	0.4	0.0
Delay (s)	50.8	49.8			56.4	43.1	50.8	8.6		55.7	12.4	7.8
Level of Service	D	D			E	D	D	A		E	B	A
Approach Delay (s/veh)		50.2			54.5			11.2			12.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			15.9									
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			106.7							20.6		
Intersection Capacity Utilization			56.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	5	27	24	20	55	60	626	22	32	1200	10
Future Volume (veh/h)	3	5	27	24	20	55	60	626	22	32	1200	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	3	5	27	24	20	55	60	626	22	32	1200	10
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	14	24	131	29	44	122	77	2381	84	40	2361	20
Arrive On Green	0.01	0.10	0.10	0.02	0.10	0.10	0.04	0.69	0.69	0.02	0.66	0.66
Sat Flow, veh/h	1767	252	1359	1767	437	1202	1767	3474	122	1767	3583	30
Grp Volume(v), veh/h	3	0	32	24	0	75	60	317	331	32	590	620
Grp Sat Flow(s),veh/h/ln	1767	0	1611	1767	0	1639	1767	1763	1834	1767	1763	1850
Q Serve(g_s), s	0.2	0.0	1.8	1.3	0.0	4.3	3.3	6.8	6.9	1.8	17.0	17.0
Cycle Q Clear(g_c), s	0.2	0.0	1.8	1.3	0.0	4.3	3.3	6.8	6.9	1.8	17.0	17.0
Prop In Lane	1.00		0.84	1.00		0.73	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	14	0	155	29	0	166	77	1208	1256	40	1162	1219
V/C Ratio(X)	0.21	0.00	0.21	0.83	0.00	0.45	0.78	0.26	0.26	0.81	0.51	0.51
Avail Cap(c_a), veh/h	363	0	580	368	0	588	368	1208	1256	377	1162	1219
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	0.0	41.2	48.5	0.0	41.9	46.8	6.0	6.0	48.2	8.6	8.7
Incr Delay (d2), s/veh	2.7	0.0	0.2	19.6	0.0	0.7	6.2	0.5	0.5	13.3	1.6	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.7	0.8	0.0	1.8	1.5	2.1	2.2	0.9	5.7	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	51.5	0.0	41.5	68.1	0.0	42.6	53.0	6.5	6.5	61.4	10.2	10.2
LnGrp LOS	D		D	E		D	D	A	A	E	B	B
Approach Vol, veh/h	35			99			708			1242		
Approach Delay, s/veh	42.3			48.8			10.4			11.5		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	70.2	5.5	14.5	6.1	72.8	6.0	14.0				
Change Period (Y+Rc), s	4.4	* 5	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	20.6	* 65	20.3	35.5	21.1	65.0	20.6	* 36				
Max Q Clear Time (g_c+I1), s	5.3	19.0	2.2	6.3	3.8	8.9	3.3	3.8				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.2	0.0	1.1	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	13.4											
HCM 6th LOS	B											
Notes												

HCM 6th Signalized Intersection Summary

15: Watt Avenue & U Street/Antelope Road

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	143	59	344	184	214	38	496	164	170	854	40
Future Volume (veh/h)	38	143	59	344	184	214	38	496	164	170	854	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	38	143	59	344	184	214	38	496	164	170	854	40
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	46	290	129	397	495	442	46	768	342	216	1113	496
Arrive On Green	0.03	0.08	0.08	0.22	0.28	0.28	0.03	0.22	0.22	0.12	0.32	0.32
Sat Flow, veh/h	1767	3526	1572	1767	1763	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	38	143	59	344	184	214	38	496	164	170	854	40
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	1.3	2.4	2.2	11.4	5.1	6.9	1.3	7.8	5.5	5.7	13.3	1.1
Cycle Q Clear(g_c), s	1.3	2.4	2.2	11.4	5.1	6.9	1.3	7.8	5.5	5.7	13.3	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	290	129	397	495	442	46	768	342	216	1113	496
V/C Ratio(X)	0.83	0.49	0.46	0.87	0.37	0.48	0.83	0.65	0.48	0.79	0.77	0.08
Avail Cap(c_a), veh/h	572	2010	897	572	988	881	581	3754	1675	868	3760	1677
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	29.5	26.7	26.6	22.7	17.6	18.2	29.5	21.7	20.8	25.9	18.8	14.6
Incr Delay (d2), s/veh	13.1	0.5	0.9	7.1	0.2	0.3	13.2	0.3	0.4	2.4	0.4	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	0.7	0.9	0.8	4.8	1.8	2.2	0.7	2.8	1.9	2.3	4.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.6	27.2	27.6	29.8	17.7	18.5	42.7	22.0	21.2	28.3	19.2	14.6
LnGrp LOS	D	C	C	C	B	B	D	C	C	C	B	B
Approach Vol, veh/h		240			742			698			1064	
Approach Delay, s/veh		29.7			23.6			22.9			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	6.6	24.4	6.9	23.0	12.5	18.4	19.0	10.9				
Change Period (Y+Rc), s	5.0	* 5.2	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	20.0	* 65	19.7	* 34	29.9	64.8	19.7	* 35				
Max Q Clear Time (g_c+I1), s	3.3	15.3	3.3	8.9	7.7	9.8	13.4	4.4				
Green Ext Time (p_c), s	0.0	3.9	0.0	1.4	0.2	2.2	0.3	0.6				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Intersection Delay, s/veh	8.3											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	37	6	45	22	4	12	119	29	4	152	1
Future Vol, veh/h	1	37	6	45	22	4	12	119	29	4	152	1
Peak Hour 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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	37	6	45	22	4	12	119	29	4	152	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8	8.3	8.3	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	2%	63%	3%
Vol Thru, %	74%	84%	31%	97%
Vol Right, %	18%	14%	6%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	44	71	157
LT Vol	12	1	45	4
Through Vol	119	37	22	152
RT Vol	29	6	4	1
Lane Flow Rate	160	44	71	157
Geometry Grp	1	1	1	1
Degree of Util (X)	0.191	0.057	0.094	0.191
Departure Headway (Hd)	4.288	4.653	4.787	4.383
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	838	770	750	821
Service Time	2.305	2.677	2.81	2.4
HCM Lane V/C Ratio	0.191	0.057	0.095	0.191
HCM Control Delay, s/veh	8.3	8	8.3	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.2	0.3	0.7

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	63	5	9	29	7	6	25	13	10	42	3
Future Vol, veh/h	3	63	5	9	29	7	6	25	13	10	42	3
Peak Hour 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
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	3	63	5	9	29	7	6	25	13	10	42	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.6	7.5	7.4	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	4%	20%	18%
Vol Thru, %	57%	89%	64%	76%
Vol Right, %	30%	7%	16%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	71	45	55
LT Vol	6	3	9	10
Through Vol	25	63	29	42
RT Vol	13	5	7	3
Lane Flow Rate	44	71	45	55
Geometry Grp	1	1	1	1
Degree of Util (X)	0.05	0.082	0.052	0.065
Departure Headway (Hd)	4.078	4.157	4.158	4.223
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	868	854	852	839
Service Time	2.153	2.221	2.228	2.293
HCM Lane V/C Ratio	0.051	0.083	0.053	0.066
HCM Control Delay, s/veh	7.4	7.6	7.5	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.3	0.2	0.2

HCM 6th TWSC
18: 34th Street & Elkhorn Boulevard

12/06/2024

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	692	11	89	979	26	1	8	19	9	28	26
Future Vol, veh/h	28	692	11	89	979	26	1	8	19	9	28	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	692	11	89	979	26	1	8	19	9	28	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1005	0	0	703	0	0	1436	1937	352	1576	1929	503
Stage 1	-	-	-	-	-	-	754	754	-	1170	1170	-
Stage 2	-	-	-	-	-	-	682	1183	-	406	759	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	685	-	-	890	-	-	94	65	644	74	66	514
Stage 1	-	-	-	-	-	-	367	415	-	205	265	-
Stage 2	-	-	-	-	-	-	406	261	-	593	413	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	685	-	-	890	-	-	50	56	644	57	57	514
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	56	-	57	57	-
Stage 1	-	-	-	-	-	-	352	398	-	197	239	-
Stage 2	-	-	-	-	-	-	306	235	-	541	396	-

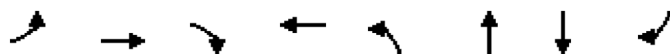
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.4			0.8			35.4			108.5		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	146	685	-	-	890	-	-	90
HCM Lane V/C Ratio	0.192	0.041	-	-	0.1	-	-	0.7
HCM Control Delay (s/veh)	35.4	10.5	-	-	9.5	-	-	108.5
HCM Lane LOS	E	B	-	-	A	-	-	F
HCM 95th %tile Q (veh)	0.7	0.1	-	-	0.3	-	-	3.5

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	21	21	128	10	400	969	1640	184
v/c Ratio	0.30	0.30	0.45	0.04	0.79	0.33	0.51	0.17
Control Delay (s/veh)	66.0	66.0	8.3	0.4	61.3	2.5	5.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.0	66.0	8.3	0.4	61.3	2.5	5.9	0.6
Queue Length 50th (ft)	16	16	0	0	156	50	120	0
Queue Length 95th (ft)	45	45	15	0	201	131	216	8
Internal Link Dist (ft)		568		647		709	759	
Turn Bay Length (ft)	240				370			360
Base Capacity (vph)	208	208	494	302	947	2920	3207	1063
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.10	0.26	0.03	0.42	0.33	0.51	0.17
Intersection Summary								

Queues

2: Watt Avenue & Airbase Drive

12/06/2024

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	451	310	1097	597	1469
v/c Ratio	0.76	0.74	0.39	0.85	0.36
Control Delay (s/veh)	25.3	16.9	15.1	69.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.3	16.9	15.1	69.1	0.7
Queue Length 50th (ft)	54	0	169	250	6
Queue Length 95th (ft)	105	97	254	309	9
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	802	502	2780	959	4036
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.62	0.39	0.62	0.36
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

12/06/2024



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	25	154	259	1419	1814	53
v/c Ratio	0.32	0.57	0.72	0.32	0.50	0.04
Control Delay (s/veh)	65.9	17.3	55.0	2.4	4.6	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.9	17.3	55.0	2.4	4.6	1.5
Queue Length 50th (ft)	19	0	102	43	102	2
Queue Length 95th (ft)	48	36	144	164	117	m5
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	322	633	971	4373	3589	1126
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.24	0.27	0.32	0.51	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

12/06/2024

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	53	307	172	175	306	1087	35	1449
v/c Ratio	0.47	0.45	0.78	0.78	0.77	0.78	0.39	0.18	0.71
Control Delay (s/veh)	65.8	64.6	20.3	73.2	69.7	52.3	15.5	43.9	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.8	64.6	20.3	73.2	69.7	52.3	15.5	43.9	30.1
Queue Length 50th (ft)	43	43	0	137	134	214	213	21	321
Queue Length 95th (ft)	82	82	88	207	205	256	197	m61	#590
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	373	385	589	389	397	394	2736	248	2025
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.52	0.44	0.44	0.78	0.40	0.14	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

5: Watt Avenue & Driveway/Karl Drive

12/06/2024



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	245	8	1023	34	1575
v/c Ratio	0.01	0.83	0.06	0.34	0.15	0.44
Control Delay (s/veh)	0.0	66.0	63.6	6.0	34.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	66.0	63.6	6.0	34.2	7.8
Queue Length 50th (ft)	0	168	6	27	19	84
Queue Length 95th (ft)	0	243	m13	334	m36	182
Internal Link Dist (ft)	245	409		1853		633
Turn Bay Length (ft)			195		155	
Base Capacity (vph)	566	462	188	3007	247	3510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.53	0.04	0.34	0.14	0.45

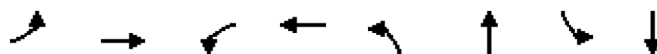
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	130	95	84	84	104	968	64	1539
v/c Ratio	0.69	0.44	0.63	0.56	0.67	0.38	0.20	0.53
Control Delay (s/veh)	70.3	26.0	73.6	39.7	81.0	5.0	41.1	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.3	26.0	73.6	39.7	81.0	5.0	41.1	15.8
Queue Length 50th (ft)	99	21	64	25	53	47	43	112
Queue Length 95th (ft)	160	73	114	76	146	32	m71	258
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	267	515	271	517	222	2535	339	2887
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.18	0.31	0.16	0.47	0.38	0.19	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

								
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	7	260	256	10	685	281	122	1403
v/c Ratio	0.10	0.84	0.82	0.11	0.35	0.28	0.71	0.42
Control Delay (s/veh)	44.0	70.4	66.1	60.7	17.1	6.0	74.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.0	70.4	66.1	60.7	17.1	6.0	74.2	13.0
Queue Length 50th (ft)	2	206	194	8	218	64	93	142
Queue Length 95th (ft)	18	287	275	m21	354	204	152	386
Internal Link Dist (ft)	135		542		1065			220
Turn Bay Length (ft)				200			215	
Base Capacity (vph)	179	377	378	190	1936	990	246	3303
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.69	0.68	0.05	0.35	0.28	0.50	0.42

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	33	22	81	20	659	20	1507
v/c Ratio	0.42	0.13	0.61	0.24	0.27	0.24	0.64
Control Delay (s/veh)	64.0	1.6	59.0	56.2	8.5	56.2	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.0	1.6	59.0	56.2	8.5	56.2	13.5
Queue Length 50th (ft)	20	0	40	12	71	12	240
Queue Length 95th (ft)	56	0	99	40	164	40	516
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	441	584	513	359	2362	361	2341
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.16	0.06	0.28	0.06	0.64
Intersection Summary							

Queues

9: Watt Avenue & Van Owen Street

12/06/2024



Lane Group	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	6	728	13	1527
v/c Ratio	0.37	0.06	0.25	0.13	0.52
Control Delay (s/veh)	20.8	40.1	2.6	40.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.8	40.1	2.6	40.9	3.9
Queue Length 50th (ft)	3	3	25	6	76
Queue Length 95th (ft)	40	16	92	25	250
Internal Link Dist (ft)	284		1159		341
Turn Bay Length (ft)		200		225	
Base Capacity (vph)	886	511	2987	508	2987
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.24	0.03	0.51
Intersection Summary					

Queues

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	149	409	180	214	647	39	174	327	60	69	1555
v/c Ratio	0.54	0.47	0.34	0.63	0.70	0.08	0.59	0.16	0.08	0.20	0.85
Control Delay (s/veh)	62.0	41.7	7.9	62.0	45.4	0.3	63.0	24.2	0.2	56.8	39.0
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)	62.0	41.7	7.9	62.0	45.4	0.3	63.0	24.2	0.2	56.8	39.0
Queue Length 50th (ft)	56	136	0	81	226	0	66	61	0	25	390
Queue Length 95th (ft)	106	237	64	145	381	0	123	91	0	58	523
Internal Link Dist (ft)	1265			520			552			447	
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	589	1069	603	589	1069	546	589	2883	954	589	2803
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.38	0.30	0.36	0.61	0.07	0.30	0.11	0.06	0.12	0.55
Intersection Summary											

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024



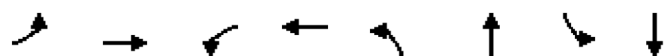
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	29	57	89	15	43	649	15	1227	23
v/c Ratio	0.31	0.44	0.64	0.06	0.40	0.28	0.19	0.56	0.02
Control Delay (s/veh)	58.8	32.3	66.7	0.5	60.5	9.1	56.9	14.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.8	32.3	66.7	0.5	60.5	9.1	56.9	14.8	0.0
Queue Length 50th (ft)	18	8	53	0	26	75	9	250	0
Queue Length 95th (ft)	53	52	119	0	70	168	34	401	0
Internal Link Dist (ft)		1270	498			761		1406	
Turn Bay Length (ft)	135			100	330		200		120
Base Capacity (vph)	592	580	448	590	352	2316	352	2343	1073
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.10	0.20	0.03	0.12	0.28	0.04	0.52	0.02

Intersection Summary

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	32	24	75	60	648	32	1210
v/c Ratio	0.01	0.16	0.27	0.30	0.49	0.24	0.34	0.48
Control Delay (s/veh)	45.6	21.2	56.6	21.2	60.6	6.9	58.1	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.6	21.2	56.6	21.2	60.6	6.9	58.1	10.6
Queue Length 50th (ft)	2	3	14	11	36	66	19	167
Queue Length 95th (ft)	12	33	45	61	87	149	55	355
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	361	600	367	628	367	2596	376	2485
Starvation Cap Reductn	0	0	0	0	0	0	0	166
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.07	0.12	0.16	0.25	0.09	0.52
Intersection Summary								

Queues

15: Watt Avenue & U Street/Antelope Road

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	143	59	344	398	38	496	164	170	854	40
v/c Ratio	0.26	0.39	0.22	0.78	0.34	0.26	0.64	0.34	0.59	0.67	0.06
Control Delay (s/veh)	42.4	38.8	2.7	45.8	16.2	42.4	33.4	7.1	40.9	26.0	0.6
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)	42.4	38.8	2.7	45.8	16.2	42.4	33.4	7.1	40.9	26.0	0.6
Queue Length 50th (ft)	18	35	0	162	51	18	118	0	80	203	0
Queue Length 95th (ft)	53	73	5	#381	111	53	190	49	156	294	4
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	436	1536	750	436	1477	442	2870	1313	661	3216	1446
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.09	0.08	0.79	0.27	0.09	0.17	0.12	0.26	0.27	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Existing Conditions PM Synchro Reports

HCM Signalized Intersection Capacity Analysis

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	2	344	5	1	4	111	1616	3	1	1099	39
Future Volume (vph)	216	2	344	5	1	4	111	1616	3	1	1099	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	6.3	6.3	6.3		5.5		5.5	4.8		5.5	5.3	5.3
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.95		1.00	0.91	1.00
Flt	1.00	1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	2787		1891		3433	3538		1770	5085	1583
Flt Permitted	0.95	0.95	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	2787		1938		3433	3538		1770	5085	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	216	2	344	5	1	4	111	1616	3	1	1099	39
RTOR Reduction (vph)	0	0	313	0	4	0	0	0	0	0	0	12
Lane Group Flow (vph)	108	110	31	0	6	0	111	1619	0	1	1099	27
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	3			4		1	6		5	2	
Permitted Phases			3	4								2
Actuated Green, G (s)	13.4	13.4	13.4		2.1		9.0	110.8		1.6	102.9	102.9
Effective Green, g (s)	13.4	13.4	13.4		2.1		9.0	110.8		1.6	102.9	102.9
Actuated g/C Ratio	0.09	0.09	0.09		0.01		0.06	0.74		0.01	0.69	0.69
Clearance Time (s)	6.3	6.3	6.3		5.5		5.5	4.8		5.5	5.3	5.3
Vehicle Extension (s)	1.0	1.0	1.0		1.0		1.0	1.0		1.0	1.0	1.0
Lane Grp Cap (vph)	150	150	248		27		205	2613		18	3488	1085
v/s Ratio Prot	0.06	c0.07					c0.03	c0.46		0.00	0.22	
v/s Ratio Perm			0.01		c0.00							0.02
v/c Ratio	0.72	0.73	0.12		0.22		0.54	0.61		0.05	0.31	0.02
Uniform Delay, d1	66.4	66.5	62.8		73.1		68.4	9.4		73.4	9.4	7.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.55	0.44	1.00
Incremental Delay, d2	13.3	14.6	0.0		1.5		1.5	1.1		0.4	0.2	0.0
Delay (s)	79.8	81.2	62.9		74.6		70.0	10.5		114.4	4.3	7.5
Level of Service	E	F	E		E		E	B		F	A	A
Approach Delay (s/veh)		69.8			74.6			14.3			4.5	
Approach LOS		E			E			B			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			20.4									
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			150.0							22.6		
Intersection Capacity Utilization			67.3%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

12/06/2024

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	32	404	0	1645	191	452	1106
Future Volume (vph)	32	404	0	1645	191	452	1106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.87	0.85		0.98		1.00	1.00
Flt Protected	0.99	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3124	1441		5006		3433	5085
Flt Permitted	0.99	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3124	1441		5006		3433	5085
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	404	0	1645	191	452	1106
RTOR Reduction (vph)	187	187	0	6	0	0	0
Lane Group Flow (vph)	47	15	0	1830	0	452	1106
Turn Type	Prot	Perm	Prot	NA		Prot	NA
Protected Phases	3		1	6		5	2
Permitted Phases		3					
Actuated Green, G (s)	10.8	10.8		99.8		23.3	128.1
Effective Green, g (s)	10.8	10.8		99.8		23.3	128.1
Actuated g/C Ratio	0.07	0.07		0.67		0.16	0.85
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	224	103		3330		533	4342
v/s Ratio Prot	c0.01			c0.37		c0.13	0.22
v/s Ratio Perm		0.01					
v/c Ratio	0.20	0.14		0.54		0.84	0.25
Uniform Delay, d1	65.5	65.2		13.2		61.6	2.0
Progression Factor	1.00	1.00		1.00		1.01	1.04
Incremental Delay, d2	0.1	0.2		0.5		11.1	0.1
Delay (s)	65.7	65.4		13.8		73.5	2.2
Level of Service	E	E		B		E	A
Approach Delay (s/veh)	65.6			13.8			22.9
Approach LOS	E			B			C
Intersection Summary							
HCM 2000 Control Delay (s/veh)			23.5		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.57				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			70.7%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

12/06/2024

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	210	69	1829	1363	16
Future Volume (veh/h)	36	210	69	1829	1363	16
Initial Q (Qb), veh	0	0	0	0	0	0
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	210	69	1829	1363	16
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	158	248	109	4309	3966	1231
Arrive On Green	0.09	0.09	0.04	1.00	0.77	0.77
Sat Flow, veh/h	1795	2812	3483	5316	5316	1598
Grp Volume(v), veh/h	36	210	69	1829	1363	16
Grp Sat Flow(s),veh/h/ln	1795	1406	1742	1716	1716	1598
Q Serve(g_s), s	2.8	11.0	2.9	0.0	12.4	0.3
Cycle Q Clear(g_c), s	2.8	11.0	2.9	0.0	12.4	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	158	248	109	4309	3966	1231
V/C Ratio(X)	0.23	0.85	0.63	0.42	0.34	0.01
Avail Cap(c_a), veh/h	347	544	992	4309	3966	1231
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.80	0.80	0.91	0.91
Uniform Delay (d), s/veh	63.6	67.4	71.0	0.0	5.4	4.0
Incr Delay (d2), s/veh	0.3	3.1	1.8	0.2	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.1	1.3	0.1	4.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	63.9	70.5	72.9	0.2	5.6	4.0
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	246			1898	1379	
Approach Delay, s/veh	69.5			2.9	5.6	
Approach LOS	E			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.0	121.3			131.3	18.7
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	42.7	* 62			* 63	29.0
Max Q Clear Time (g_c+I1), s	4.9	14.4			2.0	13.0
Green Ext Time (p_c), s	0.0	4.3			6.7	0.2
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			8.6			
HCM 6th LOS			A			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM Signalized Intersection Capacity Analysis

4: Watt Avenue & A Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	22	173	121	27	22	189	1637	160	53	1026	62
Future Volume (vph)	79	22	173	121	27	22	189	1637	160	53	1026	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		4.6	4.8		4.7	4.8	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	0.97	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1721	1583	1681	1665		1770	5017		1770	5042	
Flt Permitted	0.95	0.97	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1721	1583	1681	1665		1770	5017		1770	5042	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	22	173	121	27	22	189	1637	160	53	1026	62
RTOR Reduction (vph)	0	0	164	0	9	0	0	4	0	0	2	0
Lane Group Flow (vph)	50	51	9	86	75	0	189	1793	0	53	1086	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)	8.0	8.0	8.0	11.1	11.1		19.5	99.0		11.4	91.0	
Effective Green, g (s)	8.0	8.0	8.0	11.1	11.1		19.5	99.0		11.4	91.0	
Actuated g/C Ratio	0.05	0.05	0.05	0.07	0.07		0.13	0.66		0.08	0.61	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		4.6	4.8		4.7	4.8	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	89	91	84	124	123		230	3311		134	3058	
v/s Ratio Prot	c0.03	0.03		c0.05	0.04		c0.11	c0.36		0.03	c0.22	
v/s Ratio Perm			0.01									
v/c Ratio	0.56	0.56	0.10	0.69	0.60		0.82	0.54		0.39	0.35	
Uniform Delay, d1	69.2	69.2	67.6	67.7	67.3		63.5	13.4		66.0	14.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.94	1.03		1.27	1.58	
Incremental Delay, d2	4.7	4.6	0.2	12.6	5.7		18.6	0.6		0.6	0.3	
Delay (s)	74.0	73.9	67.8	80.4	73.0		78.5	14.5		84.7	23.7	
Level of Service	E	E	E	F	E		E	B		F	C	
Approach Delay (s/veh)		70.0			76.8			20.6			26.6	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			29.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			20.5			
Intersection Capacity Utilization			62.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Watt Avenue & Driveway/Karl Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	3	14	48	1	68	16	1612	78	47	1067	3
Future Volume (vph)	1	3	14	48	1	68	16	1612	78	47	1067	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.0	4.8		4.3	4.8	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.87			0.92		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1633			1682		1770	5050		1770	5083	
Flt Permitted	0.95	1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1633			1682		1770	5050		1770	5083	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	3	14	48	1	68	16	1612	78	47	1067	3
RTOR Reduction (vph)	0	13	0	0	39	0	0	2	0	0	0	0
Lane Group Flow (vph)	1	4	0	0	78	0	16	1688	0	47	1070	0
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	6.0	6.0			11.6		3.2	103.0		9.3	108.4	
Effective Green, g (s)	6.0	6.0			11.6		3.2	103.0		9.3	108.4	
Actuated g/C Ratio	0.04	0.04			0.08		0.02	0.69		0.06	0.72	
Clearance Time (s)	5.5	5.5			5.5		5.0	4.8		4.3	4.8	
Vehicle Extension (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	70	65			130		37	3467		109	3673	
v/s Ratio Prot	0.00	c0.00			c0.05		0.01	c0.33		c0.03	0.21	
v/s Ratio Perm												
v/c Ratio	0.01	0.05			0.60		0.43	0.48		0.43	0.29	
Uniform Delay, d1	69.1	69.2			66.9		72.5	11.0		67.8	7.3	
Progression Factor	1.00	1.00			1.00		1.18	0.79		0.92	1.07	
Incremental Delay, d2	0.0	0.1			5.2		2.5	0.4		0.9	0.1	
Delay (s)	69.1	69.4			72.2		88.3	9.2		63.3	8.0	
Level of Service	E	E			E		F	A		E	A	
Approach Delay (s/veh)		69.3			72.2			9.9			10.3	
Approach LOS		E			E			A			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			13.0									
HCM 2000 Level of Service										B		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			150.0							20.8		
Intersection Capacity Utilization			61.2%									
ICU Level of Service										B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	112	3	56	27	2	15	48	1583	20	34	1034	62
Future Volume (veh/h)	112	3	56	27	2	15	48	1583	20	34	1034	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	3	56	27	2	15	48	1583	20	34	1034	62
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	7	123	34	4	34	61	1649	21	792	3582	215
Arrive On Green	0.07	0.08	0.08	0.02	0.02	0.02	0.07	0.63	0.63	0.89	1.00	1.00
Sat Flow, veh/h	1781	81	1516	1781	190	1424	1781	5197	66	1781	4926	295
Grp Volume(v), veh/h	112	0	59	27	0	17	48	1037	566	34	714	382
Grp Sat Flow(s),veh/h/ln	1781	0	1597	1781	0	1614	1781	1702	1859	1781	1702	1817
Q Serve(g_s), s	9.3	0.0	5.3	2.3	0.0	1.6	4.0	42.7	42.7	0.3	0.0	0.0
Cycle Q Clear(g_c), s	9.3	0.0	5.3	2.3	0.0	1.6	4.0	42.7	42.7	0.3	0.0	0.0
Prop In Lane	1.00		0.95	1.00		0.88	1.00		0.04	1.00		0.16
Lane Grp Cap(c), veh/h	133	0	130	34	0	38	61	1080	590	792	2475	1321
V/C Ratio(X)	0.84	0.00	0.45	0.79	0.00	0.45	0.78	0.96	0.96	0.04	0.29	0.29
Avail Cap(c_a), veh/h	255	0	375	259	0	384	243	1182	646	792	2475	1321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.88	0.88	0.88	0.96	0.96	0.96
Uniform Delay (d), s/veh	68.5	0.0	65.7	73.3	0.0	72.3	69.3	26.5	26.5	4.6	0.0	0.0
Incr Delay (d2), s/veh	5.3	0.0	0.9	13.7	0.0	3.0	6.9	17.7	26.2	0.0	0.3	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.2	1.2	0.0	0.7	1.9	14.6	17.3	0.1	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	73.8	0.0	66.7	87.0	0.0	75.3	76.1	44.2	52.7	4.6	0.3	0.5
LnGrp LOS	E		E	F		E	E	D	D	A	A	A
Approach Vol, veh/h		171			44			1651			1130	
Approach Delay, s/veh		71.3			82.5			48.0			0.5	
Approach LOS		E			F			D			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	114.3	16.7	8.8	71.9	52.5	8.1	17.5				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	20.5	* 52	21.5	* 36	20.3	52.1	21.8	35.2				
Max Q Clear Time (g_c+I1), s	6.0	2.0	11.3	3.6	2.3	44.7	4.3	7.3				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.0	0.0	2.9	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			31.9									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM Signalized Intersection Capacity Analysis

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	2	157	1	71	8	1393	277	115	901	4
Future Volume (vph)	4	2	2	157	1	71	8	1393	277	115	901	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		6.8	6.8		4.8	5.0	5.0	4.6	5.3	
Lane Util. Factor		1.00		0.95	0.95		1.00	0.95	1.00	1.00	0.91	
Frt		0.96		1.00	0.90		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1756		1681	1571		1770	3539	1583	1770	5082	
Flt Permitted		1.00		0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1800		1681	1571		1770	3539	1583	1770	5082	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	2	2	157	1	71	8	1393	277	115	901	4
RTOR Reduction (vph)	0	2	0	0	49	0	0	0	55	0	0	0
Lane Group Flow (vph)	0	6	0	119	61	0	8	1393	222	115	905	0
Turn Type	Perm	NA		Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	3		1	6		5	2	
Permitted Phases	4								6			
Actuated Green, G (s)		1.6		14.1	14.1		7.8	99.2	99.2	13.2	104.1	
Effective Green, g (s)		1.6		14.1	14.1		7.8	99.2	99.2	13.2	104.1	
Actuated g/C Ratio		0.01		0.09	0.09		0.05	0.66	0.66	0.09	0.69	
Clearance Time (s)		5.5		6.8	6.8		4.8	5.0	5.0	4.6	5.3	
Vehicle Extension (s)		1.0		1.0	1.0		1.0	4.9	4.9	1.0	4.9	
Lane Grp Cap (vph)		19		158	147		92	2340	1046	155	3526	
v/s Ratio Prot				c0.07	0.04		0.00	c0.39		c0.06	0.18	
v/s Ratio Perm		c0.00							0.14			
v/c Ratio		0.31		0.75	0.41		0.08	0.59	0.21	0.74	0.25	
Uniform Delay, d1		73.6		66.2	64.0		67.7	14.1	10.0	66.7	8.5	
Progression Factor		1.00		1.00	1.00		1.15	1.94	2.85	1.00	1.00	
Incremental Delay, d2		3.4		16.3	0.6		0.1	1.0	0.4	15.3	0.1	
Delay (s)		77.1		82.6	64.7		78.1	28.5	29.0	82.0	8.7	
Level of Service		E		F	E		E	C	C	F	A	
Approach Delay (s/veh)		77.1			74.0			28.8			16.9	
Approach LOS		E			E			C			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			28.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			22.4			
Intersection Capacity Utilization			67.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	17	43	20	5	19	38	1384	12	28	954	46
Future Volume (vph)	46	17	43	20	5	19	38	1384	12	28	954	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.3		4.3	5.0		4.2	5.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.96	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1797	1583		1715		1770	3535		1770	3515	
Flt Permitted		0.55	1.00		0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1037	1583		1445		1770	3535		1770	3515	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	17	43	20	5	19	38	1384	12	28	954	46
RTOR Reduction (vph)	0	0	39	0	18	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	63	4	0	26	0	38	1396	0	28	998	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3		3	4								
Actuated Green, G (s)		9.9	9.9		5.1		14.0	81.1		3.9	70.5	
Effective Green, g (s)		9.9	9.9		5.1		14.0	81.1		3.9	70.5	
Actuated g/C Ratio		0.08	0.08		0.04		0.12	0.68		0.03	0.59	
Clearance Time (s)		5.5	5.5		5.3		4.3	5.0		4.2	5.4	
Vehicle Extension (s)		1.0	1.0		1.0		1.0	2.1		1.0	1.7	
Lane Grp Cap (vph)		85	130		61		206	2389		57	2065	
v/s Ratio Prot							0.02	c0.39		0.02	c0.28	
v/s Ratio Perm		c0.06	0.00		c0.02							
v/c Ratio		0.74	0.02		0.42		0.18	0.58		0.49	0.48	
Uniform Delay, d1		53.7	50.6		56.0		47.8	10.4		57.0	14.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.17	1.24	
Incremental Delay, d2		25.8	0.0		1.7		0.1	0.2		2.3	0.7	
Delay (s)		79.6	50.6		57.7		48.0	10.6		69.2	18.5	
Level of Service		E	D		E		D	B		E	B	
Approach Delay (s/veh)		67.8			57.7			11.6			19.9	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		18.0										
HCM 2000 Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		120.0								20.5		
Intersection Capacity Utilization		56.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Watt Avenue & Van Owen Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↗		↗	↕↗	
Traffic Volume (vph)	0	0	0	29	1	23	10	1461	17	54	1023	1
Future Volume (vph)	0	0	0	29	1	23	10	1461	17	54	1023	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.8		4.2	5.0		4.3	5.0	
Lane Util. Factor					1.00		1.00	0.95		1.00	0.95	
Frt					0.94		1.00	0.99		1.00	0.99	
Flt Protected					0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)					1707		1770	3533		1770	3539	
Flt Permitted					0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)					1454		1770	3533		1770	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	29	1	23	10	1461	17	54	1023	1
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	31	0	10	1478	0	54	1024	0
Turn Type			Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			3		1	6		5	2	
Permitted Phases	3		3	3								
Actuated Green, G (s)					5.5		1.1	91.9		8.5	99.4	
Effective Green, g (s)					5.5		1.1	91.9		8.5	99.4	
Actuated g/C Ratio					0.05		0.01	0.77		0.07	0.83	
Clearance Time (s)					4.8		4.2	5.0		4.3	5.0	
Vehicle Extension (s)					1.0		1.0	4.9		1.0	4.9	
Lane Grp Cap (vph)					66		16	2705		125	2931	
v/s Ratio Prot							0.01	c0.42		c0.03	0.29	
v/s Ratio Perm					c0.02							
v/c Ratio					0.47		0.62	0.54		0.43	0.34	
Uniform Delay, d1					55.8		59.2	5.6		53.4	2.4	
Progression Factor					1.00		1.42	0.38		1.03	1.97	
Incremental Delay, d2					1.9		38.8	0.3		0.8	0.3	
Delay (s)					57.7		123.3	2.5		55.9	5.2	
Level of Service					E		F	A		E	A	
Approach Delay (s/veh)		0.0			57.7			3.3			7.7	
Approach LOS		A			E			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			6.2									
HCM 2000 Level of Service										A		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			120.0							14.1		
Intersection Capacity Utilization			56.4%								B	
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗↑↑↑			↗↑↑↑		
Traffic Vol, veh/h	0	0	81	0	0	3	76	1412	11	32	949	125
Future Vol, veh/h	0	0	81	0	0	3	76	1412	11	32	949	125
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	81	0	0	3	76	1412	11	32	949	125

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	537	-	-	712	1074	0	0	1423	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	418	0	0	322	360	-	-	243	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	418	-	-	322	360	-	-	243	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.7	16.3	0.9	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	360	-	-	418	322	243	-
HCM Lane V/C Ratio	0.211	-	-	0.194	0.009	0.132	-
HCM Control Delay (s/veh)	17.7	-	-	15.7	16.3	22	-
HCM Lane LOS	C	-	-	C	C	C	-
HCM 95th %tile Q (veh)	0.8	-	-	0.7	0	0.4	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	381	731	187	221	437	104	222	1144	180	137	627	148
Future Volume (veh/h)	381	731	187	221	437	104	222	1144	180	137	627	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	381	731	187	221	437	104	222	1144	180	137	627	148
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	435	895	399	254	709	316	276	2156	669	190	1647	382
Arrive On Green	0.13	0.25	0.25	0.07	0.20	0.20	0.08	0.43	0.43	0.06	0.40	0.40
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4108	953
Grp Volume(v), veh/h	381	731	187	221	437	104	222	1144	180	137	514	261
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1684
Q Serve(g_s), s	13.1	23.4	12.1	7.7	13.6	6.8	7.6	20.1	8.9	4.7	12.9	13.2
Cycle Q Clear(g_c), s	13.1	23.4	12.1	7.7	13.6	6.8	7.6	20.1	8.9	4.7	12.9	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	435	895	399	254	709	316	276	2156	669	190	1354	675
V/C Ratio(X)	0.88	0.82	0.47	0.87	0.62	0.33	0.81	0.53	0.27	0.72	0.38	0.39
Avail Cap(c_a), veh/h	529	996	444	254	714	318	289	2156	669	254	1354	675
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	51.5	42.2	37.9	55.0	43.7	41.0	54.3	25.6	22.3	55.7	25.4	25.5
Incr Delay (d2), s/veh	11.8	5.9	1.7	25.0	2.3	1.2	13.5	0.9	1.0	3.6	0.8	1.7
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	6.2	10.6	4.7	4.1	6.0	2.7	3.8	8.1	3.3	2.1	5.1	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.2	48.0	39.7	80.0	46.0	42.2	67.8	26.5	23.3	59.3	26.2	27.2
LnGrp LOS	E	D	D	F	D	D	E	C	C	E	C	C
Approach Vol, veh/h	1299				762				1546			
Approach Delay, s/veh	51.3				55.3				32.1			
Approach LOS	D				E				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.1	54.3	20.7	29.8	12.2	57.3	14.4	36.2				
Change Period (Y+Rc), s	5.5	* 6.2	5.5	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	10.1	* 44	18.5	* 24	8.9	* 46	8.9	33.9				
Max Q Clear Time (g_c+I1), s	9.6	15.2	15.1	15.6	6.7	22.1	9.7	25.4				
Green Ext Time (p_c), s	0.0	1.6	0.1	3.2	0.0	15.2	0.0	5.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			41.4									
HCM 6th LOS			D									
Notes												

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↘		↗	↗↘	
Traffic Vol, veh/h	0	0	0	0	0	14	35	1280	34	25	916	0
Future Vol, veh/h	0	0	0	0	0	14	35	1280	34	25	916	0
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	-	-	0	-	-	0	210	-	-	230	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	14	35	1280	34	25	916	0

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	458	-	-	657	916	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-
Pot Cap-1 Maneuver	0	0	550	0	0	407	740	-
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	550	-	-	407	740	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	14.2	0.3	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	740	-	-	-	407	522	-
HCM Lane V/C Ratio	0.047	-	-	-	0.034	0.048	-
HCM Control Delay (s/veh)	10.1	-	-	0	14.2	12.2	-
HCM Lane LOS	B	-	-	A	B	B	-
HCM 95th %tile Q (veh)	0.1	-	-	-	0.1	0.2	-

HCM Signalized Intersection Capacity Analysis

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	12	71	31	6	13	64	1266	48	27	735	50
Future Volume (vph)	50	12	71	31	6	13	64	1266	48	27	735	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.0	5.0	4.5	5.6		4.5	5.0	5.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.87			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1624			1788	1583	1770	3520		1770	3539	1583
Flt Permitted	0.95	1.00			0.70	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1624			1311	1583	1770	3520		1770	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	12	71	31	6	13	64	1266	48	27	735	50
RTOR Reduction (vph)	0	67	0	0	0	12	0	1	0	0	0	25
Lane Group Flow (vph)	50	16	0	0	37	1	64	1313	0	27	735	25
Turn Type	Split	NA		Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	3	3			4		1	6		5	2	
Permitted Phases				4		4						2
Actuated Green, G (s)	6.1	6.1			6.1	6.1	27.1	83.3		3.9	60.7	60.7
Effective Green, g (s)	6.1	6.1			6.1	6.1	27.1	83.3		3.9	60.7	60.7
Actuated g/C Ratio	0.05	0.05			0.05	0.05	0.23	0.69		0.03	0.51	0.51
Clearance Time (s)	5.5	5.5			5.0	5.0	4.5	5.6		4.5	5.0	5.0
Vehicle Extension (s)	1.0	1.0			1.0	1.0	1.0	4.3		1.0	4.3	4.3
Lane Grp Cap (vph)	89	82			66	80	399	2443		57	1790	800
v/s Ratio Prot	c0.03	0.01					0.04	c0.37		0.02	c0.21	
v/s Ratio Perm					c0.03	0.00						0.02
v/c Ratio	0.56	0.19			0.56	0.00	0.16	0.53		0.47	0.41	0.03
Uniform Delay, d1	55.6	54.5			55.6	54.0	37.3	8.9		57.0	18.4	14.8
Progression Factor	1.00	1.00			1.00	1.00	1.20	1.85		0.58	1.39	1.00
Incremental Delay, d2	4.7	0.4			6.3	0.0	0.0	0.7		2.1	0.6	0.0
Delay (s)	60.4	54.9			61.9	54.0	44.8	17.3		35.5	26.4	14.9
Level of Service	E	D			E	D	D	B		D	C	B
Approach Delay (s/veh)		57.0			59.9			18.6			26.0	
Approach LOS		E			E			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.2									
HCM 2000 Level of Service										C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			120.0							20.6		
Intersection Capacity Utilization			62.3%									
ICU Level of Service										B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	32	55	14	44	49	105	1168	27	61	814	23
Future Volume (veh/h)	13	32	55	14	44	49	105	1168	27	61	814	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	32	55	14	44	49	105	1168	27	61	814	23
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	64	110	17	67	75	864	2468	57	78	868	25
Arrive On Green	0.03	0.10	0.10	0.01	0.08	0.08	0.65	0.92	0.92	0.09	0.49	0.49
Sat Flow, veh/h	1781	618	1062	1781	808	900	1781	3550	82	1781	3530	100
Grp Volume(v), veh/h	13	0	87	14	0	93	105	584	611	61	410	427
Grp Sat Flow(s),veh/h/ln	1781	0	1679	1781	0	1708	1781	1777	1856	1781	1777	1852
Q Serve(g_s), s	0.9	0.0	5.9	0.9	0.0	6.3	2.7	5.3	5.3	4.0	26.1	26.1
Cycle Q Clear(g_c), s	0.9	0.0	5.9	0.9	0.0	6.3	2.7	5.3	5.3	4.0	26.1	26.1
Prop In Lane	1.00		0.63	1.00		0.53	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	49	0	174	17	0	142	864	1235	1290	78	437	456
V/C Ratio(X)	0.27	0.00	0.50	0.84	0.00	0.65	0.12	0.47	0.47	0.78	0.94	0.94
Avail Cap(c_a), veh/h	144	0	442	148	0	448	864	1235	1290	156	746	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	0.85	0.85	0.85
Uniform Delay (d), s/veh	57.2	0.0	50.8	59.4	0.0	53.3	11.4	1.6	1.6	54.2	29.6	29.6
Incr Delay (d2), s/veh	1.1	0.0	0.8	32.0	0.0	1.9	0.0	1.1	1.1	5.4	26.9	26.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.5	0.6	0.0	2.8	1.0	1.4	1.5	1.8	10.7	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.3	0.0	51.7	91.4	0.0	55.2	11.5	2.7	2.7	59.6	56.5	55.8
LnGrp LOS	E		D	F		E	B	A	A	E	E	E
Approach Vol, veh/h	100				107		1300				898	
Approach Delay, s/veh	52.5				60.0		3.4				56.4	
Approach LOS	D				E		A				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	63.2	34.3	8.0	14.5	9.1	88.4	5.5	16.9				
Change Period (Y+Rc), s	5.0	* 4.8	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	10.0	* 50	9.7	31.5	10.5	50.2	10.0	* 32				
Max Q Clear Time (g_c+I1), s	4.7	28.1	2.9	8.3	6.0	7.3	2.9	7.9				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.2	0.0	2.2	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			27.7									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	241	45	241	191	190	75	797	356	170	603	61
Future Volume (veh/h)	92	241	45	241	191	190	75	797	356	170	603	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	241	45	241	191	190	75	797	356	170	603	61
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	318	142	269	312	278	677	1668	744	198	711	317
Arrive On Green	0.06	0.09	0.09	0.15	0.18	0.18	0.76	0.94	0.94	0.11	0.20	0.20
Sat Flow, veh/h	1781	3554	1585	1781	1777	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	92	241	45	241	191	190	75	797	356	170	603	61
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.1	7.9	1.5	15.9	11.9	13.5	1.3	3.0	3.0	11.3	19.6	3.1
Cycle Q Clear(g_c), s	6.1	7.9	1.5	15.9	11.9	13.5	1.3	3.0	3.0	11.3	19.6	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	318	142	269	312	278	677	1668	744	198	711	317
V/C Ratio(X)	0.80	0.76	0.32	0.90	0.61	0.68	0.11	0.48	0.48	0.86	0.85	0.19
Avail Cap(c_a), veh/h	260	660	295	367	428	382	677	1668	744	281	1199	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	53.3	11.8	50.0	45.7	46.3	9.1	2.0	2.0	52.4	46.3	26.2
Incr Delay (d2), s/veh	4.6	1.4	0.5	15.9	0.7	1.1	0.0	0.9	1.9	12.8	12.1	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.6	1.3	8.1	5.2	5.2	0.5	0.9	1.0	5.6	9.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.9	54.7	12.3	65.9	46.4	47.4	9.1	2.9	4.0	65.3	58.3	27.6
LnGrp LOS	E	D	B	E	D	D	A	A	A	E	E	C
Approach Vol, veh/h	378			622			1228			834		
Approach Delay, s/veh	51.0			54.3			3.6			57.5		
Approach LOS	D			D			A			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	50.8	29.1	13.1	27.0	18.4	61.5	23.4	16.7				
Change Period (Y+Rc), s	5.2	* 5.1	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	11.8	* 41	17.5	* 29	18.9	33.2	24.7	* 22				
Max Q Clear Time (g_c+I1), s	3.3	21.6	8.1	15.5	13.3	5.0	17.9	9.9				
Green Ext Time (p_c), s	0.0	2.4	0.1	1.1	0.1	4.1	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	34.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Intersection Delay, s/veh	7.6											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	32	3	0	45	8	0	93	26	0	36	2
Future Vol, veh/h	0	32	3	0	45	8	0	93	26	0	36	2
Peak Hour 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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	32	3	0	45	8	0	93	26	0	36	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.5	7.5	7.7	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	0%	0%
Vol Thru, %	78%	91%	85%	95%
Vol Right, %	22%	9%	15%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	35	53	38
LT Vol	0	0	0	0
Through Vol	93	32	45	36
RT Vol	26	3	8	2
Lane Flow Rate	119	35	53	38
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.041	0.061	0.044
Departure Headway (Hd)	4.001	4.214	4.16	4.163
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	889	839	850	851
Service Time	2.057	2.296	2.239	2.234
HCM Lane V/C Ratio	0.134	0.042	0.062	0.045
HCM Control Delay, s/veh	7.7	7.5	7.5	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0.2	0.1

HCM 6th TWSC
18: 34th Street & Elkhorn Boulevard

12/06/2024

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	1168	7	19	779	38	5	20	67	10	11	25
Future Vol, veh/h	31	1168	7	19	779	38	5	20	67	10	11	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	1168	7	19	779	38	5	20	67	10	11	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	817	0	0	1175	0	0	1667	2089	588	1492	2073	409
Stage 1	-	-	-	-	-	-	1234	1234	-	836	836	-
Stage 2	-	-	-	-	-	-	433	855	-	656	1237	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	807	-	-	590	-	-	63	52	452	85	53	592
Stage 1	-	-	-	-	-	-	187	247	-	328	381	-
Stage 2	-	-	-	-	-	-	571	373	-	421	246	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	807	-	-	590	-	-	47	48	452	46	49	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	47	48	-	46	49	-
Stage 1	-	-	-	-	-	-	180	238	-	316	369	-
Stage 2	-	-	-	-	-	-	513	361	-	316	237	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.2			0.3			73.1			74.2		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	137	807	-	-	590	-	-	95
HCM Lane V/C Ratio	0.672	0.038	-	-	0.032	-	-	0.484
HCM Control Delay (s/veh)	73.1	9.6	-	-	11.3	-	-	74.2
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q (veh)	3.7	0.1	-	-	0.1	-	-	2.1

Intersection												
Intersection Delay, s/veh	7.6											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	100	11	0	67	9	0	45	12	0	8	0
Future Vol, veh/h	0	100	11	0	67	9	0	45	12	0	8	0
Peak Hour 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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	100	11	0	67	9	0	45	12	0	8	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.7	7.5	7.5	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	0%	0%
Vol Thru, %	79%	90%	88%	100%
Vol Right, %	21%	10%	12%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	111	76	8
LT Vol	0	0	0	0
Through Vol	45	100	67	8
RT Vol	12	11	9	0
Lane Flow Rate	57	111	76	8
Geometry Grp	1	1	1	1
Degree of Util (X)	0.066	0.125	0.086	0.01
Departure Headway (Hd)	4.154	4.063	4.078	4.32
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	850	877	871	815
Service Time	2.24	2.115	2.137	2.419
HCM Lane V/C Ratio	0.067	0.127	0.087	0.01
HCM Control Delay, s/veh	7.5	7.7	7.5	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.3	0

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	108	110	344	10	111	1619	1	1099	39
v/c Ratio	0.72	0.73	0.61	0.16	0.53	0.57	0.01	0.30	0.03
Control Delay (s/veh)	91.4	92.8	10.6	60.2	78.2	9.3	105.0	4.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.4	92.8	10.6	60.2	78.2	9.3	105.0	4.2	0.2
Queue Length 50th (ft)	110	112	0	6	55	202	1	36	0
Queue Length 95th (ft)	175	178	51	27	88	620	m4	128	0
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	177	177	601	165	801	2796	147	3600	1162
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.62	0.57	0.06	0.14	0.58	0.01	0.31	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

12/06/2024

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	234	202	1836	452	1106
v/c Ratio	0.56	0.69	0.55	0.84	0.25
Control Delay (s/veh)	18.4	21.1	14.4	76.8	2.3
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	18.4	21.1	14.5	76.8	2.3
Queue Length 50th (ft)	15	0	380	172	34
Queue Length 95th (ft)	57	91	119	254	50
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	738	429	3333	803	4341
Starvation Cap Reductn	0	0	400	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.47	0.63	0.56	0.25
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

12/06/2024



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	36	210	69	1829	1363	16
v/c Ratio	0.46	0.65	0.46	0.40	0.33	0.01
Control Delay (s/veh)	88.3	18.0	68.0	3.2	2.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	88.3	18.0	68.0	3.2	2.7	1.6
Queue Length 50th (ft)	35	0	35	67	39	1
Queue Length 95th (ft)	74	46	58	309	75	m1
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	345	713	986	4553	4128	1287
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.29	0.07	0.40	0.33	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

12/06/2024

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	50	51	173	86	84	189	1797	53	1088
v/c Ratio	0.56	0.56	0.69	0.69	0.63	0.82	0.53	0.37	0.35
Control Delay (s/veh)	91.5	90.8	24.2	94.1	79.3	84.8	15.5	90.1	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.5	90.8	24.2	94.1	79.3	84.8	15.5	90.1	26.1
Queue Length 50th (ft)	51	52	0	88	74	193	495	56	253
Queue Length 95th (ft)	97	100	76	148	134	215	346	95	410
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	308	315	431	308	313	388	3348	212	3057
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.40	0.28	0.27	0.49	0.54	0.25	0.36
Intersection Summary									

Queues

5: Watt Avenue & Driveway/Karl Drive

12/06/2024



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1	17	117	16	1690	47	1070
v/c Ratio	0.00	0.14	0.69	0.17	0.46	0.45	0.27
Control Delay (s/veh)	66.0	34.8	63.9	84.3	8.8	76.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.0	34.8	63.9	84.3	8.8	76.3	8.1
Queue Length 50th (ft)	1	3	73	13	430	40	80
Queue Length 95th (ft)	8	29	139	m26	600	74	197
Internal Link Dist (ft)		245	409		1853		633
Turn Bay Length (ft)				195		155	
Base Capacity (vph)	289	278	392	206	3644	214	3852
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.06	0.30	0.08	0.46	0.22	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	112	59	27	17	48	1603	34	1096
v/c Ratio	0.71	0.33	0.39	0.28	0.54	0.43	0.31	0.29
Control Delay (s/veh)	90.2	21.2	85.9	43.5	128.0	1.0	59.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	90.2	21.2	85.9	43.5	128.0	1.0	59.1	6.4
Queue Length 50th (ft)	109	3	26	2	47	19	33	113
Queue Length 95th (ft)	171	49	60	29	98	23	57	98
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	253	417	257	396	241	3646	239	3691
Starvation Cap Reductn	0	0	0	0	0	158	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.14	0.11	0.04	0.20	0.46	0.14	0.30
Intersection Summary								

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

								
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	119	110	8	1393	277	115	905
v/c Ratio	0.12	0.75	0.56	0.06	0.56	0.24	0.74	0.23
Control Delay (s/veh)	63.3	93.6	44.1	65.0	28.4	14.2	92.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	63.3	93.6	44.1	65.0	28.4	14.2	92.7	10.3
Queue Length 50th (ft)	6	122	54	8	555	107	112	56
Queue Length 95th (ft)	25	189	122	m17	793	274	175	276
Internal Link Dist (ft)	135		542		1065			220
Turn Bay Length (ft)				200			215	
Base Capacity (vph)	205	310	334	259	2444	1143	299	3837
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.38	0.33	0.03	0.57	0.24	0.38	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	43	44	38	1396	28	1000
v/c Ratio	0.67	0.15	0.50	0.16	0.55	0.35	0.45
Control Delay (s/veh)	84.6	1.1	55.3	44.4	13.0	75.8	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.6	1.1	55.3	44.4	13.0	75.8	22.6
Queue Length 50th (ft)	48	0	19	24	298	23	176
Queue Length 95th (ft)	93	0	58	59	491	53	495
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	160	374	298	272	2533	168	2213
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.11	0.15	0.14	0.55	0.17	0.45
Intersection Summary							

Queues

9: Watt Avenue & Van Owen Street

12/06/2024



Lane Group	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	10	1478	54	1024
v/c Ratio	0.55	0.15	0.51	0.54	0.33
Control Delay (s/veh)	55.8	84.3	2.6	74.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.8	84.3	2.6	74.2	4.7
Queue Length 50th (ft)	23	8	19	37	81
Queue Length 95th (ft)	65	m16	31	m71	291
Internal Link Dist (ft)	284		1159		341
Turn Bay Length (ft)		200		225	
Base Capacity (vph)	466	292	2860	290	3088
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.03	0.52	0.19	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	381	731	187	221	437	104	222	1144	180	137	775
v/c Ratio	0.83	0.77	0.34	0.85	0.59	0.22	0.81	0.56	0.24	0.62	0.40
Control Delay (s/veh)	66.6	46.8	9.1	82.9	46.6	1.0	83.6	18.6	2.2	88.2	11.1
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)	66.6	46.8	9.1	82.9	46.6	1.0	83.6	18.6	2.2	88.2	11.1
Queue Length 50th (ft)	149	270	14	89	160	0	77	258	26	58	43
Queue Length 95th (ft)	201	342	71	#161	220	0	#145	174	4	91	39
Internal Link Dist (ft)	1265			520			552			447	
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	524	990	559	262	741	472	286	2040	742	252	1909
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.74	0.33	0.84	0.59	0.22	0.78	0.56	0.24	0.54	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	50	83	37	13	64	1314	27	735	50
v/c Ratio	0.50	0.52	0.50	0.05	0.16	0.50	0.34	0.37	0.05
Control Delay (s/veh)	70.6	27.7	76.6	0.4	43.1	19.0	43.0	29.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.6	27.7	76.6	0.4	43.1	19.0	43.0	29.9	4.5
Queue Length 50th (ft)	38	9	28	0	34	382	21	267	5
Queue Length 95th (ft)	79	59	64	0	m64	471	47	364	20
Internal Link Dist (ft)		1270	498			761		1406	
Turn Bay Length (ft)	135			100	330		200		120
Base Capacity (vph)	308	341	181	356	425	2593	287	1935	919
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.24	0.20	0.04	0.15	0.51	0.09	0.38	0.05

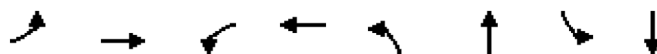
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	13	87	14	93	105	1195	61	837
v/c Ratio	0.09	0.39	0.20	0.49	0.54	0.48	0.54	0.36
Control Delay (s/veh)	53.2	27.0	62.6	38.1	56.8	7.9	77.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.2	27.0	62.6	38.1	56.8	7.9	77.5	4.5
Queue Length 50th (ft)	10	24	11	36	72	21	51	32
Queue Length 95th (ft)	31	72	33	90	147	435	m87	144
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	143	484	147	483	201	2489	156	2272
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.18	0.10	0.19	0.52	0.48	0.39	0.37

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	92	241	45	241	381	75	797	356	170	603	61
v/c Ratio	0.58	0.65	0.12	0.81	0.51	0.25	0.53	0.42	0.72	0.42	0.08
Control Delay (s/veh)	67.1	59.9	0.7	69.6	23.8	29.4	19.6	10.5	67.5	30.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.1	59.9	0.7	69.6	23.8	29.4	19.6	10.5	67.5	30.4	0.2
Queue Length 50th (ft)	70	95	0	181	68	45	249	127	128	191	0
Queue Length 95th (ft)	121	135	0	264	114	90	401	270	193	267	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	258	657	464	364	932	318	1498	832	287	1489	764
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.37	0.10	0.66	0.41	0.24	0.53	0.43	0.59	0.40	0.08
Intersection Summary											

Minimal Impact Alternative AM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	190	20	0	20	550	1320	50	0	1875	220
Future Volume (veh/h)	70	0	190	20	0	20	550	1320	50	0	1875	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1899	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	70	0	190	20	0	20	550	1320	50	0	1875	220
Peak Hour 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
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	264	0	235	25	0	25	604	2586	98	1	2661	826
Arrive On Green	0.08	0.00	0.08	0.03	0.00	0.03	0.18	0.76	0.76	0.00	1.00	1.00
Sat Flow, veh/h	3478	0	3095	852	0	852	3374	3408	129	1739	4985	1547
Grp Volume(v), veh/h	70	0	190	40	0	0	550	671	699	0	1875	220
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1703	0	0	1687	1735	1803	1739	1662	1547
Q Serve(g_s), s	2.3	0.0	7.3	2.8	0.0	0.0	19.2	18.3	18.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	7.3	2.8	0.0	0.0	19.2	18.3	18.3	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.50		0.50	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	264	0	235	50	0	0	604	1316	1368	1	2661	826
V/C Ratio(X)	0.27	0.00	0.81	0.80	0.00	0.00	0.91	0.51	0.51	0.00	0.70	0.27
Avail Cap(c_a), veh/h	264	0	235	53	0	0	790	1316	1368	116	2661	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.84	0.84
Uniform Delay (d), s/veh	52.3	0.0	54.6	57.9	0.0	0.0	48.3	5.7	5.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	17.6	50.8	0.0	0.0	10.5	1.4	1.4	0.0	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	1.0	0.0	3.4	1.9	0.0	0.0	8.9	5.9	6.1	0.0	0.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.5	0.0	72.2	108.7	0.0	0.0	58.9	7.1	7.1	0.0	1.3	0.7
LnGrp LOS	D		E	F			E	A	A		A	A
Approach Vol, veh/h	260			40			1920			2095		
Approach Delay, s/veh	66.9			108.7			21.9			1.3		
Approach LOS	E			F			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	69.4		14.6	0.0	96.4		9.0				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	28.1	57.3		9.1	8.0	* 78		3.7				
Max Q Clear Time (g_c+I1), s	21.2	2.0		9.3	0.0	20.3		4.8				
Green Ext Time (p_c), s	0.3	7.2		0.0	0.0	3.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 15.4

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

12/06/2024

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	140	770	0	1500	50	805	1770
Future Volume (vph)	140	770	0	1500	50	805	1770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.89	0.85		0.99		1.00	1.00
Flt Protected	0.98	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3113	1413		4963		3367	4988
Flt Permitted	0.98	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3113	1413		4963		3367	4988
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	770	0	1500	50	805	1770
RTOR Reduction (vph)	345	345	0	3	0	0	0
Lane Group Flow (vph)	180	40	0	1547	0	805	1770
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	12.4	12.4		59.4		32.1	96.5
Effective Green, g (s)	12.4	12.4		59.4		32.1	96.5
Actuated g/C Ratio	0.10	0.10		0.50		0.27	0.80
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	321	146		2456		900	4011
v/s Ratio Prot	c0.06			c0.31		c0.24	0.35
v/s Ratio Perm		0.03					
v/c Ratio	0.56	0.27		0.63		0.89	0.44
Uniform Delay, d1	51.2	49.6		22.2		42.3	3.5
Progression Factor	1.00	1.00		0.87		1.08	0.17
Incremental Delay, d2	1.3	0.3		1.1		8.6	0.2
Delay (s)	52.5	50.0		20.5		54.7	0.8
Level of Service	D	D		C		D	A
Approach Delay (s/veh)	51.4			20.5			17.7
Approach LOS	D			C			B
Intersection Summary							
HCM 2000 Control Delay (s/veh)			24.7		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.70				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			78.6%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

12/06/2024

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	275	455	1885	2230	90
Future Volume (veh/h)	45	275	455	1885	2230	90
Initial Q (Qb), veh	0	0	0	0	0	0
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	45	275	455	1885	2230	90
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	172	270	502	4099	3133	973
Arrive On Green	0.10	0.10	0.29	1.00	0.62	0.62
Sat Flow, veh/h	1767	2768	3428	5233	5233	1572
Grp Volume(v), veh/h	45	275	455	1885	2230	90
Grp Sat Flow(s),veh/h/ln	1767	1384	1714	1689	1689	1572
Q Serve(g_s), s	2.8	11.7	15.3	0.0	36.0	2.8
Cycle Q Clear(g_c), s	2.8	11.7	15.3	0.0	36.0	2.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	172	270	502	4099	3133	973
V/C Ratio(X)	0.26	1.02	0.91	0.46	0.71	0.09
Avail Cap(c_a), veh/h	172	270	706	4128	3133	973
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.70	0.70	0.09	0.09
Uniform Delay (d), s/veh	50.1	54.2	41.6	0.0	15.6	9.3
Incr Delay (d2), s/veh	0.3	59.8	7.2	0.3	0.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.3	5.9	0.1	12.8	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	50.4	113.9	48.8	0.3	15.7	9.3
LnGrp LOS	D	F	D	A	B	A
Approach Vol, veh/h	320			2340	2320	
Approach Delay, s/veh	105.0			9.7	15.5	
Approach LOS	F			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	22.9	79.9			102.8	17.2
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	24.7	* 67			* 98	11.7
Max Q Clear Time (g_c+I1), s	17.3	38.0			2.0	13.7
Green Ext Time (p_c), s	0.2	9.1			7.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			18.5			
HCM 6th LOS			B			
Notes						

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	35	365	285	75	30	345	1490	70	40	1715	140
Future Volume (veh/h)	100	35	365	285	75	30	345	1490	70	40	1715	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	81	365	195	201	30	345	1490	70	40	1715	140
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	383	402	341	256	229	34	197	1657	78	234	1703	139
Arrive On Green	0.22	0.22	0.22	0.14	0.14	0.14	0.04	0.11	0.11	0.04	0.12	0.12
Sat Flow, veh/h	1767	1856	1572	1767	1578	235	1767	4958	233	1767	4774	389
Grp Volume(v), veh/h	68	81	365	195	0	231	345	1015	545	40	1212	643
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1813	1767	1689	1814	1767	1689	1786
Q Serve(g_s), s	3.8	4.3	26.0	12.7	0.0	15.0	13.4	35.6	35.6	2.6	42.8	42.8
Cycle Q Clear(g_c), s	3.8	4.3	26.0	12.7	0.0	15.0	13.4	35.6	35.6	2.6	42.8	42.8
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.13	1.00		0.22
Lane Grp Cap(c), veh/h	383	402	341	256	0	263	197	1129	606	234	1205	637
V/C Ratio(X)	0.18	0.20	1.07	0.76	0.00	0.88	1.75	0.90	0.90	0.17	1.01	1.01
Avail Cap(c_a), veh/h	383	402	341	383	0	393	197	1227	659	234	1205	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	0.82	0.82	0.82
Uniform Delay (d), s/veh	38.3	38.5	47.0	49.3	0.0	50.3	57.8	51.4	51.4	51.0	52.9	52.9
Incr Delay (d2), s/veh	0.1	0.1	69.0	2.1	0.0	10.2	354.9	10.4	17.2	0.1	25.0	34.5
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	1.7	2.0	16.6	5.8	0.0	7.5	25.8	17.8	20.2	1.2	23.6	26.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.4	38.6	116.0	51.4	0.0	60.4	412.7	61.8	68.6	51.1	77.9	87.5
LnGrp LOS	D	D	F	D		E	F	E	E	D	F	F
Approach Vol, veh/h		514			426			1905			1895	
Approach Delay, s/veh		93.5			56.3			127.3			80.6	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	47.6		31.5	20.7	44.9		22.9				
Change Period (Y+Rc), s	4.6	* 4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	13.4	* 34		26.0	3.9	* 44		26.0				
Max Q Clear Time (g_c+I1), s	15.4	44.8		28.0	4.6	37.6		17.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			98.6									
HCM 6th LOS			F									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	10	155	5	110	10	1400	60	40	1860	5
Future Volume (veh/h)	0	0	10	155	5	110	10	1400	60	40	1860	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	0	10	155	5	110	10	1400	60	40	1860	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	41	0	37	171	6	122	33	1503	64	564	3132	8
Arrive On Green	0.00	0.00	0.02	0.18	0.18	0.18	0.04	0.61	0.61	0.64	1.00	1.00
Sat Flow, veh/h	1753	0	1560	959	31	680	1753	4941	212	1753	5174	14
Grp Volume(v), veh/h	0	0	10	270	0	0	10	949	511	40	1204	661
Grp Sat Flow(s),veh/h/ln	1753	0	1560	1670	0	0	1753	1675	1803	1753	1675	1838
Q Serve(g_s), s	0.0	0.0	0.8	19.0	0.0	0.0	0.7	30.7	30.7	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.8	19.0	0.0	0.0	0.7	30.7	30.7	1.0	0.0	0.0
Prop In Lane	1.00		1.00	0.57		0.41	1.00		0.12	1.00		0.01
Lane Grp Cap(c), veh/h	41	0	37	299	0	0	33	1019	548	564	2028	1113
V/C Ratio(X)	0.00	0.00	0.27	0.90	0.00	0.00	0.30	0.93	0.93	0.07	0.59	0.59
Avail Cap(c_a), veh/h	146	0	130	411	0	0	117	1463	787	564	2028	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.76	0.76	0.76	0.67	0.67	0.67
Uniform Delay (d), s/veh	0.0	0.0	57.6	48.3	0.0	0.0	57.0	22.4	22.4	14.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.4	15.5	0.0	0.0	1.4	12.9	20.4	0.0	0.9	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	0.0	0.0	0.3	9.2	0.0	0.0	0.3	9.3	11.1	0.4	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	59.0	63.7	0.0	0.0	58.4	35.2	42.7	14.7	0.9	1.6
LnGrp LOS	E			E	E			D	D	B	A	A
Approach Vol, veh/h	10			270			1470			1905		
Approach Delay, s/veh	59.0			63.7			38.0			1.4		
Approach LOS	E			E			D			A		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.3	77.4	8.3		43.4	41.3	27.0					
Change Period (Y+Rc), s	5.0	4.8	5.5		4.8	* 4.8	5.5					
Max Green Setting (Gmax), s	8.0	51.7	10.0		8.0	* 52	29.5					
Max Q Clear Time (g_c+I1), s	2.7	2.0	2.8		3.0	32.7	21.0					
Green Ext Time (p_c), s	0.0	5.8	0.0		0.0	3.8	0.5					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			20.9									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	35	95	85	35	60	110	1345	75	65	1640	180
Future Volume (veh/h)	210	35	95	85	35	60	110	1345	75	65	1640	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	210	35	95	85	35	60	110	1345	75	65	1640	180
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	224	63	171	107	46	78	117	1437	80	576	2556	280
Arrive On Green	0.13	0.14	0.14	0.06	0.07	0.07	0.13	0.59	0.59	0.66	1.00	1.00
Sat Flow, veh/h	1753	438	1189	1753	609	1044	1753	4870	272	1753	4597	503
Grp Volume(v), veh/h	210	0	130	85	0	95	110	925	495	65	1194	626
Grp Sat Flow(s),veh/h/ln	1753	0	1627	1753	0	1653	1753	1675	1792	1753	1675	1750
Q Serve(g_s), s	14.2	0.0	8.9	5.7	0.0	6.8	7.5	30.3	30.3	1.6	0.0	0.0
Cycle Q Clear(g_c), s	14.2	0.0	8.9	5.7	0.0	6.8	7.5	30.3	30.3	1.6	0.0	0.0
Prop In Lane	1.00		0.73	1.00		0.63	1.00		0.15	1.00		0.29
Lane Grp Cap(c), veh/h	224	0	234	107	0	124	117	988	529	576	1863	973
V/C Ratio(X)	0.94	0.00	0.56	0.80	0.00	0.77	0.94	0.94	0.94	0.11	0.64	0.64
Avail Cap(c_a), veh/h	224	0	496	183	0	468	117	1198	641	576	1863	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.89	0.89	0.89	0.82	0.82	0.82
Uniform Delay (d), s/veh	51.9	0.0	47.8	55.6	0.0	54.5	51.8	23.6	23.6	14.1	0.0	0.0
Incr Delay (d2), s/veh	43.1	0.0	0.8	5.0	0.0	3.7	59.9	15.4	24.1	0.0	1.4	2.7
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	8.9	0.0	3.6	2.7	0.0	3.0	5.0	9.8	11.8	0.7	0.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	95.0	0.0	48.6	60.6	0.0	58.2	111.7	39.0	47.7	14.1	1.4	2.7
LnGrp LOS	F		D	E		E	F	D	D	B	A	A
Approach Vol, veh/h	340		180				1530		1885			
Approach Delay, s/veh	77.2		59.4				47.0		2.3			
Approach LOS	E		E				D		A			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	71.9	20.8	14.3	44.6	40.3	12.5	22.6				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	8.0	* 42	15.3	* 34	7.4	42.9	12.5	36.6				
Max Q Clear Time (g_c+I1), s	9.5	2.0	16.2	8.8	3.6	32.3	7.7	10.9				
Green Ext Time (p_c), s	0.0	5.7	0.0	0.2	0.0	3.1	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	28.8											
HCM 6th LOS	C											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	335	5	60	10	1065	435	225	1805	5
Future Volume (veh/h)	5	5	5	335	5	60	10	1065	435	225	1805	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	5	5	5	395	0	0	10	1065	435	225	1805	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	6	6	6	453	238	0	301	1872	835	251	2593	7
Arrive On Green	0.01	0.01	0.01	0.13	0.00	0.00	0.34	1.00	1.00	0.14	0.50	0.50
Sat Flow, veh/h	570	570	570	3506	1841	0	1753	3497	1560	1753	5174	14
Grp Volume(v), veh/h	15	0	0	395	0	0	10	1065	435	225	1169	641
Grp Sat Flow(s),veh/h/ln	1710	0	0	1753	1841	0	1753	1749	1560	1753	1675	1838
Q Serve(g_s), s	1.1	0.0	0.0	13.3	0.0	0.0	0.5	0.0	0.0	15.1	32.1	32.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	13.3	0.0	0.0	0.5	0.0	0.0	15.1	32.1	32.1
Prop In Lane	0.33		0.33	1.00		0.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	17	0	0	453	238	0	301	1872	835	251	1679	921
V/C Ratio(X)	0.88	0.00	0.00	0.87	0.00	0.00	0.03	0.57	0.52	0.90	0.70	0.70
Avail Cap(c_a), veh/h	43	0	0	707	371	0	301	1872	835	342	1870	1026
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	0.0	51.3	0.0	0.0	32.8	0.0	0.0	50.5	22.9	22.9
Incr Delay (d2), s/veh	36.2	0.0	0.0	4.7	0.0	0.0	0.0	1.0	1.8	16.9	2.4	4.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	6.1	0.0	0.0	0.2	0.3	0.4	7.8	12.7	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	95.6	0.0	0.0	56.0	0.0	0.0	32.8	1.0	1.8	67.4	25.3	27.3
LnGrp LOS	F			E			C	A	A	E	C	C
Approach Vol, veh/h	15			395			1510			2035		
Approach Delay, s/veh	95.6			56.0			1.4			30.6		
Approach LOS	F			E			A			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.6	65.4		6.7	21.8	69.2		22.3				
Change Period (Y+Rc), s	5.0	* 5.3		5.5	4.6	5.0		6.8				
Max Green Setting (Gmax), s	3.4	* 67		3.0	23.4	47.5		24.2				
Max Q Clear Time (g_c+I1), s	2.5	34.1		3.1	17.1	2.0		15.3				
Green Ext Time (p_c), s	0.0	26.1		0.0	0.1	25.2		0.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	22.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	35	100	40	20	30	25	995	15	20	1860	65
Future Volume (veh/h)	75	35	100	40	20	30	25	995	15	20	1860	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	75	35	100	40	20	30	25	995	15	20	1860	65
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	194	70	192	105	52	43	72	2229	34	72	2174	76
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.04	0.63	0.63	0.04	0.63	0.63
Sat Flow, veh/h	900	570	1560	276	425	351	1753	3527	53	1753	3448	120
Grp Volume(v), veh/h	110	0	100	90	0	0	25	493	517	20	938	987
Grp Sat Flow(s),veh/h/ln	1470	0	1560	1053	0	0	1753	1749	1831	1753	1749	1819
Q Serve(g_s), s	0.0	0.0	4.4	1.7	0.0	0.0	1.0	10.6	10.6	0.8	31.3	32.0
Cycle Q Clear(g_c), s	5.1	0.0	4.4	6.9	0.0	0.0	1.0	10.6	10.6	0.8	31.3	32.0
Prop In Lane	0.68		1.00	0.44		0.33	1.00		0.03	1.00		0.07
Lane Grp Cap(c), veh/h	264	0	192	201	0	0	72	1105	1157	72	1102	1147
V/C Ratio(X)	0.42	0.00	0.52	0.45	0.00	0.00	0.35	0.45	0.45	0.28	0.85	0.86
Avail Cap(c_a), veh/h	638	0	591	569	0	0	185	3014	3156	163	2981	3101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	30.0	30.7	0.0	0.0	34.1	6.9	6.9	34.0	10.8	10.9
Incr Delay (d2), s/veh	0.4	0.0	0.8	0.6	0.0	0.0	1.0	0.1	0.1	0.8	0.7	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	1.8	0.0	1.7	1.5	0.0	0.0	0.4	3.1	3.2	0.3	9.2	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.7	0.0	30.8	31.3	0.0	0.0	35.1	7.0	7.0	34.8	11.5	11.7
LnGrp LOS	C		C	C			D	A	A	C	B	B
Approach Vol, veh/h	210		90			1035			1945			
Approach Delay, s/veh	30.7		31.3			7.7			11.8			
Approach LOS	C		C			A			B			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.3	51.5	14.3		7.2	51.6	14.3					
Change Period (Y+Rc), s	4.3	5.4	5.3		4.2	* 5.4	5.3					
Max Green Setting (Gmax), s	7.7	124.6	27.7		6.8	1.3E+02	27.7					
Max Q Clear Time (g_c+I1), s	3.0	34.0	7.1		2.8	12.6	8.9					
Green Ext Time (p_c), s	0.0	12.0	0.2		0.0	4.8	0.2					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	12.3											
HCM 6th LOS	B											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	45	0	20	35	1065	5	20	1930	0
Future Volume (veh/h)	0	0	0	45	0	20	35	1065	5	20	1930	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	0	0	45	0	20	35	1065	5	20	1930	0
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	0	101	85	118	0	24	43	2738	13	56	2712	0
Arrive On Green	0.00	0.00	0.00	0.05	0.00	0.05	0.02	0.77	0.77	0.03	0.78	0.00
Sat Flow, veh/h	0	1841	1560	997	2	444	1753	3570	17	1753	3589	0
Grp Volume(v), veh/h	0	0	0	65	0	0	35	522	548	20	1930	0
Grp Sat Flow(s),veh/h/ln	0	1841	1560	1442	0	0	1753	1749	1838	1753	1749	0
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	1.9	9.6	9.6	1.1	26.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.3	0.0	0.0	1.9	9.6	9.6	1.1	26.7	0.0
Prop In Lane	0.00		1.00	0.69		0.31	1.00		0.01	1.00		0.00
Lane Grp Cap(c), veh/h	0	101	85	142	0	0	43	1341	1410	56	2712	0
V/C Ratio(X)	0.00	0.00	0.00	0.46	0.00	0.00	0.81	0.39	0.39	0.36	0.71	0.00
Avail Cap(c_a), veh/h	0	553	469	497	0	0	105	1559	1638	107	3125	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)	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	45.1	0.0	0.0	46.8	3.7	3.7	45.7	5.4	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	0.0	12.2	0.4	0.4	1.4	0.9	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	0.0	0.0	0.0	1.6	0.0	0.0	1.0	2.5	2.6	0.5	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	46.0	0.0	0.0	59.1	4.1	4.1	47.1	6.4	0.0
LnGrp LOS				D				E	A	A	D	A
Approach Vol, veh/h	0				65				1105			
Approach Delay, s/veh	0.0				46.0				5.8			
Approach LOS					D				A			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	79.8		10.1	7.4	79.0		10.1				
Change Period (Y+Rc), s	4.2	5.0		4.8	4.3	5.0		4.8				
Max Green Setting (Gmax), s	5.8	86.2		29.0	5.9	86.0		29.0				
Max Q Clear Time (g_c+I1), s	3.9	28.7		0.0	3.1	11.6		6.3				
Green Ext Time (p_c), s	0.0	46.1		0.0	0.0	20.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				7.3								
HCM 6th LOS				A								

HCM 6th TWSC
10: Watt Avenue & Commercial Drveway/Milton Way

12/06/2024

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	0	0	95	0	0	15	20	1155	10	35	1865	80
Future Vol, veh/h	0	0	95	0	0	15	20	1155	10	35	1865	80
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	95	0	0	15	20	1155	10	35	1865	80

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	973	-	-	583	1945	0	0	1165	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	5.36	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	3.13	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	215	0	0	388	132	-	-	323	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	215	-	-	388	132	-	-	323	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	34.4		14.7		0.6		0.3	
HCM LOS	D		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	132	-	-	215	388	323	-
HCM Lane V/C Ratio	0.152	-	-	0.442	0.039	0.108	-
HCM Control Delay (s/veh)	37.1	-	-	34.4	14.7	17.5	-
HCM Lane LOS	E	-	-	D	B	C	-
HCM 95th %tile Q (veh)	0.5	-	-	2.1	0.1	0.4	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	740	275	315	725	55	240	570	125	100	1585	215
Future Volume (veh/h)	225	740	275	315	725	55	240	570	125	100	1585	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	225	740	275	315	725	55	240	570	125	100	1585	215
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	358	913	407	363	913	407	289	2145	666	146	1723	233
Arrive On Green	0.10	0.26	0.26	0.11	0.26	0.26	0.08	0.42	0.42	0.04	0.38	0.38
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4512	611
Grp Volume(v), veh/h	225	740	275	315	725	55	240	570	125	100	1185	615
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1746
Q Serve(g_s), s	8.5	26.7	21.3	12.3	26.0	3.0	9.3	9.9	6.7	3.9	45.3	45.5
Cycle Q Clear(g_c), s	8.5	26.7	21.3	12.3	26.0	3.0	9.3	9.9	6.7	3.9	45.3	45.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	358	913	407	363	913	407	289	2145	666	146	1290	667
V/C Ratio(X)	0.63	0.81	0.68	0.87	0.79	0.14	0.83	0.27	0.19	0.68	0.92	0.92
Avail Cap(c_a), veh/h	358	1023	456	473	1142	509	372	2636	818	233	1605	830
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	58.1	47.1	45.1	59.6	46.8	26.6	61.1	25.4	24.5	64.0	39.9	39.9
Incr Delay (d2), s/veh	2.6	5.5	5.0	10.5	4.3	0.3	9.5	0.1	0.3	2.1	6.9	12.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	12.1	8.7	5.8	11.7	1.4	4.4	4.0	2.5	1.7	19.2	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.8	52.6	50.1	70.2	51.1	26.9	70.6	25.5	24.7	66.1	46.8	52.3
LnGrp LOS	E	D	D	E	D	C	E	C	C	E	D	D
Approach Vol, veh/h		1240			1095			935			1900	
Approach Delay, s/veh		53.5			55.4			37.0			49.6	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.9	58.0	19.9	40.8	11.3	63.6	19.9	40.8				
Change Period (Y+Rc), s	5.5	* 6.2	* 5.7	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	14.7	* 64	* 14	* 44	9.2	* 71	18.7	39.3				
Max Q Clear Time (g_c+I1), s	11.3	47.5	10.5	28.0	5.9	11.9	14.3	28.7				
Green Ext Time (p_c), s	0.1	4.2	0.1	7.1	0.0	9.8	0.1	6.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			49.5									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	25	25	990	20	30	1510	0
Future Vol, veh/h	0	0	0	0	0	25	25	990	20	30	1510	0
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	-	-	0	-	-	0	210	-	-	230	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	0	0	0	25	25	990	20	30	1510	0

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	755	-	-	505	1510	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.98	-	-	6.98	4.18	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.34	-	-	3.34	2.24	-
Pot Cap-1 Maneuver	0	0	347	0	0	507	429	-
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	347	-	-	507	429	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	12.5	0.3	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	429	-	-	-	507	670	-
HCM Lane V/C Ratio	0.058	-	-	-	0.049	0.045	-
HCM Control Delay (s/veh)	13.9	-	-	0	12.5	10.6	-
HCM Lane LOS	B	-	-	A	B	B	-
HCM 95th %tile Q (veh)	0.2	-	-	-	0.2	0.1	-

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	30	45	80	15	35	45	900	75	45	1405	35
Future Volume (veh/h)	65	30	45	80	15	35	45	900	75	45	1405	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	65	30	45	80	15	35	45	900	75	45	1405	35
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	116	44	66	111	21	116	57	1976	165	57	2114	943
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.03	0.60	0.60	0.03	0.60	0.60
Sat Flow, veh/h	1767	670	1005	1499	281	1572	1767	3294	275	1767	3526	1572
Grp Volume(v), veh/h	65	0	75	95	0	35	45	482	493	45	1405	35
Grp Sat Flow(s),veh/h/ln	1767	0	1675	1781	0	1572	1767	1763	1806	1767	1763	1572
Q Serve(g_s), s	3.1	0.0	3.8	4.6	0.0	1.9	2.2	13.2	13.2	2.2	23.3	0.8
Cycle Q Clear(g_c), s	3.1	0.0	3.8	4.6	0.0	1.9	2.2	13.2	13.2	2.2	23.3	0.8
Prop In Lane	1.00		0.60	0.84		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	116	0	110	132	0	116	57	1057	1083	57	2114	943
V/C Ratio(X)	0.56	0.00	0.68	0.72	0.00	0.30	0.79	0.46	0.46	0.79	0.66	0.04
Avail Cap(c_a), veh/h	302	0	286	527	0	465	251	2034	2084	251	4092	1825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	0.0	40.2	39.8	0.0	38.5	42.2	9.7	9.7	42.2	11.7	7.2
Incr Delay (d2), s/veh	1.6	0.0	2.8	2.8	0.0	0.5	8.9	0.5	0.5	8.9	0.6	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.7	2.1	0.0	0.7	1.1	4.3	4.4	1.1	7.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.4	0.0	42.9	42.6	0.0	39.1	51.2	10.2	10.2	51.2	12.3	7.2
LnGrp LOS	D		D	D		D	D	B	B	D	B	A
Approach Vol, veh/h		140			130			1020			1485	
Approach Delay, s/veh		42.2			41.6			12.0			13.3	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	58.3		10.8	7.3	58.3		11.5				
Change Period (Y+Rc), s	4.5	* 5.6		5.0	4.5	5.6		5.0				
Max Green Setting (Gmax), s	12.5	* 1E+02		15.0	12.5	101.4		26.0				
Max Q Clear Time (g_c+I1), s	4.2	25.3		5.8	4.2	15.2		6.6				
Green Ext Time (p_c), s	0.0	27.4		0.1	0.0	12.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			15.6									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	30	25	20	115	60	1040	25	130	1470	30
Future Volume (veh/h)	10	10	30	25	20	115	60	1040	25	130	1470	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	10	10	30	25	20	115	60	1040	25	130	1470	30
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	41	44	132	31	24	137	77	2288	55	154	2439	50
Arrive On Green	0.02	0.11	0.11	0.02	0.10	0.10	0.04	0.65	0.65	0.09	0.69	0.69
Sat Flow, veh/h	1767	409	1226	1767	238	1371	1767	3519	85	1767	3533	72
Grp Volume(v), veh/h	10	0	40	25	0	135	60	521	544	130	733	767
Grp Sat Flow(s),veh/h/ln	1767	0	1635	1767	0	1609	1767	1763	1840	1767	1763	1843
Q Serve(g_s), s	0.7	0.0	2.9	1.8	0.0	10.7	4.4	19.1	19.1	9.4	28.6	28.7
Cycle Q Clear(g_c), s	0.7	0.0	2.9	1.8	0.0	10.7	4.4	19.1	19.1	9.4	28.6	28.7
Prop In Lane	1.00		0.75	1.00		0.85	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	41	0	176	31	0	161	77	1147	1197	154	1217	1272
V/C Ratio(X)	0.24	0.00	0.23	0.81	0.00	0.84	0.78	0.45	0.45	0.84	0.60	0.60
Avail Cap(c_a), veh/h	140	0	406	96	0	355	174	1147	1197	300	1217	1272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	0.0	53.1	63.7	0.0	57.5	61.6	11.3	11.3	58.5	10.7	10.7
Incr Delay (d2), s/veh	1.1	0.0	0.2	16.3	0.0	4.5	6.3	1.3	1.2	4.7	2.2	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.2	1.0	0.0	4.6	2.1	7.1	7.4	4.3	10.3	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.5	0.0	53.3	80.0	0.0	62.0	67.9	12.6	12.5	63.2	12.9	12.8
LnGrp LOS	E		D	F		E	E	B	B	E	B	B
Approach Vol, veh/h		50			160			1125			1630	
Approach Delay, s/veh		55.3			64.8			15.5			16.9	
Approach LOS		E			E			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	94.8	7.7	17.5	15.3	89.6	6.7	18.5				
Change Period (Y+Rc), s	4.4	* 5	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	12.8	* 90	10.3	28.7	22.1	80.8	7.1	* 32				
Max Q Clear Time (g_c+I1), s	6.4	30.7	2.7	12.7	11.4	21.1	3.8	4.9				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.3	0.0	1.9	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			19.6									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	145	65	345	185	235	60	1000	200	190	1300	55
Future Volume (veh/h)	55	145	65	345	185	235	60	1000	200	190	1300	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	55	145	65	345	185	235	60	1000	200	190	1300	55
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	70	242	108	384	433	387	77	1221	545	227	1524	680
Arrive On Green	0.04	0.07	0.07	0.22	0.25	0.25	0.04	0.35	0.35	0.13	0.43	0.43
Sat Flow, veh/h	1767	3526	1572	1767	1763	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	55	145	65	345	185	235	60	1000	200	190	1300	55
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	2.8	3.6	3.6	17.0	7.9	11.9	3.0	23.2	8.6	9.4	29.8	1.8
Cycle Q Clear(g_c), s	2.8	3.6	3.6	17.0	7.9	11.9	3.0	23.2	8.6	9.4	29.8	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	242	108	384	433	387	77	1221	545	227	1524	680
V/C Ratio(X)	0.78	0.60	0.60	0.90	0.43	0.61	0.78	0.82	0.37	0.84	0.85	0.08
Avail Cap(c_a), veh/h	236	840	375	840	1011	902	197	2321	1035	510	2953	1317
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	42.7	40.6	40.6	34.2	28.5	30.0	42.5	26.8	22.0	38.2	22.9	15.0
Incr Delay (d2), s/veh	6.9	0.9	2.0	3.1	0.2	0.6	6.3	0.5	0.2	3.1	0.5	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	1.3	1.6	1.4	7.2	3.2	4.3	1.4	9.0	3.0	4.1	11.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.6	41.5	42.6	37.3	28.8	30.6	48.8	27.3	22.1	41.4	23.5	15.0
LnGrp LOS	D	D	D	D	C	C	D	C	C	D	C	B
Approach Vol, veh/h	265			765			1260			1545		
Approach Delay, s/veh	43.5			33.2			27.5			25.4		
Approach LOS	D			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	44.0	8.9	28.0	16.6	36.3	24.8	12.1				
Change Period (Y+Rc), s	5.0	* 5.2	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	10.0	* 75	12.0	* 52	25.9	59.1	42.7	* 21				
Max Q Clear Time (g_c+I1), s	5.0	31.8	4.8	13.9	11.4	25.2	19.0	5.6				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.5	0.2	5.0	0.5	0.6				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	28.9											
HCM 6th LOS	C											
Notes												

Intersection												
Intersection Delay, s/veh	9.5											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	50	10	50	45	5	30	200	40	5	205	5
Future Vol, veh/h	5	50	10	50	45	5	30	200	40	5	205	5
Peak Hour 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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	50	10	50	45	5	30	200	40	5	205	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.7	9.1	9.9	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	8%	50%	2%
Vol Thru, %	74%	77%	45%	95%
Vol Right, %	15%	15%	5%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	65	100	215
LT Vol	30	5	50	5
Through Vol	200	50	45	205
RT Vol	40	10	5	5
Lane Flow Rate	270	65	100	215
Geometry Grp	1	1	1	1
Degree of Util (X)	0.341	0.092	0.144	0.278
Departure Headway (Hd)	4.542	5.109	5.199	4.657
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	788	697	686	770
Service Time	2.584	3.176	3.263	2.702
HCM Lane V/C Ratio	0.343	0.093	0.146	0.279
HCM Control Delay, s/veh	9.9	8.7	9.1	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.5	0.3	0.5	1.1

HCM 6th TWSC
18: 34th Street & Elkhorn Boulevard

12/06/2024

Intersection												
Int Delay, s/veh	128											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1055	15	90	1105	30	5	20	60	25	65	70
Future Vol, veh/h	30	1055	15	90	1105	30	5	20	60	25	65	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	1055	15	90	1105	30	5	20	60	25	65	70

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1135	0	0	1070	0	0	1888	2438	535	1898	2430	568
Stage 1	-	-	-	-	-	-	1123	1123	-	1300	1300	-
Stage 2	-	-	-	-	-	-	765	1315	-	598	1130	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	611	-	-	647	-	-	43	31	490	42	~ 31	466
Stage 1	-	-	-	-	-	-	219	279	-	170	230	-
Stage 2	-	-	-	-	-	-	362	226	-	456	277	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	611	-	-	647	-	-	-	25	490	~ 11	~ 25	466
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	25	-	~ 11	~ 25	-
Stage 1	-	-	-	-	-	-	208	265	-	162	198	-
Stage 2	-	-	-	-	-	-	178	195	-	352	263	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.3	0.8		\$ 2048.6
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	611	-	-	647	-	-	32
HCM Lane V/C Ratio	-	0.049	-	-	0.139	-	-	5
HCM Control Delay (s/veh)	-	11.2	-	-	11.5	-	-	\$ 2048.6
HCM Lane LOS	-	B	-	-	B	-	-	F
HCM 95th %tile Q (veh)	-	0.2	-	-	0.5	-	-	19.1

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Intersection Delay, s/veh	8.1											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	80	15	25	30	10	15	25	40	15	120	5
Future Vol, veh/h	5	80	15	25	30	10	15	25	40	15	120	5
Peak Hour 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
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	5	80	15	25	30	10	15	25	40	15	120	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

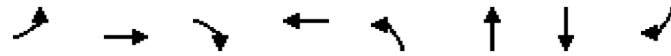
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	8	7.7	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	5%	38%	11%
Vol Thru, %	31%	80%	46%	86%
Vol Right, %	50%	15%	15%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	100	65	140
LT Vol	15	5	25	15
Through Vol	25	80	30	120
RT Vol	40	15	10	5
Lane Flow Rate	80	100	65	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.095	0.125	0.083	0.173
Departure Headway (Hd)	4.264	4.483	4.586	4.456
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	802	783	806
Service Time	2.284	2.499	2.605	2.475
HCM Lane V/C Ratio	0.095	0.125	0.083	0.174
HCM Control Delay, s/veh	7.7	8.1	8	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.3	0.6

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	35	35	190	40	550	1370	1875	220
v/c Ratio	0.42	0.42	0.59	0.18	0.85	0.49	0.67	0.22
Control Delay (s/veh)	69.6	69.6	15.7	1.8	60.3	5.0	9.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.6	69.6	15.7	1.8	60.3	5.0	9.0	1.0
Queue Length 50th (ft)	28	28	0	0	213	160	174	8
Queue Length 95th (ft)	64	64	39	0	264	226	320	0
Internal Link Dist (ft)		568		647		709	759	
Turn Bay Length (ft)	240				370			360
Base Capacity (vph)	123	123	380	222	781	2748	2769	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.28	0.50	0.18	0.70	0.50	0.68	0.23
Intersection Summary								

Queues

2: Watt Avenue & Airbase Drive

12/06/2024

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	525	385	1550	805	1770
v/c Ratio	0.78	0.78	0.63	0.89	0.44
Control Delay (s/veh)	22.9	16.8	21.8	56.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.9	16.8	21.8	56.0	0.9
Queue Length 50th (ft)	54	0	311	278	9
Queue Length 95th (ft)	106	108	457	352	46
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	919	586	2457	1014	4011
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.66	0.63	0.79	0.44
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

12/06/2024



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	45	275	455	1885	2230	90
v/c Ratio	0.47	0.67	0.82	0.43	0.68	0.08
Control Delay (s/veh)	70.3	14.8	47.8	3.9	10.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.3	14.8	47.8	3.9	10.3	1.2
Queue Length 50th (ft)	34	0	181	78	135	3
Queue Length 95th (ft)	73	46	221	287	m93	m1
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	170	517	699	4321	3252	1032
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.53	0.65	0.44	0.69	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

12/06/2024

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	68	365	194	196	345	1560	40	1855
v/c Ratio	0.39	0.38	0.87	0.80	0.79	0.66	0.61	0.24	1.29
Control Delay (s/veh)	53.9	53.6	33.8	72.7	68.8	42.2	18.0	50.8	171.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.9	53.6	33.8	72.7	68.8	42.2	18.0	50.8	171.2
Queue Length 50th (ft)	52	53	60	154	150	214	312	24	~648
Queue Length 95th (ft)	90	90	161	227	224	#558	337	m#73	#791
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	360	370	563	360	367	519	2519	161	1427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.18	0.65	0.54	0.53	0.66	0.62	0.25	1.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

5: Watt Avenue & Driveway/Karl Drive

12/06/2024



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	270	10	1460	40	1865
v/c Ratio	0.02	0.85	0.08	0.45	0.31	0.54
Control Delay (s/veh)	0.1	65.9	73.2	5.4	39.9	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.1	65.9	73.2	5.4	39.9	7.0
Queue Length 50th (ft)	0	185	8	32	25	128
Queue Length 95th (ft)	0	263	m10	472	m38	113
Internal Link Dist (ft)	245	409		1853		633
Turn Bay Length (ft)			195		155	
Base Capacity (vph)	380	432	115	3226	127	3444
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.63	0.09	0.45	0.31	0.54

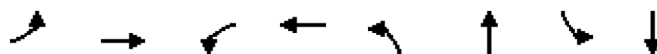
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	130	85	95	110	1420	65	1820
v/c Ratio	0.95	0.46	0.65	0.64	0.58	0.55	0.26	0.68
Control Delay (s/veh)	102.6	22.5	76.1	43.2	75.9	10.2	39.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	102.6	22.5	76.1	43.2	75.9	10.2	39.0	16.6
Queue Length 50th (ft)	164	25	65	27	70	65	45	292
Queue Length 95th (ft)	#316	87	117	80	m148	185	m88	162
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	221	561	180	511	188	2580	257	2663
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.23	0.47	0.19	0.59	0.55	0.25	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

	→	↘	←	↙	↑	↗	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	204	196	10	1065	435	225	1810
v/c Ratio	0.29	0.82	0.77	0.20	0.57	0.42	0.84	0.51
Control Delay (s/veh)	59.4	74.7	63.8	48.2	9.1	2.1	75.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.4	74.7	63.8	48.2	9.1	2.1	75.8	10.4
Queue Length 50th (ft)	8	163	142	8	73	4	171	176
Queue Length 95th (ft)	32	241	217	m12	m274	m85	251	390
Internal Link Dist (ft)	135		542		1065			220
Turn Bay Length (ft)				200			215	
Base Capacity (vph)	51	332	336	49	1845	1024	338	3527
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.61	0.58	0.20	0.58	0.42	0.67	0.51
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

Queues

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	100	90	25	1010	20	1925
v/c Ratio	0.55	0.33	0.42	0.25	0.41	0.21	0.82
Control Delay (s/veh)	61.5	18.6	50.4	68.6	7.0	69.2	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.5	18.6	50.4	68.6	7.0	69.2	15.9
Queue Length 50th (ft)	64	7	45	15	90	12	429
Queue Length 95th (ft)	190	73	145	64	253	55	774
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	471	588	490	165	3273	145	3259
Starvation Cap Reductn	0	0	0	0	0	0	70
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.17	0.18	0.15	0.31	0.14	0.60
Intersection Summary							

Queues

9: Watt Avenue & Van Owen Street

12/06/2024



Lane Group	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	35	1070	20	1930
v/c Ratio	0.54	0.40	0.36	0.24	0.66
Control Delay (s/veh)	37.2	65.5	3.2	59.3	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.2	65.5	3.2	59.3	6.8
Queue Length 50th (ft)	11	25	47	14	291
Queue Length 95th (ft)	55	60	161	41	443
Internal Link Dist (ft)	284		1159		341
Turn Bay Length (ft)		200		225	
Base Capacity (vph)	447	102	2950	104	2890
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.34	0.36	0.19	0.67
Intersection Summary					

Queues

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	225	740	275	315	725	55	240	570	125	100	1800
v/c Ratio	0.63	0.82	0.56	0.83	0.78	0.11	0.80	0.26	0.16	0.57	0.92
Control Delay (s/veh)	75.1	62.4	33.1	85.3	58.6	0.8	88.0	27.6	3.9	85.1	52.5
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)	75.1	62.4	33.1	85.3	58.6	0.8	88.0	27.6	3.9	85.1	52.5
Queue Length 50th (ft)	117	385	143	165	366	0	126	134	0	53	635
Queue Length 95th (ft)	#176	475	249	#234	446	3	#188	167	36	87	707
Internal Link Dist (ft)	1265			520			552			447	
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	352	939	507	433	1050	538	341	2422	822	213	2183
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.79	0.54	0.73	0.69	0.10	0.70	0.24	0.15	0.47	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024



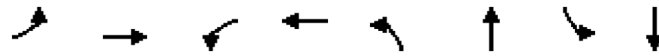
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	65	75	95	35	45	975	45	1405	35
v/c Ratio	0.48	0.46	0.62	0.14	0.40	0.50	0.40	0.70	0.03
Control Delay (s/veh)	68.4	45.0	70.5	1.1	68.7	16.1	68.7	20.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.4	45.0	70.5	1.1	68.7	16.1	68.7	20.2	0.0
Queue Length 50th (ft)	42	26	61	0	29	200	29	344	0
Queue Length 95th (ft)	118	97	158	0	90	357	90	602	1
Internal Link Dist (ft)		1270	498			761		1406	
Turn Bay Length (ft)	135			100	330		200		120
Base Capacity (vph)	270	287	348	473	225	3083	225	3130	1408
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.26	0.27	0.07	0.20	0.32	0.20	0.45	0.02

Intersection Summary

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	40	25	135	60	1065	130	1500
v/c Ratio	0.07	0.23	0.35	0.47	0.56	0.46	0.73	0.60
Control Delay (s/veh)	60.8	28.8	76.4	20.1	80.2	12.7	80.7	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay (s/veh)	60.8	28.8	76.4	20.1	80.2	12.7	80.7	12.7
Queue Length 50th (ft)	8	8	21	15	51	224	109	337
Queue Length 95th (ft)	29	46	55	87	103	358	186	524
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	142	439	98	453	177	2305	305	2491
Starvation Cap Reductn	0	0	0	0	0	0	0	456
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.09	0.26	0.30	0.34	0.46	0.43	0.74
Intersection Summary								

Queues

15: Watt Avenue & U Street/Antelope Road

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	145	65	345	420	60	1000	200	190	1300	55
v/c Ratio	0.45	0.50	0.24	0.80	0.40	0.51	0.82	0.31	0.72	0.81	0.07
Control Delay (s/veh)	77.4	67.3	2.2	62.6	23.0	81.3	45.3	10.8	71.6	36.3	0.1
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)	77.4	67.3	2.2	62.6	23.0	81.3	45.3	10.8	71.6	36.3	0.1
Queue Length 50th (ft)	44	61	0	267	79	48	390	27	150	497	0
Queue Length 95th (ft)	108	118	0	466	155	#118	588	97	287	714	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	176	628	401	627	1495	146	1735	852	380	2209	1032
Starvation Cap Reductn	0	0	0	0	0	0	7	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.23	0.16	0.55	0.28	0.41	0.58	0.23	0.50	0.59	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Minimal Impact Alternative PM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	20	555	45	10	30	275	1705	35	10	1485	80
Future Volume (veh/h)	250	20	555	45	10	30	275	1705	35	10	1485	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	264	0	555	45	10	30	275	1705	35	10	1485	80
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	0	476	56	12	37	320	2110	43	95	2825	877
Arrive On Green	0.15	0.00	0.15	0.06	0.06	0.06	0.09	0.59	0.59	0.11	1.00	1.00
Sat Flow, veh/h	3563	0	3170	945	210	630	3456	3561	73	1781	5106	1585
Grp Volume(v), veh/h	264	0	555	85	0	0	275	849	891	10	1485	80
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1785	0	0	1728	1777	1857	1781	1702	1585
Q Serve(g_s), s	10.2	0.0	22.5	7.1	0.0	0.0	11.8	55.9	56.4	0.8	0.0	0.0
Cycle Q Clear(g_c), s	10.2	0.0	22.5	7.1	0.0	0.0	11.8	55.9	56.4	0.8	0.0	0.0
Prop In Lane	1.00		1.00	0.53		0.35	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	534	0	476	105	0	0	320	1053	1100	95	2825	877
V/C Ratio(X)	0.49	0.00	1.17	0.81	0.00	0.00	0.86	0.81	0.81	0.11	0.53	0.09
Avail Cap(c_a), veh/h	534	0	476	137	0	0	435	1053	1100	96	2825	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	58.5	0.0	63.8	69.8	0.0	0.0	67.1	23.8	23.9	63.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	95.9	18.2	0.0	0.0	9.7	6.6	6.5	0.2	0.6	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	15.5	3.8	0.0	0.0	5.6	24.5	25.8	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.8	0.0	159.7	88.0	0.0	0.0	76.8	30.5	30.4	63.9	0.6	0.2
LnGrp LOS	E		F	F			E	C	C	E	A	A
Approach Vol, veh/h	819			85			2015			1575		
Approach Delay, s/veh	127.2			88.0			36.8			1.0		
Approach LOS	F			F			D			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.4	88.3		28.0	13.5	94.2		14.3				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	18.9	75.3		22.5	8.1	* 87		11.5				
Max Q Clear Time (g_c+I1), s	13.8	2.0		24.5	2.8	58.4		9.1				
Green Ext Time (p_c), s	0.1	4.9		0.0	0.0	4.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 41.7

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

12/06/2024

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	50	615	0	1765	210	530	1515
Future Volume (vph)	50	615	0	1765	210	530	1515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.87	0.85		0.98		1.00	1.00
Flt Protected	0.99	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3126	1441		5004		3433	5085
Flt Permitted	0.99	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3126	1441		5004		3433	5085
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	615	0	1765	210	530	1515
RTOR Reduction (vph)	284	283	0	7	0	0	0
Lane Group Flow (vph)	74	24	0	1968	0	530	1515
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	11.6	11.6		95.7		26.6	127.3
Effective Green, g (s)	11.6	11.6		95.7		26.6	127.3
Actuated g/C Ratio	0.08	0.08		0.64		0.18	0.85
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	241	111		3192		608	4315
v/s Ratio Prot	c0.02			c0.39		c0.15	0.30
v/s Ratio Perm		0.02					
v/c Ratio	0.30	0.21		0.61		0.87	0.35
Uniform Delay, d1	65.3	64.9		16.2		60.0	2.4
Progression Factor	1.00	1.00		0.66		0.91	0.67
Incremental Delay, d2	0.2	0.3		0.6		11.7	0.2
Delay (s)	65.6	65.2		11.4		66.5	1.8
Level of Service	E	E		B		E	A
Approach Delay (s/veh)	65.4			11.4			18.6
Approach LOS	E			B			B
Intersection Summary							
HCM 2000 Control Delay (s/veh)		22.2		HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio		0.64					
Actuated Cycle Length (s)		150.0		Sum of lost time (s)		16.1	
Intersection Capacity Utilization		75.6%		ICU Level of Service		D	
Analysis Period (min)		15					
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

12/06/2024

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	255	95	2155	1820	25
Future Volume (veh/h)	40	255	95	2155	1820	25
Initial Q (Qb), veh	0	0	0	0	0	0
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	40	255	95	2155	1820	25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	186	292	137	4228	3844	1193
Arrive On Green	0.10	0.10	0.08	1.00	1.00	1.00
Sat Flow, veh/h	1795	2812	3483	5316	5316	1598
Grp Volume(v), veh/h	40	255	95	2155	1820	25
Grp Sat Flow(s),veh/h/ln	1795	1406	1742	1716	1716	1598
Q Serve(g_s), s	3.1	13.4	4.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	13.4	4.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	186	292	137	4228	3844	1193
V/C Ratio(X)	0.21	0.87	0.69	0.51	0.47	0.02
Avail Cap(c_a), veh/h	269	422	318	4228	3844	1193
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.73	0.73	0.80	0.80
Uniform Delay (d), s/veh	61.6	66.2	68.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	9.9	1.7	0.3	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.2	1.8	0.1	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	61.8	76.1	69.9	0.3	0.3	0.0
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	295			2250	1845	
Approach Delay, s/veh	74.2			3.3	0.3	
Approach LOS	E			A	A	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.2	117.7		128.9	21.1	
Change Period (Y+Rc), s	5.3	* 5.7		* 5.7	5.5	
Max Green Setting (Gmax), s	13.7	* 97		* 1.2E+02	22.5	
Max Q Clear Time (g_c+I1), s	6.0	2.0		2.0	15.4	
Green Ext Time (p_c), s	0.0	6.7		9.2	0.2	
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			6.8			
HCM 6th LOS			A			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	25	185	130	30	25	230	1910	180	70	1490	90
Future Volume (veh/h)	80	25	185	130	30	25	230	1910	180	70	1490	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	64	185	93	83	25	230	1910	180	70	1490	90
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	242	205	132	102	31	251	2035	191	411	2558	155
Arrive On Green	0.13	0.13	0.13	0.07	0.07	0.07	0.14	0.43	0.43	0.46	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1380	416	1781	4749	445	1781	4924	297
Grp Volume(v), veh/h	53	64	185	93	0	108	230	1366	724	70	1030	550
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1796	1781	1702	1790	1781	1702	1817
Q Serve(g_s), s	4.0	4.6	17.3	7.7	0.0	8.9	19.1	57.5	58.2	3.4	0.0	0.0
Cycle Q Clear(g_c), s	4.0	4.6	17.3	7.7	0.0	8.9	19.1	57.5	58.2	3.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.25	1.00		0.16
Lane Grp Cap(c), veh/h	231	242	205	132	0	133	251	1459	767	411	1769	944
V/C Ratio(X)	0.23	0.26	0.90	0.71	0.00	0.81	0.92	0.94	0.94	0.17	0.58	0.58
Avail Cap(c_a), veh/h	310	325	276	310	0	312	302	1543	812	411	1769	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.88	0.88	0.88	0.92	0.92	0.92
Uniform Delay (d), s/veh	58.6	58.8	64.3	67.9	0.0	68.4	63.5	40.9	41.1	32.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	21.3	2.6	0.0	4.5	23.7	11.4	19.6	0.1	1.3	2.4
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	1.8	2.2	8.2	3.6	0.0	4.3	10.3	25.9	29.4	1.5	0.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.8	59.1	85.6	70.4	0.0	72.9	87.3	52.4	60.7	32.1	1.3	2.4
LnGrp LOS	E	E	F	E		E	F	D	E	C	A	A
Approach Vol, veh/h		302			201			2320			1650	
Approach Delay, s/veh		75.3			71.8			58.4			3.0	
Approach LOS		E			E			E			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.7	82.7		24.9	39.4	69.1		16.6				
Change Period (Y+Rc), s	4.6	* 4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	25.4	* 52		26.1	9.3	* 68		26.1				
Max Q Clear Time (g_c+I1), s	21.1	2.0		19.3	5.4	60.2		10.9				
Green Ext Time (p_c), s	0.0	4.5		0.2	0.0	4.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 39.7

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	65	5	80	20	1720	80	60	1485	5
Future Volume (veh/h)	5	5	15	65	5	80	20	1720	80	60	1485	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	15	65	5	80	20	1720	80	60	1485	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	18	53	75	6	92	54	1797	84	635	3597	12
Arrive On Green	0.04	0.04	0.04	0.10	0.10	0.10	0.06	0.72	0.72	0.71	1.00	1.00
Sat Flow, veh/h	1781	412	1236	725	56	893	1781	5000	232	1781	5254	18
Grp Volume(v), veh/h	5	0	20	150	0	0	20	1170	630	60	962	528
Grp Sat Flow(s),veh/h/ln	1781	0	1648	1673	0	0	1781	1702	1829	1781	1702	1867
Q Serve(g_s), s	0.4	0.0	1.8	13.2	0.0	0.0	1.6	46.4	46.6	1.6	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	1.8	13.2	0.0	0.0	1.6	46.4	46.6	1.6	0.0	0.0
Prop In Lane	1.00		0.75	0.43		0.53	1.00		0.13	1.00		0.01
Lane Grp Cap(c), veh/h	77	0	71	173	0	0	54	1224	657	635	2331	1278
V/C Ratio(X)	0.07	0.00	0.28	0.87	0.00	0.00	0.37	0.96	0.96	0.09	0.41	0.41
Avail Cap(c_a), veh/h	125	0	115	351	0	0	95	1707	917	635	2331	1278
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.70	0.70	0.70	0.88	0.88	0.88
Uniform Delay (d), s/veh	68.9	0.0	69.5	66.2	0.0	0.0	69.1	20.0	20.1	14.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.8	5.0	0.0	0.0	1.1	13.5	20.8	0.0	0.5	0.9
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	0.2	0.0	0.8	6.0	0.0	0.0	0.7	12.6	14.9	0.6	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.0	0.0	70.3	71.2	0.0	0.0	70.2	33.5	40.8	14.1	0.5	0.9
LnGrp LOS	E		E	E			E	C	D	B	A	A
Approach Vol, veh/h	25			150			1820			1550		
Approach Delay, s/veh	70.0			71.2			36.4			1.1		
Approach LOS	E			E			D			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	107.5		12.0	58.3	58.7		21.0				
Change Period (Y+Rc), s	5.0	4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	8.0	79.2		10.5	12.7	* 75		31.5				
Max Q Clear Time (g_c+I1), s	3.6	2.0		3.8	3.6	48.6		15.2				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	5.3		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	22.7											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	5	90	30	5	15	85	1700	20	40	1460	130
Future Volume (veh/h)	175	5	90	30	5	15	85	1700	20	40	1460	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	175	5	90	30	5	15	85	1700	20	40	1460	130
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	10	176	38	10	31	104	1777	21	683	3178	283
Arrive On Green	0.11	0.12	0.12	0.02	0.03	0.03	0.12	0.68	0.68	0.77	1.00	1.00
Sat Flow, veh/h	1781	84	1514	1781	412	1236	1781	5202	61	1781	4773	425
Grp Volume(v), veh/h	175	0	95	30	0	20	85	1112	608	40	1041	549
Grp Sat Flow(s),veh/h/ln	1781	0	1598	1781	0	1648	1781	1702	1859	1781	1702	1794
Q Serve(g_s), s	14.5	0.0	8.4	2.5	0.0	1.8	7.0	44.8	44.8	0.8	0.0	0.0
Cycle Q Clear(g_c), s	14.5	0.0	8.4	2.5	0.0	1.8	7.0	44.8	44.8	0.8	0.0	0.0
Prop In Lane	1.00		0.95	1.00		0.75	1.00		0.03	1.00		0.24
Lane Grp Cap(c), veh/h	197	0	186	38	0	42	104	1163	635	683	2267	1194
V/C Ratio(X)	0.89	0.00	0.51	0.78	0.00	0.48	0.82	0.96	0.96	0.06	0.46	0.46
Avail Cap(c_a), veh/h	291	0	546	83	0	374	154	1414	772	683	2267	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	0.91	0.91	0.91
Uniform Delay (d), s/veh	65.8	0.0	62.3	73.0	0.0	72.1	65.5	22.7	22.8	10.9	0.0	0.0
Incr Delay (d2), s/veh	15.1	0.0	0.8	12.2	0.0	3.1	10.3	16.0	23.9	0.0	0.6	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	3.4	1.3	0.0	0.8	3.3	13.8	16.5	0.3	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	80.9	0.0	63.1	85.2	0.0	75.2	75.7	38.7	46.7	10.9	0.6	1.2
LnGrp LOS	F		E	F		E	E	D	D	B	A	A
Approach Vol, veh/h	270		50			1805			1630			
Approach Delay, s/veh	74.6		81.2			43.1			1.0			
Approach LOS	E		F			D			A			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.7	105.1	22.1	9.1	62.7	56.1	8.4	22.8				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	13.0	* 58	24.5	* 34	8.8	62.3	7.0	51.3				
Max Q Clear Time (g_c+I1), s	9.0	2.0	16.5	3.8	2.8	46.8	4.5	10.4				
Green Ext Time (p_c), s	0.0	4.6	0.0	0.0	0.0	4.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	27.6											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	225	5	130	10	1690	190	125	1340	5
Future Volume (veh/h)	5	5	5	225	5	130	10	1690	190	125	1340	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	5	180	68	130	10	1690	190	125	1340	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	6	6	234	76	144	547	2239	999	146	2102	8
Arrive On Green	0.01	0.01	0.01	0.13	0.13	0.13	0.41	0.84	0.84	0.08	0.40	0.40
Sat Flow, veh/h	579	579	579	1781	574	1098	1781	3554	1585	1781	5251	20
Grp Volume(v), veh/h	15	0	0	180	0	198	10	1690	190	125	869	476
Grp Sat Flow(s),veh/h/ln	1737	0	0	1781	0	1673	1781	1777	1585	1781	1702	1867
Q Serve(g_s), s	1.3	0.0	0.0	14.6	0.0	17.5	0.5	31.5	3.5	10.4	30.8	30.8
Cycle Q Clear(g_c), s	1.3	0.0	0.0	14.6	0.0	17.5	0.5	31.5	3.5	10.4	30.8	30.8
Prop In Lane	0.33		0.33	1.00		0.66	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	18	0	0	234	0	220	547	2239	999	146	1363	747
V/C Ratio(X)	0.85	0.00	0.00	0.77	0.00	0.90	0.02	0.75	0.19	0.85	0.64	0.64
Avail Cap(c_a), veh/h	54	0	0	287	0	270	547	2239	999	183	2160	1185
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.1	0.0	0.0	62.9	0.0	64.2	30.9	7.0	4.8	67.9	36.2	36.2
Incr Delay (d2), s/veh	30.9	0.0	0.0	7.4	0.0	24.3	0.0	2.0	0.4	22.3	2.3	4.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	7.1	0.0	8.9	0.2	6.6	1.2	5.6	13.2	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	105.0	0.0	0.0	70.3	0.0	88.5	30.9	9.1	5.1	90.3	38.5	40.3
LnGrp LOS	F			E		F	C	A	A	F	D	D
Approach Vol, veh/h	15			378			1890			1470		
Approach Delay, s/veh	105.0			79.9			8.8			43.5		
Approach LOS	F			E			A			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	51.1	65.3		7.0	16.9	99.5		26.5				
Change Period (Y+Rc), s	5.0	* 5.3		5.5	4.6	5.0		6.8				
Max Green Setting (Gmax), s	3.5	* 95		4.7	15.4	83.8		24.2				
Max Q Clear Time (g_c+I1), s	2.5	32.8		3.3	12.4	33.5		19.5				
Green Ext Time (p_c), s	0.0	27.2		0.0	0.0	38.4		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				29.9								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary 8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷		↶↷		↶	↶↷		↶	↶↷	
Traffic Volume (veh/h)	50	20	45	20	10	20	115	1660	15	35	1375	130
Future Volume (veh/h)	50	20	45	20	10	20	115	1660	15	35	1375	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	20	45	20	10	20	115	1660	15	35	1375	130
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	35	115	57	29	30	706	2781	25	64	1314	124
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.40	0.77	0.77	0.07	0.80	0.80
Sat Flow, veh/h	961	480	1585	210	403	408	1781	3609	33	1781	3283	309
Grp Volume(v), veh/h	70	0	45	50	0	0	115	817	858	35	741	764
Grp Sat Flow(s),veh/h/ln	1441	0	1585	1021	0	0	1781	1777	1864	1781	1777	1815
Q Serve(g_s), s	0.0	0.0	3.3	1.0	0.0	0.0	5.0	23.4	23.5	2.3	48.0	48.0
Cycle Q Clear(g_c), s	5.7	0.0	3.3	6.7	0.0	0.0	5.0	23.4	23.5	2.3	48.0	48.0
Prop In Lane	0.71		1.00	0.40		0.40	1.00		0.02	1.00		0.17
Lane Grp Cap(c), veh/h	156	0	115	116	0	0	706	1369	1437	64	711	726
V/C Ratio(X)	0.45	0.00	0.39	0.43	0.00	0.00	0.16	0.60	0.60	0.55	1.04	1.05
Avail Cap(c_a), veh/h	218	0	181	179	0	0	706	1369	1437	116	1090	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	54.2	0.0	53.1	53.9	0.0	0.0	23.4	5.8	5.8	54.8	12.0	12.0
Incr Delay (d2), s/veh	0.7	0.0	0.8	0.9	0.0	0.0	0.0	0.5	0.5	2.4	43.0	45.6
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	2.1	0.0	1.3	1.5	0.0	0.0	2.1	7.1	7.4	1.0	13.1	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.9	0.0	53.9	54.8	0.0	0.0	23.4	6.4	6.4	57.2	55.0	57.6
LnGrp LOS	D		D	D			C	A	A	E	F	F
Approach Vol, veh/h		115			50			1790			1540	
Approach Delay, s/veh		54.5			54.8			7.5			56.3	
Approach LOS		D			D			A			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	48.3	57.6		14.0	8.5	97.5		14.0				
Change Period (Y+Rc), s	5.0	* 5.4		5.3	4.2	5.0		5.3				
Max Green Setting (Gmax), s	17.7	* 74		13.7	7.8	84.0		13.7				
Max Q Clear Time (g_c+I1), s	7.0	50.0		7.7	4.3	25.5		8.7				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	11.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			31.2									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

12/06/2024

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	0	30	5	25	10	1735	20	55	1480	5	
Future Volume (veh/h)	0	0	0	30	5	25	10	1735	20	55	1480	5	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	0	0	0	30	5	25	10	1735	20	55	1480	5	
Peak Hour 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	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	0	91	77	79	10	31	13	2012	23	479	3007	10	
Arrive On Green	0.00	0.00	0.00	0.05	0.05	0.05	0.01	0.56	0.56	0.27	0.83	0.83	
Sat Flow, veh/h	0	1870	1585	697	197	639	1781	3598	41	1781	3633	12	
Grp Volume(v), veh/h	0	0	0	60	0	0	10	856	899	55	724	761	
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1533	0	0	1781	1777	1863	1781	1777	1868	
Q Serve(g_s), s	0.0	0.0	0.0	4.2	0.0	0.0	0.7	49.1	49.4	2.8	14.2	14.2	
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.6	0.0	0.0	0.7	49.1	49.4	2.8	14.2	14.2	
Prop In Lane	0.00		1.00	0.50		0.42	1.00		0.02	1.00		0.01	
Lane Grp Cap(c), veh/h	0	91	77	119	0	0	13	994	1042	479	1471	1546	
V/C Ratio(X)	0.00	0.00	0.00	0.50	0.00	0.00	0.79	0.86	0.86	0.11	0.49	0.49	
Avail Cap(c_a), veh/h	0	452	383	412	0	0	50	1025	1074	479	1471	1546	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.78	0.78	0.78	1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	0.0	56.5	0.0	0.0	59.5	22.5	22.5	33.1	3.0	3.0	
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.2	0.0	0.0	26.4	6.5	6.3	0.0	1.2	1.1	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.9	0.0	0.0	0.4	20.9	22.0	1.2	3.7	3.9	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d), s/veh	0.0	0.0	0.0	57.7	0.0	0.0	85.9	29.0	28.9	33.1	4.2	4.1	
LnGrp LOS				E			F			C	C	A	A
Approach Vol, veh/h	0			60			1765			1540			
Approach Delay, s/veh	0.0			57.7			29.2			5.2			
Approach LOS				E			C			A			
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	5.1	104.3		10.6	37.3	72.1		10.6					
Change Period (Y+Rc), s	4.2	5.0		4.8	5.0	* 5		4.8					
Max Green Setting (Gmax), s	3.4	73.6		29.0	7.7	* 69		29.0					
Max Q Clear Time (g_c+I1), s	2.7	16.2		0.0	4.8	51.4		6.6					
Green Ext Time (p_c), s	0.0	32.7		0.0	0.0	15.7		0.1					
Intersection Summary													
HCM 6th Ctrl Delay, s/veh				18.7									
HCM 6th LOS				B									
Notes													

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
10: Watt Avenue & Commercial Drveway/Milton Way

12/06/2024

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	170	0	0	5	90	1740	15	35	1320	270
Future Vol, veh/h	0	0	170	0	0	5	90	1740	15	35	1320	270
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	170	0	0	5	90	1740	15	35	1320	270

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	795	-	-	878	1590	0	0	1755	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	284	0	0	250	201	-	-	166	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	284	-	-	250	201	-	-	166	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	34.9		19.7		1.8		0.7	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	201	-	-	284	250	166	-
HCM Lane V/C Ratio	0.448	-	-	0.599	0.02	0.211	-
HCM Control Delay (s/veh)	36.7	-	-	34.9	19.7	32.4	-
HCM Lane LOS	E	-	-	D	C	D	-
HCM 95th %tile Q (veh)	2.1	-	-	3.6	0.1	0.8	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	890	260	345	655	140	300	1385	225	185	950	215
Future Volume (veh/h)	450	890	260	345	655	140	300	1385	225	185	950	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	450	890	260	345	655	140	300	1385	225	185	950	215
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	502	1006	449	398	899	401	353	1712	532	239	1259	284
Arrive On Green	0.15	0.29	0.29	0.12	0.25	0.25	0.10	0.34	0.34	0.07	0.30	0.30
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4132	932
Grp Volume(v), veh/h	450	890	260	345	655	140	300	1385	225	185	776	389
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1688
Q Serve(g_s), s	15.5	29.0	17.0	11.9	20.4	8.7	10.3	29.9	13.3	6.4	24.9	25.0
Cycle Q Clear(g_c), s	15.5	29.0	17.0	11.9	20.4	8.7	10.3	29.9	13.3	6.4	24.9	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	502	1006	449	398	899	401	353	1712	532	239	1029	514
V/C Ratio(X)	0.90	0.88	0.58	0.87	0.73	0.35	0.85	0.81	0.42	0.77	0.75	0.76
Avail Cap(c_a), veh/h	557	1037	463	443	920	410	389	1712	532	257	1029	514
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	50.3	41.0	36.7	52.1	40.9	36.6	52.9	36.2	30.7	54.9	37.7	37.7
Incr Delay (d2), s/veh	15.1	9.7	2.8	14.2	3.5	1.1	13.9	4.2	2.5	11.3	5.1	10.0
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	7.5	13.4	6.7	5.8	9.0	3.4	5.1	12.7	5.2	3.1	10.6	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.4	50.7	39.5	66.3	44.4	37.6	66.8	40.4	33.1	66.2	42.8	47.7
LnGrp LOS	E	D	D	E	D	D	E	D	C	E	D	D
Approach Vol, veh/h	1600		1140				1910		1350			
Approach Delay, s/veh	53.0		50.2				43.7		47.4			
Approach LOS	D		D				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.9	42.8	23.1	36.3	13.9	46.8	19.4	39.9				
Change Period (Y+Rc), s	5.5	* 6.2	5.5	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	13.6	* 33	19.5	* 31	9.0	* 38	15.5	35.3				
Max Q Clear Time (g_c+I1), s	12.3	27.0	17.5	22.4	8.4	31.9	13.9	31.0				
Green Ext Time (p_c), s	0.0	1.6	0.1	4.7	0.0	5.3	0.1	3.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	48.3											
HCM 6th LOS	D											
Notes												

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↘		↗	↗↘	
Traffic Vol, veh/h	0	0	0	0	0	20	35	1555	35	25	1340	0
Future Vol, veh/h	0	0	0	0	0	20	35	1555	35	25	1340	0
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	-	-	0	-	-	0	210	-	-	230	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	20	35	1555	35	25	1340	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	670	-	-	795	1340	0	0	1590	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	399	0	0	330	510	-	-	409	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	399	-	-	330	510	-	-	409	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	16.6	0.3	0.3
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	510	-	-	-	330	409	-
HCM Lane V/C Ratio	0.069	-	-	-	0.061	0.061	-
HCM Control Delay (s/veh)	12.6	-	-	0	16.6	14.4	-
HCM Lane LOS	B	-	-	A	C	B	-
HCM 95th %tile Q (veh)	0.2	-	-	-	0.2	0.2	-

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	15	75	45	10	15	95	1455	80	55	1140	90
Future Volume (veh/h)	50	15	75	45	10	15	95	1455	80	55	1140	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	15	75	45	10	15	95	1455	80	55	1140	90
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	19	96	63	14	68	535	2328	128	71	1474	657
Arrive On Green	0.07	0.07	0.07	0.04	0.04	0.04	0.30	0.68	0.68	0.04	0.41	0.41
Sat Flow, veh/h	1781	271	1355	1470	327	1585	1781	3426	188	1781	3554	1585
Grp Volume(v), veh/h	50	0	90	55	0	15	95	752	783	55	1140	90
Grp Sat Flow(s),veh/h/ln	1781	0	1626	1797	0	1585	1781	1777	1837	1781	1777	1585
Q Serve(g_s), s	3.2	0.0	6.5	3.6	0.0	1.1	4.7	28.3	28.6	3.7	33.2	4.2
Cycle Q Clear(g_c), s	3.2	0.0	6.5	3.6	0.0	1.1	4.7	28.3	28.6	3.7	33.2	4.2
Prop In Lane	1.00		0.83	0.82		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	126	0	115	77	0	68	535	1207	1248	71	1474	657
V/C Ratio(X)	0.40	0.00	0.78	0.72	0.00	0.22	0.18	0.62	0.63	0.78	0.77	0.14
Avail Cap(c_a), veh/h	148	0	136	165	0	145	535	1207	1248	141	1955	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	53.3	0.0	54.9	56.7	0.0	55.5	31.0	10.7	10.7	57.1	30.3	21.8
Incr Delay (d2), s/veh	0.8	0.0	18.2	4.6	0.0	0.6	0.1	2.4	2.4	4.9	3.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	3.3	1.8	0.0	0.5	2.0	10.1	10.5	1.7	14.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.1	0.0	73.0	61.4	0.0	56.1	31.1	13.1	13.1	62.0	33.2	22.1
LnGrp LOS	D		E	E		E	C	B	B	E	C	C
Approach Vol, veh/h	140				70		1630				1285	
Approach Delay, s/veh	66.3				60.2		14.2				33.7	
Approach LOS	E				E		B				C	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	41.6	54.8	13.5		9.3	87.1	10.1					
Change Period (Y+Rc), s	5.6	* 5	5.0		4.5	5.6	5.0					
Max Green Setting (Gmax), s	13.5	* 66	10.0		9.5	69.4	11.0					
Max Q Clear Time (g_c+I1), s	6.7	35.2	8.5		5.7	30.6	5.6					
Green Ext Time (p_c), s	0.0	14.6	0.0		0.0	22.3	0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	25.6											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	35	55	20	65	130	105	1425	30	130	1365	40
Future Volume (veh/h)	20	35	55	20	65	130	105	1425	30	130	1365	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	35	55	20	65	130	105	1425	30	130	1365	40
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	105	166	24	75	149	502	2103	44	154	1368	40
Arrive On Green	0.04	0.16	0.16	0.01	0.13	0.13	0.56	1.00	1.00	0.17	0.78	0.78
Sat Flow, veh/h	1781	655	1030	1781	557	1113	1781	3559	75	1781	3525	103
Grp Volume(v), veh/h	20	0	90	20	0	195	105	711	744	130	687	718
Grp Sat Flow(s),veh/h/ln	1781	0	1685	1781	0	1670	1781	1777	1857	1781	1777	1852
Q Serve(g_s), s	1.3	0.0	5.7	1.3	0.0	13.7	3.5	0.0	0.0	8.5	45.9	46.3
Cycle Q Clear(g_c), s	1.3	0.0	5.7	1.3	0.0	13.7	3.5	0.0	0.0	8.5	45.9	46.3
Prop In Lane	1.00		0.61	1.00		0.67	1.00		0.04	1.00		0.06
Lane Grp Cap(c), veh/h	67	0	271	24	0	224	502	1050	1097	154	690	719
V/C Ratio(X)	0.30	0.00	0.33	0.83	0.00	0.87	0.21	0.68	0.68	0.85	1.00	1.00
Avail Cap(c_a), veh/h	138	0	452	83	0	391	502	1050	1097	165	808	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.73	0.73	0.50	0.50	0.50
Uniform Delay (d), s/veh	56.2	0.0	44.6	59.0	0.0	50.9	19.6	0.0	0.0	48.9	13.3	13.4
Incr Delay (d2), s/veh	0.9	0.0	0.3	22.3	0.0	4.0	0.1	2.6	2.5	16.0	23.4	23.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.4	0.8	0.0	6.0	1.4	0.8	0.8	4.1	9.4	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.1	0.0	44.9	81.3	0.0	54.9	19.6	2.6	2.5	64.9	36.8	36.8
LnGrp LOS	E		D	F		D	B	A	A	E	D	D
Approach Vol, veh/h	110				215		1560				1535	
Approach Delay, s/veh	47.1				57.4		3.7				39.2	
Approach LOS	D				E		A				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	53.2	9.2	20.6	14.3	75.9	6.0	23.8				
Change Period (Y+Rc), s	5.0	* 4.8	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	9.6	* 55	9.3	28.1	11.1	53.4	5.6	* 32				
Max Q Clear Time (g_c+I1), s	5.5	48.3	3.3	15.7	10.5	2.0	3.3	7.7				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.4	0.0	3.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			24.4									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	245	65	280	195	195	90	1250	360	205	1240	90
Future Volume (veh/h)	120	245	65	280	195	195	90	1250	360	205	1240	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	245	65	280	195	195	90	1250	360	205	1240	90
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	323	144	292	308	275	334	1590	709	211	1345	600
Arrive On Green	0.08	0.09	0.09	0.16	0.17	0.17	0.25	0.60	0.60	0.12	0.38	0.38
Sat Flow, veh/h	1781	3554	1585	1781	1777	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	120	245	65	280	195	195	90	1250	360	205	1240	90
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.0	8.1	3.2	18.7	12.2	13.9	4.9	32.1	15.8	13.8	40.0	3.3
Cycle Q Clear(g_c), s	8.0	8.1	3.2	18.7	12.2	13.9	4.9	32.1	15.8	13.8	40.0	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	323	144	292	308	275	334	1590	709	211	1345	600
V/C Ratio(X)	0.82	0.76	0.45	0.96	0.63	0.71	0.27	0.79	0.51	0.97	0.92	0.15
Avail Cap(c_a), veh/h	172	634	283	292	428	382	334	1590	709	211	1457	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	53.3	24.8	49.7	46.1	46.8	38.4	19.9	16.6	52.7	35.6	13.1
Incr Delay (d2), s/veh	20.5	1.4	0.8	40.8	0.8	1.6	0.1	2.9	1.8	53.7	11.8	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	3.6	1.8	11.4	5.3	5.5	2.1	10.9	5.2	9.1	18.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.7	54.7	25.6	90.5	46.9	48.3	38.5	22.8	18.5	106.4	47.5	13.6
LnGrp LOS	E	D	C	F	D	D	D	C	B	F	D	B
Approach Vol, veh/h	430			670			1700			1535		
Approach Delay, s/veh	55.9			65.5			22.7			53.3		
Approach LOS	E			E			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.7	50.5	15.1	26.7	19.3	58.9	25.0	16.8				
Change Period (Y+Rc), s	5.2	* 5.1	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	9.0	* 49	11.6	* 29	14.2	43.8	19.7	* 21				
Max Q Clear Time (g_c+I1), s	6.9	42.0	10.0	15.9	15.8	34.1	20.7	10.1				
Green Ext Time (p_c), s	0.0	3.4	0.0	1.1	0.0	4.6	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	43.5											
HCM 6th LOS	D											
Notes												

Intersection												
Intersection Delay, s/veh	8.6											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	50	5	0	55	20	0	190	40	0	120	5
Future Vol, veh/h	0	50	5	0	55	20	0	190	40	0	120	5
Peak Hour 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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	50	5	0	55	20	0	190	40	0	120	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	8.2	8.9	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	0%	0%
Vol Thru, %	83%	91%	73%	96%
Vol Right, %	17%	9%	27%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	230	55	75	125
LT Vol	0	0	0	0
Through Vol	190	50	55	120
RT Vol	40	5	20	5
Lane Flow Rate	230	55	75	125
Geometry Grp	1	1	1	1
Degree of Util (X)	0.275	0.073	0.097	0.156
Departure Headway (Hd)	4.298	4.782	4.652	4.484
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	837	749	770	801
Service Time	2.317	2.815	2.683	2.507
HCM Lane V/C Ratio	0.275	0.073	0.097	0.156
HCM Control Delay, s/veh	8.9	8.2	8.2	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	0.2	0.3	0.6

HCM 6th TWSC
18: 34th Street & Elkhorn Boulevard

12/06/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	1355	20	55	1040	75	10	45	110	15	30	30
Future Vol, veh/h	55	1355	20	55	1040	75	10	45	110	15	30	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	1355	20	55	1040	75	10	45	110	15	30	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1115	0	0	1375	0	0	2120	2700	688	1998	2673	558
Stage 1	-	-	-	-	-	-	1475	1475	-	1188	1188	-
Stage 2	-	-	-	-	-	-	645	1225	-	810	1485	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	622	-	-	495	-	-	29	~ 21	389	35	~ 22	473
Stage 1	-	-	-	-	-	-	132	189	-	200	260	-
Stage 2	-	-	-	-	-	-	427	249	-	340	187	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	622	-	-	495	-	-	-	~ 17	389	-	~ 18	473
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 17	-	-	~ 18	-
Stage 1	-	-	-	-	-	-	120	172	-	182	231	-
Stage 2	-	-	-	-	-	-	309	221	-	164	171	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.4	0.6		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	622	-	-	495	-	-	-
HCM Lane V/C Ratio	-	0.088	-	-	0.111	-	-	-
HCM Control Delay (s/veh)	-	11.3	-	-	13.2	-	-	-
HCM Lane LOS	-	B	-	-	B	-	-	-
HCM 95th %tile Q (veh)	-	0.3	-	-	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	100	35	0	130	10	0	90	45	0	10	0
Future Vol, veh/h	0	100	35	0	130	10	0	90	45	0	10	0
Peak Hour 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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	100	35	0	130	10	0	90	45	0	10	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	8.3	8.3	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	0%	0%
Vol Thru, %	67%	74%	93%	100%
Vol Right, %	33%	26%	7%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	135	140	10
LT Vol	0	0	0	0
Through Vol	90	100	130	10
RT Vol	45	35	10	0
Lane Flow Rate	135	135	140	10
Geometry Grp	1	1	1	1
Degree of Util (X)	0.164	0.161	0.171	0.013
Departure Headway (Hd)	4.376	4.282	4.386	4.723
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	821	840	820	758
Service Time	2.395	2.296	2.4	2.748
HCM Lane V/C Ratio	0.164	0.161	0.171	0.013
HCM Control Delay, s/veh	8.3	8.1	8.3	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.6	0.6	0

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	135	135	555	85	275	1740	10	1485	80
v/c Ratio	0.76	0.75	0.86	0.76	0.79	0.71	0.10	0.50	0.08
Control Delay (s/veh)	91.2	90.2	34.3	94.8	82.0	19.4	98.4	10.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.2	90.2	34.3	94.8	82.0	19.4	98.4	10.0	0.9
Queue Length 50th (ft)	137	137	95	69	137	455	10	82	0
Queue Length 95th (ft)	208	208	167	#149	184	830	m29	409	13
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	252	254	746	130	432	2424	95	2956	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.53	0.74	0.65	0.64	0.72	0.11	0.50	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

12/06/2024

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	358	307	1975	530	1515
v/c Ratio	0.68	0.77	0.61	0.87	0.35
Control Delay (s/veh)	18.4	20.6	12.0	68.8	1.9
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	18.4	20.6	12.2	68.8	1.9
Queue Length 50th (ft)	24	0	434	253	32
Queue Length 95th (ft)	72	108	260	259	68
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	865	531	3198	750	4315
Starvation Cap Reductn	0	0	383	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.58	0.70	0.71	0.35
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

12/06/2024



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	40	255	95	2155	1820	25
v/c Ratio	0.49	0.68	0.54	0.47	0.44	0.01
Control Delay (s/veh)	89.1	17.4	69.3	3.6	2.1	0.5
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	89.1	17.4	69.3	3.8	2.1	0.5
Queue Length 50th (ft)	39	0	48	86	28	0
Queue Length 95th (ft)	80	49	m75	389	68	m1
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	268	638	316	4543	4079	1273
Starvation Cap Reductn	0	0	0	1053	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.40	0.30	0.62	0.45	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

12/06/2024

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	53	185	94	91	230	2090	70	1580
v/c Ratio	0.57	0.56	0.70	0.71	0.64	0.83	0.66	0.39	0.54
Control Delay (s/veh)	91.6	90.6	23.7	94.1	78.5	82.7	10.5	70.9	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.6	90.6	23.7	94.1	78.5	82.7	10.5	70.9	26.0
Queue Length 50th (ft)	53	54	0	95	81	196	503	52	230
Queue Length 95th (ft)	101	103	80	157	142	322	331	107	467
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	292	299	428	292	298	314	3166	176	2903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.18	0.43	0.32	0.31	0.73	0.66	0.40	0.54
Intersection Summary									

Queues

5: Watt Avenue & Driveway/Karl Drive

12/06/2024



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	20	150	20	1800	60	1490
v/c Ratio	0.04	0.16	0.77	0.21	0.51	0.54	0.40
Control Delay (s/veh)	66.6	36.5	75.9	101.8	1.9	72.3	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.6	36.5	75.9	101.8	1.9	72.3	2.1
Queue Length 50th (ft)	5	5	112	20	37	59	24
Queue Length 95th (ft)	20	33	185	m31	48	113	35
Internal Link Dist (ft)		245	409		1853		633
Turn Bay Length (ft)				195		155	
Base Capacity (vph)	123	129	382	94	3529	149	3667
Starvation Cap Reductn	0	0	0	0	0	0	227
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.16	0.39	0.21	0.51	0.40	0.43

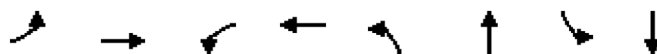
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	175	95	30	20	85	1720	40	1590
v/c Ratio	0.81	0.36	0.42	0.31	0.68	0.49	0.37	0.47
Control Delay (s/veh)	91.5	16.1	86.8	48.4	106.6	9.1	68.4	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.5	16.1	86.8	48.4	106.6	9.1	68.4	8.4
Queue Length 50th (ft)	170	5	29	5	0	109	38	223
Queue Length 95th (ft)	244	59	65	34	144	256	m78	107
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	291	605	87	386	159	3481	119	3344
Starvation Cap Reductn	0	0	0	0	0	121	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.16	0.34	0.05	0.53	0.51	0.34	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

	→	↘	←	↙	↑	↗	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	187	173	10	1690	190	125	1345
v/c Ratio	0.27	0.86	0.62	0.11	0.73	0.17	0.80	0.36
Control Delay (s/veh)	66.3	97.0	39.8	52.6	11.2	1.4	100.2	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.3	97.0	39.8	52.6	11.2	1.4	100.2	10.3
Queue Length 50th (ft)	10	190	83	9	276	13	121	121
Queue Length 95th (ft)	36	277	167	m14	372	5	#209	352
Internal Link Dist (ft)	135		542		1065			220
Turn Bay Length (ft)				200			215	
Base Capacity (vph)	60	271	323	87	2285	1067	183	3819
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.69	0.54	0.11	0.74	0.18	0.68	0.35
Intersection Summary								
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.							
m	Volume for 95th percentile queue is metered by upstream signal.							

Queues

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	45	50	115	1675	35	1505
v/c Ratio	0.60	0.20	0.39	0.69	0.58	0.40	0.59
Control Delay (s/veh)	73.9	2.2	43.5	73.5	7.5	73.7	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.9	2.2	43.5	73.5	7.5	73.7	4.8
Queue Length 50th (ft)	54	0	22	88	270	28	73
Queue Length 95th (ft)	100	0	61	145	431	m51	403
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	177	273	186	261	2858	117	2527
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.16	0.27	0.44	0.59	0.30	0.60

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

9: Watt Avenue & Van Owen Street

12/06/2024



Lane Group	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	10	1755	55	1485
v/c Ratio	0.57	0.15	0.61	0.58	0.48
Control Delay (s/veh)	56.4	71.4	4.4	65.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.4	71.4	4.4	65.5	4.0
Queue Length 50th (ft)	27	7	372	37	51
Queue Length 95th (ft)	71	m15	156	m58	296
Internal Link Dist (ft)	284		1159		341
Turn Bay Length (ft)		200		225	
Base Capacity (vph)	376	63	2862	113	3075
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.61	0.49	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	450	890	260	345	655	140	300	1385	225	185	1165
v/c Ratio	0.87	0.86	0.43	0.84	0.70	0.27	0.83	0.83	0.35	0.76	0.80
Control Delay (s/veh)	68.7	49.7	12.8	71.0	44.9	7.0	77.0	37.7	7.1	62.0	39.7
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)	68.7	49.7	12.8	71.0	44.9	7.0	77.0	37.7	7.1	62.0	39.7
Queue Length 50th (ft)	175	343	43	135	243	0	107	372	17	65	342
Queue Length 95th (ft)	#250	#434	118	#200	312	50	#177	385	64	#119	389
Internal Link Dist (ft)		1265			520			552			447
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	552	1040	595	439	926	517	385	1653	640	255	1443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.86	0.44	0.79	0.71	0.27	0.78	0.84	0.35	0.73	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	50	90	55	15	95	1535	55	1140	90
v/c Ratio	0.50	0.55	0.63	0.06	0.38	0.64	0.53	0.54	0.09
Control Delay (s/veh)	71.0	29.3	83.7	0.4	44.0	9.8	71.9	18.4	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	71.0	29.3	83.7	0.4	44.0	9.8	71.9	18.4	6.7
Queue Length 50th (ft)	38	11	42	0	73	42	44	163	6
Queue Length 95th (ft)	79	63	86	0	m99	716	m71	360	m33
Internal Link Dist (ft)		1270	498			761		1406	
Turn Bay Length (ft)	135			100	330		200		120
Base Capacity (vph)	147	204	120	285	262	2387	140	2138	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.44	0.46	0.05	0.36	0.64	0.39	0.53	0.09

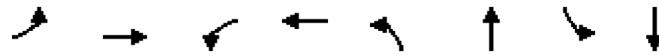
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	90	20	195	105	1455	130	1405
v/c Ratio	0.14	0.34	0.29	0.75	0.56	0.66	0.68	0.64
Control Delay (s/veh)	54.3	23.6	66.4	49.0	42.2	6.4	65.1	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.3	23.6	66.4	49.0	42.2	6.4	65.1	19.6
Queue Length 50th (ft)	15	25	15	90	71	40	108	315
Queue Length 95th (ft)	40	69	42	163	m#148	260	m134	m310
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	137	493	82	452	185	2194	200	2194
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.18	0.24	0.43	0.57	0.66	0.65	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	120	245	65	280	390	90	1250	360	205	1240	90
v/c Ratio	0.76	0.65	0.18	0.95	0.52	0.43	0.90	0.48	0.70	0.79	0.11
Control Delay (s/veh)	82.4	59.7	1.1	92.8	24.4	43.6	33.4	6.4	61.5	33.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	82.4	59.7	1.1	92.8	24.4	43.6	33.4	6.4	61.5	33.5	0.2
Queue Length 50th (ft)	92	97	0	218	71	69	512	123	150	432	0
Queue Length 95th (ft)	#180	137	0	#391	118	m#115	#635	19	#257	507	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	171	631	454	293	936	206	1381	744	290	1555	791
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.39	0.14	0.96	0.42	0.44	0.91	0.48	0.71	0.80	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

One-Way Couplet Alternative AM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	225	30	0	15	560	1300	55	10	1600	260
Future Volume (veh/h)	30	0	225	30	0	15	560	1300	55	10	1600	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1899	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	30	0	225	30	0	15	560	1300	55	10	1600	260
Peak Hour 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
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	308	0	274	34	0	17	615	2150	91	116	2583	802
Arrive On Green	0.09	0.00	0.09	0.03	0.00	0.03	0.18	0.63	0.63	0.13	1.00	1.00
Sat Flow, veh/h	3478	0	3095	1158	0	579	3374	3391	143	1739	4985	1547
Grp Volume(v), veh/h	30	0	225	45	0	0	560	664	691	10	1600	260
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1737	0	0	1687	1735	1800	1739	1662	1547
Q Serve(g_s), s	1.0	0.0	8.6	3.1	0.0	0.0	19.5	27.3	27.4	0.6	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	8.6	3.1	0.0	0.0	19.5	27.3	27.4	0.6	0.0	0.0
Prop In Lane	1.00		1.00	0.67		0.33	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	308	0	274	51	0	0	615	1100	1141	116	2583	802
V/C Ratio(X)	0.10	0.00	0.82	0.89	0.00	0.00	0.91	0.60	0.61	0.09	0.62	0.32
Avail Cap(c_a), veh/h	362	0	322	51	0	0	886	1100	1141	123	2583	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	50.3	0.0	53.8	58.1	0.0	0.0	48.1	13.0	13.0	48.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	11.7	84.0	0.0	0.0	8.0	2.5	2.4	0.1	1.0	0.9
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	0.4	0.0	3.8	2.6	0.0	0.0	8.8	10.5	11.0	0.3	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.3	0.0	65.4	142.1	0.0	0.0	56.1	15.5	15.4	48.9	1.0	0.9
LnGrp LOS	D		E	F			E	B	B	D	A	A
Approach Vol, veh/h	255			45			1915			1870		
Approach Delay, s/veh	63.7			142.1			27.3			1.2		
Approach LOS	E			F			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.4	67.5		16.1	13.5	81.4		9.0				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	31.5	50.7		12.5	8.5	* 74		3.5				
Max Q Clear Time (g_c+I1), s	21.5	2.0		10.6	2.6	29.4		5.1				
Green Ext Time (p_c), s	0.4	5.5		0.1	0.0	3.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 18.9

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

01/14/2025

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	195	830	0	1480	5	700	1495
Future Volume (vph)	195	830	0	1480	5	700	1495
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.90	0.85		1.00		1.00	1.00
Flt Protected	0.98	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3132	1413		4985		3367	4988
Flt Permitted	0.98	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3132	1413		4985		3367	4988
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	195	830	0	1480	5	700	1495
RTOR Reduction (vph)	363	368	0	0	0	0	0
Lane Group Flow (vph)	247	47	0	1485	0	700	1495
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	13.7	13.7		61.8		28.4	95.2
Effective Green, g (s)	13.7	13.7		61.8		28.4	95.2
Actuated g/C Ratio	0.11	0.11		0.52		0.24	0.79
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	357	161		2567		796	3957
v/s Ratio Prot	c0.08			c0.30		c0.21	0.30
v/s Ratio Perm		0.03					
v/c Ratio	0.69	0.29		0.58		0.88	0.38
Uniform Delay, d1	51.1	48.7		20.1		44.1	3.7
Progression Factor	1.00	1.00		0.80		1.49	0.70
Incremental Delay, d2	4.6	0.4		0.9		9.2	0.2
Delay (s)	55.7	49.1		17.0		75.1	2.8
Level of Service	E	D		B		E	A
Approach Delay (s/veh)	53.0			17.0			25.9
Approach LOS	D			B			C
Intersection Summary							
HCM 2000 Control Delay (s/veh)			29.0		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.68				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			76.4%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

01/14/2025

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	245	320	2050	1875	0
Future Volume (veh/h)	120	245	320	2050	1875	0
Initial Q (Qb), veh	0	0	0	0	0	0
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	120	245	320	2050	1875	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	186	291	370	4061	3290	1021
Arrive On Green	0.11	0.11	0.22	1.00	0.65	0.00
Sat Flow, veh/h	1767	2768	3428	5233	5233	1572
Grp Volume(v), veh/h	120	245	320	2050	1875	0
Grp Sat Flow(s),veh/h/ln	1767	1384	1714	1689	1689	1572
Q Serve(g_s), s	7.8	10.4	10.8	0.0	24.7	0.0
Cycle Q Clear(g_c), s	7.8	10.4	10.8	0.0	24.7	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	186	291	370	4061	3290	1021
V/C Ratio(X)	0.65	0.84	0.86	0.50	0.57	0.00
Avail Cap(c_a), veh/h	272	427	591	4061	3290	1021
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.74	0.74	0.63	0.00
Uniform Delay (d), s/veh	51.6	52.7	46.2	0.0	11.7	0.0
Incr Delay (d2), s/veh	1.4	6.6	3.4	0.3	0.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.9	4.3	0.1	8.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	53.0	59.3	49.6	0.3	12.2	0.0
LnGrp LOS	D	E	D	A	B	
Approach Vol, veh/h	365			2370	1875	
Approach Delay, s/veh	57.2			7.0	12.2	
Approach LOS	E			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.3	83.6			101.9	18.1
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	20.7	* 64			* 91	18.5
Max Q Clear Time (g_c+I1), s	12.8	26.7			2.0	12.4
Green Ext Time (p_c), s	0.2	6.9			8.4	0.2
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			13.1			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	70	2320	320	40	30	345	1700	105	0	0	0
Future Volume (veh/h)	35	70	2320	320	40	30	345	1700	105	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	0	0	2404	377	0	0	345	1700	105			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3			
Cap, veh/h	0	559	3522	436	229	0	787	2173	134			
Arrive On Green	0.00	0.00	0.30	0.12	0.00	0.00	0.30	0.30	0.30			
Sat Flow, veh/h	0	1856	4717	3534	1856	0	1767	4878	301			
Grp Volume(v), veh/h	0	0	2404	377	0	0	345	1176	629			
Grp Sat Flow(s),veh/h/ln	0	1856	1572	1767	1856	0	1767	1689	1801			
Q Serve(g_s), s	0.0	0.0	31.6	12.6	0.0	0.0	18.9	38.3	38.3			
Cycle Q Clear(g_c), s	0.0	0.0	31.6	12.6	0.0	0.0	18.9	38.3	38.3			
Prop In Lane	0.00		1.00	1.00		0.00	1.00		0.17			
Lane Grp Cap(c), veh/h	0	559	3522	436	229	0	787	1504	802			
V/C Ratio(X)	0.00	0.00	0.68	0.86	0.00	0.00	0.44	0.78	0.78			
Avail Cap(c_a), veh/h	0	611	3654	766	402	0	787	1504	802			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67			
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.85	0.85	0.85			
Uniform Delay (d), s/veh	0.0	0.0	7.9	51.6	0.0	0.0	30.0	36.8	36.8			
Incr Delay (d2), s/veh	0.0	0.0	0.4	2.0	0.0	0.0	0.1	2.1	4.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.2	5.7	0.0	0.0	8.5	16.8	18.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	8.3	53.7	0.0	0.0	30.1	38.9	40.8			
LnGrp LOS			A	D			C	D	D			
Approach Vol, veh/h		2404			377			2150				
Approach Delay, s/veh		8.3			53.7			38.0				
Approach LOS		A			D			D				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				41.6		58.1		20.3				
Change Period (Y+Rc), s				5.5		4.6		5.5				
Max Green Setting (Gmax), s				39.5		38.9		26.0				
Max Q Clear Time (g_c+I1), s				33.6		40.3		14.6				
Green Ext Time (p_c), s				2.6		0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			24.7									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (veh/h)	5	5	0	0	5	260	10	1545	45	0	0	0
Future Volume (veh/h)	5	5	0	0	5	260	10	1545	45	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1841	1841	1841			
Adj Flow Rate, veh/h	5	5	0	0	5	260	10	1545	45			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	61	46	0	0	6	289	1270	3635	106			
Arrive On Green	0.19	0.19	0.00	0.00	0.19	0.19	0.24	0.24	0.24			
Sat Flow, veh/h	82	245	0	0	30	1535	1753	5018	146			
Grp Volume(v), veh/h	10	0	0	0	0	265	10	1031	559			
Grp Sat Flow(s),veh/h/ln	328	0	0	0	0	1564	1753	1675	1814			
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	19.9	0.5	31.3	31.3			
Cycle Q Clear(g_c), s	20.0	0.0	0.0	0.0	0.0	19.9	0.5	31.3	31.3			
Prop In Lane	0.50		0.00	0.00		0.98	1.00		0.08			
Lane Grp Cap(c), veh/h	107	0	0	0	0	294	1270	2427	1314			
V/C Ratio(X)	0.09	0.00	0.00	0.00	0.00	0.90	0.01	0.43	0.43			
Avail Cap(c_a), veh/h	346	0	0	0	0	567	1270	2427	1314			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.28	0.28	0.28			
Uniform Delay (d), s/veh	41.1	0.0	0.0	0.0	0.0	47.6	12.8	24.5	24.5			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	8.1	0.2	14.0	15.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.2	0.0	0.0	0.0	0.0	51.7	12.8	24.5	24.5			
LnGrp LOS	D					D	B	C	C			
Approach Vol, veh/h	10			265			1600					
Approach Delay, s/veh	41.2			51.7			24.4					
Approach LOS	D			D			C					
Timer - Assigned Phs	4			6			8					
Phs Duration (G+Y+Rc), s	28.1			91.9			28.1					
Change Period (Y+Rc), s	5.5			5.0			5.5					
Max Green Setting (Gmax), s	43.5			66.0			43.5					
Max Q Clear Time (g_c+l1), s	22.0			33.3			21.9					
Green Ext Time (p_c), s	0.0			4.5			0.7					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	28.4											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (veh/h)	275	40	0	0	40	60	385	1365	75	0	0	0
Future Volume (veh/h)	275	40	0	0	40	60	385	1365	75	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1841	1841	1841			
Adj Flow Rate, veh/h	275	40	0	0	40	60	385	1365	75			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	301	541	0	0	51	77	1087	3023	166			
Arrive On Green	0.17	0.29	0.00	0.00	0.08	0.08	0.20	0.20	0.20			
Sat Flow, veh/h	1753	1841	0	0	665	997	1753	4875	268			
Grp Volume(v), veh/h	275	40	0	0	0	100	385	938	502			
Grp Sat Flow(s),veh/h/ln	1753	1841	0	0	0	1661	1753	1675	1793			
Q Serve(g_s), s	18.5	1.9	0.0	0.0	0.0	7.1	22.6	29.4	29.4			
Cycle Q Clear(g_c), s	18.5	1.9	0.0	0.0	0.0	7.1	22.6	29.4	29.4			
Prop In Lane	1.00		0.00	0.00		0.60	1.00		0.15			
Lane Grp Cap(c), veh/h	301	541	0	0	0	128	1087	2077	1111			
V/C Ratio(X)	0.91	0.07	0.00	0.00	0.00	0.78	0.35	0.45	0.45			
Avail Cap(c_a), veh/h	402	1020	0	0	0	471	1087	2077	1111			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.90	0.90	0.90			
Uniform Delay (d), s/veh	48.9	30.6	0.0	0.0	0.0	54.4	27.1	29.8	29.8			
Incr Delay (d2), s/veh	18.3	0.0	0.0	0.0	0.0	3.9	0.1	0.1	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.5	0.8	0.0	0.0	0.0	3.1	10.6	13.2	14.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.1	30.6	0.0	0.0	0.0	58.3	27.2	29.9	29.9			
LnGrp LOS	E	C				E	C	C	C			
Approach Vol, veh/h	315				100				1825			
Approach Delay, s/veh	62.5				58.3				29.3			
Approach LOS	E				E				C			
Timer - Assigned Phs	3			4		6		8				
Phs Duration (G+Y+Rc), s	26.1			14.5		79.4		40.6				
Change Period (Y+Rc), s	5.5			* 5.3		5.0		5.3				
Max Green Setting (Gmax), s	27.5			* 34		43.2		66.5				
Max Q Clear Time (g_c+I1), s	20.5			9.1		31.4		3.9				
Green Ext Time (p_c), s	0.1			0.2		3.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	35.3											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (veh/h)	5	5	0	0	5	245	10	1125	455	0	0	0
Future Volume (veh/h)	5	5	0	0	5	245	10	1125	455	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841			
Adj Flow Rate, veh/h	5	5	0	0	5	245	10	1125	455			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4			
Cap, veh/h	6	6	0	0	6	271	1163	3333	1035			
Arrive On Green	0.01	0.01	0.00	0.00	0.18	0.18	0.22	0.22	0.22			
Sat Flow, veh/h	898	898	0	0	31	1533	1753	5025	1560			
Grp Volume(v), veh/h	10	0	0	0	0	250	10	1125	455			
Grp Sat Flow(s),veh/h/ln	1796	0	0	0	0	1565	1753	1675	1560			
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	18.8	0.5	22.7	30.3			
Cycle Q Clear(g_c), s	0.7	0.0	0.0	0.0	0.0	18.8	0.5	22.7	30.3			
Prop In Lane	0.50		0.00	0.00		0.98	1.00		1.00			
Lane Grp Cap(c), veh/h	13	0	0	0	0	276	1163	3333	1035			
V/C Ratio(X)	0.79	0.00	0.00	0.00	0.00	0.91	0.01	0.34	0.44			
Avail Cap(c_a), veh/h	362	0	0	0	0	381	1163	3333	1035			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.84	0.84	0.84			
Uniform Delay (d), s/veh	59.5	0.0	0.0	0.0	0.0	48.4	16.0	24.6	27.6			
Incr Delay (d2), s/veh	31.3	0.0	0.0	0.0	0.0	16.6	0.0	0.0	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.0	8.5	0.2	10.2	12.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	90.8	0.0	0.0	0.0	0.0	65.0	16.0	24.7	27.7			
LnGrp LOS	F					E	B	C	C			
Approach Vol, veh/h	10			250			1590					
Approach Delay, s/veh	90.8			65.0			25.5					
Approach LOS	F			E			C					
Timer - Assigned Phs	4			6			8					
Phs Duration (G+Y+Rc), s	7.7			84.4			28.0					
Change Period (Y+Rc), s	6.8			4.8			6.8					
Max Green Setting (Gmax), s	24.2			48.2			29.2					
Max Q Clear Time (g_c+I1), s	2.7			32.3			20.8					
Green Ext Time (p_c), s	0.0			3.2			0.4					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	31.2											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary 8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	50	0	0	100	35	150	1040	15	0	0	0
Future Volume (veh/h)	105	50	0	0	100	35	150	1040	15	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1841	1841	1841			
Adj Flow Rate, veh/h	105	50	0	0	100	35	150	1040	15			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	161	67	0	0	243	85	1286	3745	54			
Arrive On Green	0.19	0.19	0.00	0.00	0.19	0.19	0.73	0.73	0.73			
Sat Flow, veh/h	596	362	0	0	1303	456	1753	5104	74			
Grp Volume(v), veh/h	155	0	0	0	0	135	150	682	373			
Grp Sat Flow(s),veh/h/ln	958	0	0	0	0	1759	1753	1675	1827			
Q Serve(g_s), s	11.9	0.0	0.0	0.0	0.0	8.1	3.0	8.2	8.2			
Cycle Q Clear(g_c), s	20.1	0.0	0.0	0.0	0.0	8.1	3.0	8.2	8.2			
Prop In Lane	0.68		0.00	0.00		0.26	1.00		0.04			
Lane Grp Cap(c), veh/h	229	0	0	0	0	328	1286	2458	1341			
V/C Ratio(X)	0.68	0.00	0.00	0.00	0.00	0.41	0.12	0.28	0.28			
Avail Cap(c_a), veh/h	521	0	0	0	0	699	1286	2458	1341			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	50.6	0.0	0.0	0.0	0.0	43.0	4.7	5.3	5.3			
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.6	0.0	0.0	0.0	0.0	3.6	1.0	2.5	2.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	51.9	0.0	0.0	0.0	0.0	43.3	4.7	5.4	5.4			
LnGrp LOS	D					D	A	A	A			
Approach Vol, veh/h	155		135				1205					
Approach Delay, s/veh	51.9		43.3				5.3					
Approach LOS	D		D				A					
Timer - Assigned Phs				4			6			8		
Phs Duration (G+Y+Rc), s				27.7			92.3			27.7		
Change Period (Y+Rc), s				5.3			4.3			5.3		
Max Green Setting (Gmax), s				47.7			62.7			47.7		
Max Q Clear Time (g_c+I1), s				22.1			10.2			10.1		
Green Ext Time (p_c), s				0.3			2.6			0.3		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	13.6											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (veh/h)	0	0	0	0	0	20	45	1130	5	0	0	0
Future Volume (veh/h)	0	0	0	0	0	20	45	1130	5	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1841	1841	1841			
Adj Flow Rate, veh/h	0	0	0	0	0	20	45	1130	5			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	0	27	0	0	0	23	1596	4702	21			
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.01	0.30	0.30	0.30			
Sat Flow, veh/h	0	1841	0	0	0	1560	1753	5164	23			
Grp Volume(v), veh/h	0	0	0	0	0	20	45	733	402			
Grp Sat Flow(s),veh/h/ln	0	1841	0	0	0	1560	1753	1675	1837			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.5	2.2	19.8	19.8			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	1.5	2.2	19.8	19.8			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		0.01			
Lane Grp Cap(c), veh/h	0	27	0	0	0	23	1596	3050	1672			
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.00	0.89	0.03	0.24	0.24			
Avail Cap(c_a), veh/h	0	479	0	0	0	406	1596	3050	1672			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.00	0.00	0.00	0.00	0.00	1.00	0.97	0.97	0.97			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	59.0	4.5	10.7	10.7			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	31.2	0.0	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.8	0.0	8.4	9.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	0.0	0.0	90.3	4.5	10.7	10.7			
LnGrp LOS							F	A	B	B		
Approach Vol, veh/h	0				20				1180			
Approach Delay, s/veh	0.0				90.3				10.5			
Approach LOS					F				B			
Timer - Assigned Phs	4				6				8			
Phs Duration (G+Y+Rc), s	6.5				113.5				6.5			
Change Period (Y+Rc), s	4.8				4.2				4.8			
Max Green Setting (Gmax), s	31.2				79.8				31.2			
Max Q Clear Time (g_c+I1), s	0.0				21.8				3.5			
Green Ext Time (p_c), s	0.0				2.8				0.0			
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	11.8											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	0	0	0	15	20	1220	10	0	0	0
Future Vol, veh/h	25	0	0	0	0	15	20	1220	10	0	0	0
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	0	-	-	-	-	0	240	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	0	0	0	0	15	20	1220	10	0	0	0

Major/Minor	Minor2	Minor1				Major1			
Conflicting Flow All	528	-	-	-	-	615	0	0	0
Stage 1	0	-	-	-	-	-	-	-	-
Stage 2	528	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	-	-	-	7.16	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.76	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.83	-	-	-	-	3.93	3.13	-	-
Pot Cap-1 Maneuver	476	0	0	0	0	370	-	-	-
Stage 1	-	0	0	0	0	-	-	-	-
Stage 2	456	0	0	0	0	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	456	-	-	-	-	370	-	-	-
Mov Cap-2 Maneuver	456	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	438	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	13.4	15.1	
HCM LOS	B	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1
Capacity (veh/h)	-	-	-	456 370
HCM Lane V/C Ratio	-	-	-	0.055 0.041
HCM Control Delay (s/veh)	-	-	-	13.4 15.1
HCM Lane LOS	-	-	-	B C
HCM 95th %tile Q (veh)	-	-	-	0.2 0.1

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	790	0	0	1190	60	250	615	155	0	0	0
Future Volume (veh/h)	225	790	0	0	1190	60	250	615	155	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	225	790	0	0	1190	60	250	615	155			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	280	1889	0	0	1434	640	1271	1878	583			
Arrive On Green	0.08	0.54	0.00	0.00	0.41	0.41	0.37	0.37	0.37			
Sat Flow, veh/h	3428	3618	0	0	3618	1572	3428	5066	1572			
Grp Volume(v), veh/h	225	790	0	0	1190	60	250	615	155			
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1572	1714	1689	1572			
Q Serve(g_s), s	7.7	16.1	0.0	0.0	36.3	2.8	5.9	10.4	8.3			
Cycle Q Clear(g_c), s	7.7	16.1	0.0	0.0	36.3	2.8	5.9	10.4	8.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	280	1889	0	0	1434	640	1271	1878	583			
V/C Ratio(X)	0.80	0.42	0.00	0.00	0.83	0.09	0.20	0.33	0.27			
Avail Cap(c_a), veh/h	391	2130	0	0	1566	698	1271	1878	583			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	54.2	16.7	0.0	0.0	31.9	22.0	25.6	27.0	26.4			
Incr Delay (d2), s/veh	4.8	0.3	0.0	0.0	4.2	0.1	0.0	0.0	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.4	6.1	0.0	0.0	15.4	1.0	2.4	4.2	3.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.9	16.9	0.0	0.0	36.1	22.1	25.7	27.1	26.4			
LnGrp LOS	E	B			D	C	C	C	C			
Approach Vol, veh/h	1015			1250			1020					
Approach Delay, s/veh	26.2			35.4			26.6					
Approach LOS	C			D			C					
Timer - Assigned Phs	3			4			6			8		
Phs Duration (G+Y+Rc), s	15.5			54.5			50.0			70.0		
Change Period (Y+Rc), s	* 5.7			* 5.7			5.5			5.7		
Max Green Setting (Gmax), s	* 14			* 53			36.3			72.5		
Max Q Clear Time (g_c+I1), s	9.7			38.3			12.4			18.1		
Green Ext Time (p_c), s	0.1			10.5			1.8			12.2		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	29.9											
HCM 6th LOS	C											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	35	25	1025	20	0	0	0
Future Vol, veh/h	0	0	0	0	0	35	25	1025	20	0	0	0
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	0	-	-	-	-	0	210	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	0	0	0	35	25	1025	20	0	0	0

Major/Minor	Minor2	Minor1				Major1			
Conflicting Flow All	460	-	-	-	-	523	0	0	0
Stage 1	0	-	-	-	-	-	-	-	-
Stage 2	460	-	-	-	-	-	-	-	-
Critical Hdwy	6.48	-	-	-	-	7.18	5.38	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.78	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.84	-	-	-	-	3.94	3.14	-	-
Pot Cap-1 Maneuver	518	0	0	0	0	423	-	-	-
Stage 1	-	0	0	0	0	-	-	-	-
Stage 2	499	0	0	0	0	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	475	-	-	-	-	423	-	-	-
Mov Cap-2 Maneuver	475	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	458	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	14.3	
HCM LOS	A	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1
Capacity (veh/h)	-	-	-	423
HCM Lane V/C Ratio	-	-	-	0.083
HCM Control Delay (s/veh)	-	-	-	0 14.3
HCM Lane LOS	-	-	-	A B
HCM 95th %tile Q (veh)	-	-	-	0.3

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	30	0	0	85	35	70	940	95	50	0	1295
Future Volume (veh/h)	50	30	0	0	85	35	70	940	95	50	0	1295
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	50	30	0	0	85	35	70	940	95	50	0	1295
Peak Hour 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
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3	3	0	3
Cap, veh/h	74	77	0	0	114	97	1371	2241	226	64	0	0
Arrive On Green	0.04	0.04	0.00	0.00	0.06	0.06	0.78	0.69	0.69	0.04	0.00	0.00
Sat Flow, veh/h	1767	1856	0	0	1856	1572	1767	3233	327	1767	50	
Grp Volume(v), veh/h	50	30	0	0	85	35	70	513	522	50	63.4	
Grp Sat Flow(s),veh/h/ln	1767	1856	0	0	1856	1572	1767	1763	1797	1767	E	
Q Serve(g_s), s	3.3	1.9	0.0	0.0	5.4	2.6	1.1	15.1	15.1	3.4		
Cycle Q Clear(g_c), s	3.3	1.9	0.0	0.0	5.4	2.6	1.1	15.1	15.1	3.4		
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.18	1.00		
Lane Grp Cap(c), veh/h	74	77	0	0	114	97	1371	1222	1245	64		
V/C Ratio(X)	0.68	0.39	0.00	0.00	0.75	0.36	0.05	0.42	0.42	0.78		
Avail Cap(c_a), veh/h	162	170	0	0	247	210	1371	1222	1245	169		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.81		
Uniform Delay (d), s/veh	56.7	56.0	0.0	0.0	55.4	54.1	3.1	8.0	8.0	57.3		
Incr Delay (d2), s/veh	2.5	0.7	0.0	0.0	3.6	0.8	0.0	1.1	1.0	6.0		
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		
%ile BackOfQ(50%),veh/ln	1.6	0.9	0.0	0.0	2.7	2.3	0.3	5.2	5.3	1.6		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.2	56.7	0.0	0.0	59.0	54.9	3.1	9.0	9.0	63.4		
LnGrp LOS	E	E			E	D	A	A	A	E		
Approach Vol, veh/h	80		120				1105					
Approach Delay, s/veh	58.3		57.8				8.6					
Approach LOS	E		E				A					
Timer - Assigned Phs	1			4		5	6	8				
Phs Duration (G+Y+Rc), s	97.6			10.0		8.9	88.8	12.4				
Change Period (Y+Rc), s	4.5			5.0		4.5	5.6	5.0				
Max Green Setting (Gmax), s	78.5			11.0		11.5	61.4	16.0				
Max Q Clear Time (g_c+I1), s	3.1			5.3		5.4	17.1	7.4				
Green Ext Time (p_c), s	0.0			0.0		0.0	13.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	18.0											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	30	25	20	115	60	1065	20	170	1335	30
Future Volume (veh/h)	10	10	30	25	20	115	60	1065	20	170	1335	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	10	10	30	25	20	115	60	1065	20	170	1335	30
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	45	135	31	24	139	77	2177	41	194	2385	54
Arrive On Green	0.02	0.11	0.11	0.02	0.10	0.10	0.01	0.20	0.20	0.22	1.00	1.00
Sat Flow, veh/h	1767	409	1226	1767	238	1371	1767	3540	66	1767	3525	79
Grp Volume(v), veh/h	10	0	40	25	0	135	60	530	555	170	667	698
Grp Sat Flow(s),veh/h/ln	1767	0	1635	1767	0	1609	1767	1763	1844	1767	1763	1841
Q Serve(g_s), s	0.7	0.0	2.7	1.7	0.0	9.9	4.1	31.9	32.0	11.2	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	2.7	1.7	0.0	9.9	4.1	31.9	32.0	11.2	0.0	0.0
Prop In Lane	1.00		0.75	1.00		0.85	1.00		0.04	1.00		0.04
Lane Grp Cap(c), veh/h	42	0	180	31	0	163	77	1084	1134	194	1193	1246
V/C Ratio(X)	0.24	0.00	0.22	0.81	0.00	0.83	0.78	0.49	0.49	0.88	0.56	0.56
Avail Cap(c_a), veh/h	149	0	443	90	0	377	112	1084	1134	252	1193	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	0.54	0.54	0.54
Uniform Delay (d), s/veh	57.5	0.0	48.7	58.8	0.0	52.9	58.6	31.2	31.2	46.1	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.2	17.0	0.0	4.1	9.9	1.4	1.4	12.0	1.0	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	0.3	0.0	1.1	0.9	0.0	4.2	2.0	15.4	16.1	4.9	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	0.0	49.0	75.7	0.0	57.0	68.4	32.6	32.5	58.1	1.0	1.0
LnGrp LOS	E		D	E		E	E	C	C	E	A	A
Approach Vol, veh/h	50			160			1145			1535		
Approach Delay, s/veh	50.9			59.9			34.4			7.3		
Approach LOS	D			E			C			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	86.2	7.5	16.6	17.0	78.8	6.5	17.7				
Change Period (Y+Rc), s	4.4	* 5	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	7.6	* 56	10.1	28.1	17.1	46.6	6.1	* 33				
Max Q Clear Time (g_c+I1), s	6.1	2.0	2.7	11.9	13.2	34.0	3.7	4.7				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.3	0.0	1.8	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.7									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	145	65	385	185	230	60	1025	195	190	1160	55
Future Volume (veh/h)	55	145	65	385	185	230	60	1025	195	190	1160	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	55	145	65	385	185	230	60	1025	195	190	1160	55
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	71	217	97	404	441	393	74	1461	651	206	1728	771
Arrive On Green	0.04	0.06	0.06	0.23	0.25	0.25	0.08	0.83	0.83	0.12	0.49	0.49
Sat Flow, veh/h	1767	3526	1572	1767	1763	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	55	145	65	385	185	230	60	1025	195	190	1160	55
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	3.7	4.8	4.9	25.8	10.6	15.4	4.0	14.3	3.4	12.8	30.0	2.2
Cycle Q Clear(g_c), s	3.7	4.8	4.9	25.8	10.6	15.4	4.0	14.3	3.4	12.8	30.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	217	97	404	441	393	74	1461	651	206	1728	771
V/C Ratio(X)	0.78	0.67	0.67	0.95	0.42	0.59	0.81	0.70	0.30	0.92	0.67	0.07
Avail Cap(c_a), veh/h	138	629	280	404	570	508	74	1461	651	206	1728	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	55.1	55.1	45.7	37.7	39.5	54.5	7.3	6.3	52.5	23.2	16.2
Incr Delay (d2), s/veh	6.7	1.3	3.0	32.8	0.2	0.5	40.9	2.4	1.0	40.7	2.1	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.2	2.0	14.6	4.5	5.8	2.5	3.1	1.2	7.8	12.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.8	56.4	58.1	78.5	38.0	40.1	95.5	9.7	7.3	93.2	25.3	16.3
LnGrp LOS	E	E	E	E	D	D	F	A	A	F	C	B
Approach Vol, veh/h	265		800				1280			1405		
Approach Delay, s/veh	58.4		58.1				13.4			34.2		
Approach LOS	E		E				B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	64.0	10.1	35.9	19.1	54.9	32.7	13.3				
Change Period (Y+Rc), s	5.0	* 5.2	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	5.0	* 46	9.4	* 39	14.0	36.3	27.4	* 21				
Max Q Clear Time (g_c+I1), s	6.0	32.0	5.7	17.4	14.8	16.3	27.8	6.9				
Green Ext Time (p_c), s	0.0	4.5	0.0	1.4	0.0	4.7	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	33.9											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

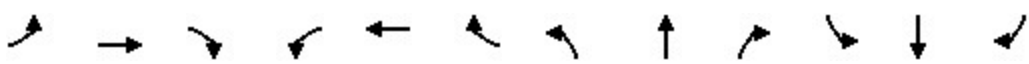
17: 34th Street & I Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	80	15	325	110	0	0	0	0	45	2125	70
Future Volume (veh/h)	0	80	15	325	110	0	0	0	0	45	2125	70
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	80	15	325	110	0				45	2125	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	563	106	420	119	0				54	2732	93
Arrive On Green	0.00	0.37	0.37	0.37	0.37	0.00				0.18	0.18	0.18
Sat Flow, veh/h	0	1532	287	953	323	0				102	5130	174
Grp Volume(v), veh/h	0	0	95	435	0	0				820	681	739
Grp Sat Flow(s),veh/h/ln	0	0	1819	1276	0	0				1865	1702	1839
Q Serve(g_s), s	0.0	0.0	3.1	26.8	0.0	0.0				38.2	34.2	34.4
Cycle Q Clear(g_c), s	0.0	0.0	3.1	30.0	0.0	0.0				38.2	34.2	34.4
Prop In Lane	0.00		0.16	0.75		0.00				0.05		0.09
Lane Grp Cap(c), veh/h	0	0	668	539	0	0				993	906	979
V/C Ratio(X)	0.00	0.00	0.14	0.81	0.00	0.00				0.83	0.75	0.75
Avail Cap(c_a), veh/h	0	0	738	592	0	0				993	906	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	0.00	1.00	0.97	0.00	0.00				0.09	0.09	0.09
Uniform Delay (d), s/veh	0.0	0.0	19.0	29.0	0.0	0.0				33.1	31.4	31.5
Incr Delay (d2), s/veh	0.0	0.0	0.1	7.3	0.0	0.0				0.8	0.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.3	9.6	0.0	0.0				19.0	15.5	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	19.1	36.3	0.0	0.0				33.8	32.0	32.0
LnGrp LOS			B	D						C	C	C
Approach Vol, veh/h		95			435						2240	
Approach Delay, s/veh		19.1			36.3						32.7	
Approach LOS		B			D						C	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				37.6		52.4		37.6				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				36.5		44.5		36.5				
Max Q Clear Time (g_c+I1), s				5.1		40.2		32.0				
Green Ext Time (p_c), s				0.5		3.9		1.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			32.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary 18: 34th Street & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑						↑↑↑	
Traffic Volume (veh/h)	0	1015	15	385	1130	0	0	0	0	45	1500	115
Future Volume (veh/h)	0	1015	15	385	1130	0	0	0	0	45	1500	115
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1015	15	385	1130	0				45	1500	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2250	33	343	2231	0				37	1319	105
Arrive On Green	0.00	0.63	0.63	0.63	0.63	0.00				0.09	0.09	0.09
Sat Flow, veh/h	0	3678	53	548	3647	0				137	4845	384
Grp Volume(v), veh/h	0	503	527	385	1130	0				612	509	539
Grp Sat Flow(s),veh/h/ln	0	1777	1861	548	1777	0				1864	1702	1801
Q Serve(g_s), s	0.0	13.2	13.2	43.3	15.6	0.0				24.5	24.5	24.5
Cycle Q Clear(g_c), s	0.0	13.2	13.2	56.5	15.6	0.0				24.5	24.5	24.5
Prop In Lane	0.00		0.03	1.00		0.00				0.07		0.21
Lane Grp Cap(c), veh/h	0	1115	1168	343	2231	0				507	463	490
V/C Ratio(X)	0.00	0.45	0.45	1.12	0.51	0.00				1.21	1.10	1.10
Avail Cap(c_a), veh/h	0	1115	1168	343	2231	0				507	463	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	0.68	0.68	0.00				0.63	0.63	0.63
Uniform Delay (d), s/veh	0.0	8.7	8.7	28.4	9.1	0.0				41.0	41.0	41.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	77.8	0.1	0.0				104.7	63.3	62.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	4.3	14.8	4.8	0.0				26.9	19.2	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	9.0	9.0	106.2	9.3	0.0				145.7	104.3	103.7
LnGrp LOS		A	A	F	A					F	F	F
Approach Vol, veh/h		1030			1515						1660	
Approach Delay, s/veh		9.0			33.9						119.4	
Approach LOS		A			C						F	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				61.0		29.0		61.0				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				56.5		24.5		56.5				
Max Q Clear Time (g_c+I1), s				15.2		26.5		58.5				
Green Ext Time (p_c), s				7.2		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				61.5								
HCM 6th LOS				E								

HCM 6th Signalized Intersection Summary

19: 34th Street & Q Street

01/14/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔						↔	
Traffic Volume (veh/h)	5	0	210	1395	50	10	0	0	0	0	270	0
Future Volume (veh/h)	5	0	210	1395	50	10	0	0	0	0	270	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826				1826	1826	1826
Adj Flow Rate, veh/h	5	0	210	1440	0	0				0	270	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	5	5	5				5	5	5
Cap, veh/h	6	0	244	1724	604	0				0	655	0
Arrive On Green	0.16	0.00	0.16	0.33	0.00	0.00				0.00	0.36	0.00
Sat Flow, veh/h	36	0	1515	5217	1826	0				0	1826	0
Grp Volume(v), veh/h	215	0	0	1440	0	0				0	270	0
Grp Sat Flow(s),veh/h/ln	1551	0	0	1739	1826	0				0	1826	0
Q Serve(g_s), s	12.2	0.0	0.0	23.0	0.0	0.0				0.0	10.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0	23.0	0.0	0.0				0.0	10.0	0.0
Prop In Lane	0.02		0.98	1.00		0.00				0.00		0.00
Lane Grp Cap(c), veh/h	249	0	0	1724	604	0				0	655	0
V/C Ratio(X)	0.86	0.00	0.00	0.84	0.00	0.00				0.00	0.41	0.00
Avail Cap(c_a), veh/h	310	0	0	2116	741	0				0	655	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.90	0.00	0.00				0.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	0.0	0.0	27.9	0.0	0.0				0.0	21.7	0.0
Incr Delay (d2), s/veh	18.1	0.0	0.0	2.3	0.0	0.0				0.0	1.9	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	9.1	0.0	0.0				0.0	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.9	0.0	0.0	30.2	0.0	0.0				0.0	23.6	0.0
LnGrp LOS	D			C							C	
Approach Vol, veh/h		215			1440						270	
Approach Delay, s/veh		54.9			30.2						23.6	
Approach LOS		D			C						C	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				19.0		36.8		34.2				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				18.0		22.0		36.5				
Max Q Clear Time (g_c+I1), s				14.2		12.0		25.0				
Green Ext Time (p_c), s				0.4		1.0		4.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				32.0								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	15	15	225	45	560	1355	10	1600	260
v/c Ratio	0.22	0.22	0.68	0.20	0.85	0.50	0.09	0.57	0.27
Control Delay (s/veh)	61.5	61.5	17.9	2.1	59.0	6.4	52.5	14.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.5	61.5	17.9	2.1	59.0	6.4	52.5	14.8	2.0
Queue Length 50th (ft)	12	12	0	0	217	145	8	186	3
Queue Length 95th (ft)	35	35	42	0	265	351	m21	284	32
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	170	170	483	221	875	2696	121	2784	980
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.09	0.47	0.20	0.64	0.50	0.08	0.57	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

01/14/2025

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	610	415	1485	700	1495
v/c Ratio	0.85	0.78	0.58	0.88	0.38
Control Delay (s/veh)	28.3	15.8	18.3	76.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.3	15.8	18.3	76.9	3.0
Queue Length 50th (ft)	79	0	279	297	49
Queue Length 95th (ft)	137	112	413	358	120
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	1011	635	2567	925	3957
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.65	0.58	0.76	0.38
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

01/14/2025



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	120	245	320	2050	1875
v/c Ratio	0.71	0.50	0.77	0.50	0.58
Control Delay (s/veh)	73.9	9.6	56.8	3.9	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.9	9.6	56.8	3.9	14.2
Queue Length 50th (ft)	92	0	129	101	319
Queue Length 95th (ft)	150	40	179	232	m305
Internal Link Dist (ft)	606			793	1024
Turn Bay Length (ft)	200		345		
Base Capacity (vph)	270	632	586	4107	3238
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.39	0.55	0.50	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

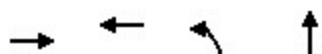
01/14/2025

	→	↘	↙	←	↖	↑
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	824	1601	195	195	345	1805
v/c Ratio	1.20	0.71	0.81	0.79	0.50	0.92
Control Delay (s/veh)	129.4	8.3	72.9	68.9	36.4	47.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	129.4	8.3	72.9	68.9	36.4	47.9
Queue Length 50th (ft)	~669	232	155	149	252	346
Queue Length 95th (ft)	#941	407	228	223	326	#643
Internal Link Dist (ft)	513			883		1024
Turn Bay Length (ft)		215	100		205	
Base Capacity (vph)	684	2263	360	364	692	1968
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.71	0.54	0.54	0.50	0.92
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Queues

5: Watt Avenue & Driveway/Karl Drive

01/14/2025



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	10	265	10	1590
v/c Ratio	0.03	0.84	0.01	0.44
Control Delay (s/veh)	35.8	64.1	13.7	22.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.8	64.1	13.7	22.4
Queue Length 50th (ft)	6	183	4	469
Queue Length 95th (ft)	20	258	m7	m513
Internal Link Dist (ft)	245	409		1856
Turn Bay Length (ft)			195	
Base Capacity (vph)	568	590	1258	3611
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.45	0.01	0.44

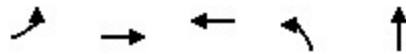
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	275	40	100	385	1440
v/c Ratio	0.84	0.08	0.65	0.35	0.46
Control Delay (s/veh)	68.6	27.6	44.4	6.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.6	27.6	44.4	6.3	6.9
Queue Length 50th (ft)	208	23	31	48	65
Queue Length 95th (ft)	282	42	85	194	281
Internal Link Dist (ft)		571	391		634
Turn Bay Length (ft)	180			190	
Base Capacity (vph)	407	1012	518	1087	3107
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.04	0.19	0.35	0.46
Intersection Summary					

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025



Lane Group	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	10	250	10	1125	455
v/c Ratio	0.13	0.79	0.01	0.27	0.34
Control Delay (s/veh)	57.4	24.8	1.5	1.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.4	24.8	1.5	1.1	0.6
Queue Length 50th (ft)	8	4	1	8	0
Queue Length 95th (ft)	26	83	m2	63	0
Internal Link Dist (ft)	135	542		1064	
Turn Bay Length (ft)			200		200
Base Capacity (vph)	368	571	1430	4103	1358
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.44	0.01	0.27	0.34

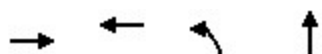
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	155	135	150	1055
v/c Ratio	0.96	0.49	0.11	0.28
Control Delay (s/veh)	109.5	45.2	9.0	10.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	109.5	45.2	9.0	10.1
Queue Length 50th (ft)	121	84	49	134
Queue Length 95th (ft)	#189	137	118	260
Internal Link Dist (ft)	1211	396		1126
Turn Bay Length (ft)			230	
Base Capacity (vph)	432	711	1337	3807
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.19	0.11	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

9: Watt Avenue & Van Owen Street

01/14/2025



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	20	45	1135
v/c Ratio	0.13	0.03	0.24
Control Delay (s/veh)	1.7	0.2	0.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	1.7	0.2	0.3
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	2	9
Internal Link Dist (ft)	284		1152
Turn Bay Length (ft)		200	
Base Capacity (vph)	494	1664	4762
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.04	0.03	0.24
Intersection Summary			

Queues

11: Watt Avenue & Elkhorn Boulevard

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	225	790	1190	60	250	615	155
v/c Ratio	0.72	0.39	0.77	0.08	0.22	0.37	0.25
Control Delay (s/veh)	66.0	13.9	32.0	2.8	28.1	30.1	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.0	13.9	32.0	2.8	28.1	30.1	6.1
Queue Length 50th (ft)	88	158	391	0	81	150	11
Queue Length 95th (ft)	128	180	463	17	118	217	39
Internal Link Dist (ft)		1213	520			552	
Turn Bay Length (ft)	210			200	300		215
Base Capacity (vph)	388	2159	1611	761	1156	1708	634
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.37	0.74	0.08	0.22	0.36	0.24
Intersection Summary							

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	50	30	85	35	70	1035	50	1295
v/c Ratio	0.50	0.29	0.62	0.16	0.05	0.43	0.50	0.45
Control Delay (s/veh)	71.1	59.9	72.4	1.6	2.0	6.6	81.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	71.1	59.9	72.4	1.6	2.0	6.6	81.3	0.6
Queue Length 50th (ft)	38	23	65	0	6	66	42	0
Queue Length 95th (ft)	79	53	115	0	m11	125	m74	12
Internal Link Dist (ft)		1252	498			770		
Turn Bay Length (ft)	135			100	330		200	120
Base Capacity (vph)	160	169	246	304	1376	2411	167	2883
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.18	0.35	0.12	0.05	0.43	0.30	0.45

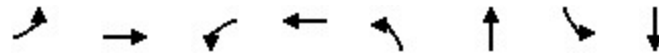
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	40	25	135	60	1085	170	1365
v/c Ratio	0.07	0.22	0.34	0.46	0.55	0.50	0.77	0.56
Control Delay (s/veh)	52.0	24.7	68.1	17.7	53.4	23.4	67.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.0	24.7	68.1	17.7	53.4	23.4	67.2	7.9
Queue Length 50th (ft)	7	7	19	13	47	290	141	157
Queue Length 95th (ft)	25	40	49	77	94	370	m180	m185
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	147	464	89	464	125	2161	263	2421
Starvation Cap Reductn	0	0	0	0	0	0	0	70
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.09	0.28	0.29	0.48	0.50	0.65	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	145	65	385	415	60	1025	195	190	1160	55
v/c Ratio	0.49	0.53	0.21	0.97	0.42	0.44	0.81	0.28	0.68	0.74	0.07
Control Delay (s/veh)	68.7	60.0	1.5	84.5	18.0	80.4	34.2	2.4	59.8	32.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.7	60.0	1.5	84.5	18.0	80.4	34.2	2.4	59.8	32.2	0.2
Queue Length 50th (ft)	42	57	0	297	61	50	383	4	140	387	0
Queue Length 95th (ft)	85	91	0	#493	108	96	#530	0	213	514	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	137	625	450	400	1194	136	1265	703	279	1558	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.23	0.14	0.96	0.35	0.44	0.81	0.28	0.68	0.74	0.07

Intersection Summary

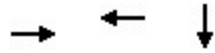
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

17: 34th Street & I Street

01/14/2025



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	95	435	2240
v/c Ratio	0.14	0.89	0.83
Control Delay (s/veh)	17.8	48.6	7.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	17.8	48.6	7.9
Queue Length 50th (ft)	33	219	117
Queue Length 95th (ft)	63	#377	m99
Internal Link Dist (ft)	498	1211	2545
Turn Bay Length (ft)			
Base Capacity (vph)	741	543	2713
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.13	0.80	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

18: 34th Street & Elkhorn Boulevard

01/14/2025



Lane Group	EBT	WBL	WBT	SBT
Lane Group Flow (vph)	1030	385	1130	1660
v/c Ratio	0.46	1.44	0.51	1.20
Control Delay (s/veh)	9.6	237.7	10.2	121.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.6	237.7	10.2	121.8
Queue Length 50th (ft)	146	~300	166	~430
Queue Length 95th (ft)	188	#325	214	#505
Internal Link Dist (ft)	1204		1213	2562
Turn Bay Length (ft)		205		
Base Capacity (vph)	2217	268	2221	1378
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	1.44	0.51	1.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

19: 34th Street & Q Street

01/14/2025



Lane Group	EBT	WBL	WBT	SBT
Lane Group Flow (vph)	215	963	492	270
v/c Ratio	0.72	0.79	0.80	0.46
Control Delay (s/veh)	32.7	29.1	34.9	29.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.7	29.1	34.9	29.9
Queue Length 50th (ft)	60	246	252	126
Queue Length 95th (ft)	127	332	#416	219
Internal Link Dist (ft)	486		1252	1142
Turn Bay Length (ft)				
Base Capacity (vph)	396	1302	655	592
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.74	0.75	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

One-Way Couplet Alternative PM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	0	610	45	15	30	115	1800	35	5	1205	105
Future Volume (veh/h)	260	0	610	45	15	30	115	1800	35	5	1205	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	260	0	610	45	15	30	115	1800	35	5	1205	105
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	579	0	515	35	12	23	230	1961	38	119	2808	872
Arrive On Green	0.16	0.00	0.16	0.04	0.04	0.04	0.07	0.55	0.55	0.13	1.00	1.00
Sat Flow, veh/h	3563	0	3170	896	299	598	3456	3566	69	1781	5106	1585
Grp Volume(v), veh/h	260	0	610	90	0	0	115	895	940	5	1205	105
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1793	0	0	1728	1777	1858	1781	1702	1585
Q Serve(g_s), s	7.9	0.0	19.5	4.7	0.0	0.0	3.9	54.8	55.3	0.3	0.0	0.0
Cycle Q Clear(g_c), s	7.9	0.0	19.5	4.7	0.0	0.0	3.9	54.8	55.3	0.3	0.0	0.0
Prop In Lane	1.00		1.00	0.50		0.33	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	579	0	515	70	0	0	230	977	1022	119	2808	872
V/C Ratio(X)	0.45	0.00	1.18	1.28	0.00	0.00	0.50	0.92	0.92	0.04	0.43	0.12
Avail Cap(c_a), veh/h	579	0	515	70	0	0	256	983	1028	120	2808	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	45.4	0.0	50.3	57.7	0.0	0.0	54.1	24.5	24.6	48.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	101.3	200.5	0.0	0.0	0.6	14.5	14.5	0.0	0.4	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	15.0	6.1	0.0	0.0	1.7	25.3	26.7	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.6	0.0	151.5	258.2	0.0	0.0	54.7	38.9	39.1	48.7	0.4	0.3
LnGrp LOS	D		F	F			D	D	D	D	A	A
Approach Vol, veh/h	870			90			1950			1315		
Approach Delay, s/veh	119.9			258.2			39.9			0.6		
Approach LOS	F			F			D			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	71.3		25.0	13.5	71.3		10.2				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	8.9	65.1		19.5	8.1	* 66		4.7				
Max Q Clear Time (g_c+I1), s	5.9	2.0		21.5	2.3	57.3		6.7				
Green Ext Time (p_c), s	0.0	3.6		0.0	0.0	3.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 48.8

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

01/14/2025

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	80	620	0	1860	220	445	1230
Future Volume (vph)	80	620	0	1860	220	445	1230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.88	0.85		0.98		1.00	1.00
Flt Protected	0.99	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3151	1441		5005		3433	5085
Flt Permitted	0.99	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3151	1441		5005		3433	5085
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	620	0	1860	220	445	1230
RTOR Reduction (vph)	232	232	0	10	0	0	0
Lane Group Flow (vph)	158	78	0	2070	0	445	1230
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	12.9	12.9		72.3		18.7	96.0
Effective Green, g (s)	12.9	12.9		72.3		18.7	96.0
Actuated g/C Ratio	0.11	0.11		0.60		0.16	0.80
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	338	154		3015		534	4068
v/s Ratio Prot	0.05			c0.41		c0.13	0.24
v/s Ratio Perm		c0.05					
v/c Ratio	0.47	0.51		0.69		0.83	0.30
Uniform Delay, d1	50.3	50.5		16.2		49.1	3.2
Progression Factor	1.00	1.00		0.52		0.88	1.39
Incremental Delay, d2	0.4	1.0		0.8		9.7	0.2
Delay (s)	50.7	51.5		9.2		52.9	4.6
Level of Service	D	D		A		D	A
Approach Delay (s/veh)	51.1			9.2			17.4
Approach LOS	D			A			B
Intersection Summary							
HCM 2000 Control Delay (s/veh)			18.9		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.69				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			75.8%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

01/14/2025



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	480	0	2375	1230	0
Future Volume (veh/h)	0	480	0	2375	1230	0
Initial Q (Qb), veh	0	0	0	0	0	0
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	0	480	0	2375	1230	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	336	526	3	3704	3704	1150
Arrive On Green	0.00	0.19	0.00	1.00	0.72	0.00
Sat Flow, veh/h	1795	2812	3483	5316	5316	1598
Grp Volume(v), veh/h	0	480	0	2375	1230	0
Grp Sat Flow(s),veh/h/ln	1795	1406	1742	1716	1716	1598
Q Serve(g_s), s	0.0	20.1	0.0	0.0	10.6	0.0
Cycle Q Clear(g_c), s	0.0	20.1	0.0	0.0	10.6	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	336	526	3	3704	3704	1150
V/C Ratio(X)	0.00	0.91	0.00	0.64	0.33	0.00
Avail Cap(c_a), veh/h	441	691	87	3704	3704	1150
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.65	0.92	0.00
Uniform Delay (d), s/veh	0.0	47.8	0.0	0.0	6.2	0.0
Incr Delay (d2), s/veh	0.0	12.1	0.0	0.6	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.8	0.0	0.2	3.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	0.0	59.9	0.0	0.6	6.4	0.0
LnGrp LOS		E		A	A	
Approach Vol, veh/h	480			2375	1230	
Approach Delay, s/veh	59.9			0.6	6.4	
Approach LOS	E			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	0.0	92.1			92.1	27.9
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	3.0	* 71			* 80	29.5
Max Q Clear Time (g_c+I1), s	0.0	12.6			2.0	22.1
Green Ext Time (p_c), s	0.0	3.7			11.3	0.3

Intersection Summary

HCM 6th Ctrl Delay, s/veh	9.3
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	110	1105	140	25	25	225	2070	180	0	0	0
Future Volume (veh/h)	250	110	1105	140	25	25	225	2070	180	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	250	206	1041	95	88	25	225	2070	180			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2			
Cap, veh/h	265	219	2504	143	112	32	934	2509	216			
Arrive On Green	0.27	0.27	0.27	0.08	0.08	0.08	0.52	0.52	0.52			
Sat Flow, veh/h	998	822	3170	1781	1401	398	1781	4787	413			
Grp Volume(v), veh/h	456	0	1041	95	0	113	225	1467	783			
Grp Sat Flow(s),veh/h/ln	1820	0	1585	1781	0	1799	1781	1702	1796			
Q Serve(g_s), s	29.4	0.0	12.3	6.2	0.0	7.4	8.3	43.2	44.1			
Cycle Q Clear(g_c), s	29.4	0.0	12.3	6.2	0.0	7.4	8.3	43.2	44.1			
Prop In Lane	0.55		1.00	1.00		0.22	1.00		0.23			
Lane Grp Cap(c), veh/h	484	0	2504	143	0	144	934	1784	941			
V/C Ratio(X)	0.94	0.00	0.42	0.67	0.00	0.78	0.24	0.82	0.83			
Avail Cap(c_a), veh/h	493	0	2520	386	0	390	934	1784	941			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.77	0.77	0.77			
Uniform Delay (d), s/veh	43.1	0.0	3.9	53.6	0.0	54.2	15.6	23.9	24.1			
Incr Delay (d2), s/veh	26.1	0.0	0.0	2.0	0.0	3.5	0.0	2.3	4.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	16.8	0.0	3.4	2.9	0.0	3.5	3.3	17.0	19.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.2	0.0	4.0	55.6	0.0	57.7	15.6	26.2	28.8			
LnGrp LOS	E		A	E		E	B	C	C			
Approach Vol, veh/h		1497			208			2475				
Approach Delay, s/veh		23.9			56.8			26.1				
Approach LOS		C			E			C				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.1		67.5		37.4				
Change Period (Y+Rc), s				5.5		4.6		5.5				
Max Green Setting (Gmax), s				26.0		45.9		32.5				
Max Q Clear Time (g_c+l1), s				9.4		46.1		31.4				
Green Ext Time (p_c), s				0.2		0.0		0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			26.8									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (veh/h)	5	5	0	0	5	135	20	2080	75	0	0	0
Future Volume (veh/h)	5	5	0	0	5	135	20	2080	75	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	5	5	0	0	5	135	20	2080	75			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	22	22	0	0	6	160	1316	3737	134			
Arrive On Green	0.02	0.02	0.00	0.00	0.10	0.10	0.24	0.24	0.24			
Sat Flow, veh/h	912	912	0	0	57	1537	1781	5060	182			
Grp Volume(v), veh/h	10	0	0	0	0	140	20	1398	757			
Grp Sat Flow(s),veh/h/ln	1825	0	0	0	0	1594	1781	1702	1838			
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	10.3	1.0	43.1	43.3			
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	10.3	1.0	43.1	43.3			
Prop In Lane	0.50		0.00	0.00		0.96	1.00		0.10			
Lane Grp Cap(c), veh/h	43	0	0	0	0	166	1316	2514	1357			
V/C Ratio(X)	0.23	0.00	0.00	0.00	0.00	0.84	0.02	0.56	0.56			
Avail Cap(c_a), veh/h	157	0	0	0	0	392	1316	2514	1357			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.09	0.09	0.09			
Uniform Delay (d), s/veh	57.5	0.0	0.0	0.0	0.0	52.8	12.2	28.2	28.2			
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	4.4	0.3	19.6	21.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	0.0	0.0	0.0	0.0	57.1	12.2	28.2	28.3			
LnGrp LOS	E					E	B	C	C			
Approach Vol, veh/h	10			140			2175					
Approach Delay, s/veh	58.5			57.1			28.1					
Approach LOS	E			E			C					
Timer - Assigned Phs	4			6			8					
Phs Duration (G+Y+Rc), s	8.3			93.6			18.0					
Change Period (Y+Rc), s	5.5			5.0			5.5					
Max Green Setting (Gmax), s	10.3			64.2			29.5					
Max Q Clear Time (g_c+I1), s	2.6			45.3			12.3					
Green Ext Time (p_c), s	0.0			6.5			0.3					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	29.9											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	5	0	0	10	15	300	1900	20	0	0	0
Future Volume (veh/h)	265	5	0	0	10	15	300	1900	20	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	265	5	0	0	10	15	300	1900	20			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	291	428	0	0	14	20	1220	3569	38			
Arrive On Green	0.16	0.23	0.00	0.00	0.02	0.02	0.23	0.23	0.23			
Sat Flow, veh/h	1781	1870	0	0	675	1013	1781	5210	55			
Grp Volume(v), veh/h	265	5	0	0	0	25	300	1241	679			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	0	1688	1781	1702	1860			
Q Serve(g_s), s	17.6	0.2	0.0	0.0	0.0	1.8	16.6	38.5	38.5			
Cycle Q Clear(g_c), s	17.6	0.2	0.0	0.0	0.0	1.8	16.6	38.5	38.5			
Prop In Lane	1.00		0.00	0.00		0.60	1.00		0.03			
Lane Grp Cap(c), veh/h	291	428	0	0	0	34	1220	2332	1275			
V/C Ratio(X)	0.91	0.01	0.00	0.00	0.00	0.74	0.25	0.53	0.53			
Avail Cap(c_a), veh/h	319	943	0	0	0	478	1220	2332	1275			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.84	0.84	0.84			
Uniform Delay (d), s/veh	49.4	35.8	0.0	0.0	0.0	58.5	21.0	29.5	29.5			
Incr Delay (d2), s/veh	26.4	0.0	0.0	0.0	0.0	11.0	0.0	0.1	0.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.9	0.1	0.0	0.0	0.0	0.9	7.9	17.5	19.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	75.8	35.8	0.0	0.0	0.0	69.5	21.1	29.6	29.7			
LnGrp LOS	E	D				E	C	C	C			
Approach Vol, veh/h	270				25				2220			
Approach Delay, s/veh	75.1				69.5				28.5			
Approach LOS	E				E				C			
Timer - Assigned Phs	3			4			6			8		
Phs Duration (G+Y+Rc), s	25.1			7.7			87.2			32.8		
Change Period (Y+Rc), s	5.5			* 5.3			5.0			5.3		
Max Green Setting (Gmax), s	21.5			* 34			49.2			60.5		
Max Q Clear Time (g_c+l1), s	19.6			3.8			40.5			2.2		
Green Ext Time (p_c), s	0.0			0.0			4.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	33.9											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

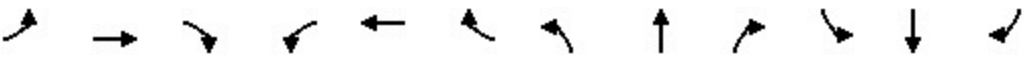
7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶			↷		↶	↶↶↶	↶			
Traffic Volume (veh/h)	5	5	0	0	5	215	10	2015	125	0	0	0
Future Volume (veh/h)	5	5	0	0	5	215	10	2015	125	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	5	5	0	0	5	215	10	2015	125			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2			
Cap, veh/h	6	6	0	0	6	241	1239	3550	1102			
Arrive On Green	0.01	0.01	0.00	0.00	0.16	0.16	0.23	0.23	0.23			
Sat Flow, veh/h	912	912	0	0	36	1554	1781	5106	1585			
Grp Volume(v), veh/h	10	0	0	0	0	220	10	2015	125			
Grp Sat Flow(s),veh/h/ln	1825	0	0	0	0	1591	1781	1702	1585			
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	16.3	0.5	42.0	7.5			
Cycle Q Clear(g_c), s	0.7	0.0	0.0	0.0	0.0	16.3	0.5	42.0	7.5			
Prop In Lane	0.50		0.00	0.00		0.98	1.00		1.00			
Lane Grp Cap(c), veh/h	13	0	0	0	0	247	1239	3550	1102			
V/C Ratio(X)	0.77	0.00	0.00	0.00	0.00	0.89	0.01	0.57	0.11			
Avail Cap(c_a), veh/h	68	0	0	0	0	374	1239	3550	1102			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.78	0.78	0.78			
Uniform Delay (d), s/veh	59.5	0.0	0.0	0.0	0.0	49.7	14.3	30.3	17.0			
Incr Delay (d2), s/veh	29.5	0.0	0.0	0.0	0.0	11.8	0.0	0.1	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.0	7.2	0.2	19.1	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	89.0	0.0	0.0	0.0	0.0	61.5	14.3	30.4	17.0			
LnGrp LOS	F					E	B	C	B			
Approach Vol, veh/h		10			220			2150				
Approach Delay, s/veh		89.0			61.5			29.5				
Approach LOS		F			E			C				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				6.4		88.2		25.4				
Change Period (Y+Rc), s				5.5		4.8		6.8				
Max Green Setting (Gmax), s				4.5		70.2		28.2				
Max Q Clear Time (g_c+I1), s				2.7		44.0		18.3				
Green Ext Time (p_c), s				0.0		7.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			32.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary 8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱		↰	↱↱↱				
Traffic Volume (veh/h)	70	60	0	0	50	25	5	2130	15	0	0	0
Future Volume (veh/h)	70	60	0	0	50	25	5	2130	15	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	70	60	0	0	50	25	5	2130	15			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	117	84	0	0	147	74	1416	4158	29			
Arrive On Green	0.13	0.13	0.00	0.00	0.13	0.13	0.79	0.79	0.79			
Sat Flow, veh/h	569	670	0	0	1176	588	1781	5231	37			
Grp Volume(v), veh/h	130	0	0	0	0	75	5	1386	759			
Grp Sat Flow(s),veh/h/ln	1239	0	0	0	0	1764	1781	1702	1864			
Q Serve(g_s), s	8.2	0.0	0.0	0.0	0.0	4.7	0.1	16.9	16.9			
Cycle Q Clear(g_c), s	12.9	0.0	0.0	0.0	0.0	4.7	0.1	16.9	16.9			
Prop In Lane	0.54		0.00	0.00		0.33	1.00		0.02			
Lane Grp Cap(c), veh/h	201	0	0	0	0	221	1416	2706	1481			
V/C Ratio(X)	0.65	0.00	0.00	0.00	0.00	0.34	0.00	0.51	0.51			
Avail Cap(c_a), veh/h	350	0	0	0	0	393	1416	2706	1481			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.99	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	52.4	0.0	0.0	0.0	0.0	48.0	2.5	4.3	4.3			
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	0.0	0.0	2.1	0.0	4.4	4.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.7	0.0	0.0	0.0	0.0	48.3	2.5	4.3	4.4			
LnGrp LOS	D					D	A	A	A			
Approach Vol, veh/h		130			75			2150				
Approach Delay, s/veh		53.7			48.3			4.3				
Approach LOS		D			D			A				
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				20.3		99.7		20.3				
Change Period (Y+Rc), s				5.3		4.3		5.3				
Max Green Setting (Gmax), s				26.7		83.7		26.7				
Max Q Clear Time (g_c+I1), s				14.9		18.9		6.7				
Green Ext Time (p_c), s				0.2		7.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			8.5									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (veh/h)	0	0	0	0	5	25	195	2060	5	0	0	0
Future Volume (veh/h)	0	0	0	0	5	25	195	2060	5	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	0	0	0	5	25	195	2060	5			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	0	42	0	0	6	30	1608	4747	12			
Arrive On Green	0.00	0.00	0.00	0.00	0.02	0.02	0.30	0.30	0.30			
Sat Flow, veh/h	0	1870	0	0	271	1355	1781	5259	13			
Grp Volume(v), veh/h	0	0	0	0	0	30	195	1333	732			
Grp Sat Flow(s),veh/h/ln	0	1870	0	0	0	1626	1781	1702	1868			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	2.2	9.6	37.9	37.9			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	2.2	9.6	37.9	37.9			
Prop In Lane	0.00		0.00	0.00		0.83	1.00		0.01			
Lane Grp Cap(c), veh/h	0	42	0	0	0	36	1608	3073	1686			
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.00	0.82	0.12	0.43	0.43			
Avail Cap(c_a), veh/h	0	471	0	0	0	409	1608	3073	1686			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.00	0.00	0.00	0.00	0.00	1.00	0.83	0.83	0.83			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	58.4	7.5	17.4	17.4			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	15.5	0.0	0.0	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	1.1	0.9	17.2	18.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	0.0	0.0	73.9	7.5	17.4	17.5			
LnGrp LOS							E	A	B	B		
Approach Vol, veh/h	0			30			2260					
Approach Delay, s/veh	0.0			73.9			16.6					
Approach LOS				E			B					
Timer - Assigned Phs	4			6			8					
Phs Duration (G+Y+Rc), s	7.5			112.5			7.5					
Change Period (Y+Rc), s	4.8			4.2			4.8					
Max Green Setting (Gmax), s	30.2			80.8			30.2					
Max Q Clear Time (g_c+I1), s	0.0			39.9			4.2					
Green Ext Time (p_c), s	0.0			6.8			0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	17.3											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	0	0	0	5	90	2065	15	0	0	0
Future Vol, veh/h	10	0	0	0	0	5	90	2065	15	0	0	0
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	0	-	-	-	-	0	240	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	0	0	0	5	90	2065	15	0	0	0

Major/Minor	Minor2	Minor1				Major1		
Conflicting Flow All	1006	-	-	-	-	1040	0	0
Stage 1	0	-	-	-	-	-	-	-
Stage 2	1006	-	-	-	-	-	-	-
Critical Hdwy	6.44	-	-	-	-	7.14	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	3.92	3.12	-
Pot Cap-1 Maneuver	254	0	0	0	0	195	-	-
Stage 1	-	0	0	0	0	-	-	-
Stage 2	233	0	0	0	0	-	-	-
Platoon blocked, %							-	-
Mov Cap-1 Maneuver	247	-	-	-	-	195	-	-
Mov Cap-2 Maneuver	247	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	227	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	20.2	23.9	
HCM LOS	C	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1
Capacity (veh/h)	-	-	-	247 195
HCM Lane V/C Ratio	-	-	-	0.04 0.026
HCM Control Delay (s/veh)	-	-	-	20.2 23.9
HCM Lane LOS	-	-	-	C C
HCM 95th %tile Q (veh)	-	-	-	0.1 0.1

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	  				
Traffic Volume (veh/h)	430	920	0	0	995	140	335	1660	255	0	0	0
Future Volume (veh/h)	430	920	0	0	995	140	335	1660	255	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	430	920	0	0	995	140	335	1660	255			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	482	1775	0	0	1118	499	1382	2042	634			
Arrive On Green	0.14	0.50	0.00	0.00	0.32	0.32	0.40	0.40	0.40			
Sat Flow, veh/h	3428	3618	0	0	3618	1572	3428	5066	1572			
Grp Volume(v), veh/h	430	920	0	0	995	140	335	1660	255			
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1572	1714	1689	1572			
Q Serve(g_s), s	14.8	21.0	0.0	0.0	32.2	8.0	7.8	34.9	13.9			
Cycle Q Clear(g_c), s	14.8	21.0	0.0	0.0	32.2	8.0	7.8	34.9	13.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	482	1775	0	0	1118	499	1382	2042	634			
V/C Ratio(X)	0.89	0.52	0.00	0.00	0.89	0.28	0.24	0.81	0.40			
Avail Cap(c_a), veh/h	529	1860	0	0	1155	515	1382	2042	634			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.74	0.74	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	50.7	20.0	0.0	0.0	39.0	30.7	23.7	31.8	25.5			
Incr Delay (d2), s/veh	12.0	0.4	0.0	0.0	9.3	0.6	0.0	2.4	0.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	8.2	0.0	0.0	14.8	3.0	3.1	14.3	5.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.7	20.4	0.0	0.0	48.2	31.3	23.7	34.2	25.7			
LnGrp LOS	E	C			D	C	C	C	C			
Approach Vol, veh/h	1350			1135			2250					
Approach Delay, s/veh	33.8			46.2			31.7					
Approach LOS	C			D			C					
Timer - Assigned Phs	3			4			6			8		
Phs Duration (G+Y+Rc), s	22.4			43.8			53.9			66.1		
Change Period (Y+Rc), s	5.5			* 5.7			5.5			5.7		
Max Green Setting (Gmax), s	18.5			* 39			45.5			63.3		
Max Q Clear Time (g_c+I1), s	16.8			34.2			36.9			23.0		
Green Ext Time (p_c), s	0.1			3.8			4.0			13.9		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	35.8											
HCM 6th LOS	D											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	10	35	1790	35	0	0	0
Future Vol, veh/h	0	0	0	0	0	10	35	1790	35	0	0	0
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	0	-	-	-	-	0	210	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	10	35	1790	35	0	0	0

Major/Minor	Minor2	Minor1				Major1			
Conflicting Flow All	786	-	-	-	-	913	0	0	0
Stage 1	0	-	-	-	-	-	-	-	-
Stage 2	786	-	-	-	-	-	-	-	-
Critical Hdwy	6.44	-	-	-	-	7.14	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	3.92	3.12	-	-
Pot Cap-1 Maneuver	341	0	0	0	0	237	-	-	-
Stage 1	-	0	0	0	0	-	-	-	-
Stage 2	319	0	0	0	0	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	327	-	-	-	-	237	-	-	-
Mov Cap-2 Maneuver	327	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	306	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	20.9	
HCM LOS	A	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1
Capacity (veh/h)	-	-	-	237
HCM Lane V/C Ratio	-	-	-	0.042
HCM Control Delay (s/veh)	-	-	-	0 20.9
HCM Lane LOS	-	-	-	A C
HCM 95th %tile Q (veh)	-	-	-	0.1

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	0	25	20	165	1610	100	55	0	680
Future Volume (veh/h)	0	5	0	0	25	20	165	1610	100	55	0	680
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	0	5	0	0	25	20	165	1610	100	55	0	680
Peak Hour 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
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	0	2
Cap, veh/h	7	7	0	0	43	37	1510	2589	160	71	0	0
Arrive On Green	0.00	0.00	0.00	0.00	0.02	0.02	0.85	0.76	0.76	0.04	0.00	0.00
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	3400	210	1781	55	
Grp Volume(v), veh/h	0	5	0	0	25	20	165	837	873	55	61.9	
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	1777	1833	1781	E	
Q Serve(g_s), s	0.0	0.3	0.0	0.0	1.6	1.5	1.9	25.5	26.0	3.7		
Cycle Q Clear(g_c), s	0.0	0.3	0.0	0.0	1.6	1.5	1.9	25.5	26.0	3.7		
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.11	1.00		
Lane Grp Cap(c), veh/h	7	7	0	0	43	37	1510	1353	1396	71		
V/C Ratio(X)	0.00	0.70	0.00	0.00	0.58	0.54	0.11	0.62	0.63	0.78		
Avail Cap(c_a), veh/h	289	304	0	0	47	40	1510	1353	1396	111		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.94	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.71		
Uniform Delay (d), s/veh	0.0	59.7	0.0	0.0	58.0	58.0	1.5	6.4	6.5	57.1		
Incr Delay (d2), s/veh	0.0	34.5	0.0	0.0	7.8	5.0	0.0	2.1	2.1	4.8		
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		
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.9	0.7	0.3	7.8	8.2	1.7		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	94.2	0.0	0.0	65.8	63.0	1.5	8.6	8.6	61.9		
LnGrp LOS		F			E	E	A	A	A	E		
Approach Vol, veh/h		5			45			1875				
Approach Delay, s/veh		94.2			64.5			8.0				
Approach LOS		F			E			A				
Timer - Assigned Phs	1			4	5	6		8				
Phs Duration (G+Y+Rc), s	106.3			7.8	9.3	97.0		6.0				
Change Period (Y+Rc), s	4.5			5.0	4.5	5.6		5.5				
Max Green Setting (Gmax), s	82.5			3.0	7.5	69.4		19.5				
Max Q Clear Time (g_c+I1), s	3.9			3.6	5.7	28.0		2.3				
Green Ext Time (p_c), s	0.1			0.0	0.0	27.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				11.0								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	35	55	15	65	135	105	1460	30	210	1030	40
Future Volume (veh/h)	20	35	55	15	65	135	105	1460	30	210	1030	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	35	55	15	65	135	105	1460	30	210	1030	40
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	110	173	18	74	155	622	1952	40	224	1108	43
Arrive On Green	0.04	0.17	0.17	0.01	0.14	0.14	0.12	0.18	0.18	0.13	0.32	0.32
Sat Flow, veh/h	1781	655	1030	1781	542	1126	1781	3561	73	1781	3487	135
Grp Volume(v), veh/h	20	0	90	15	0	200	105	728	762	210	525	545
Grp Sat Flow(s),veh/h/ln	1781	0	1685	1781	0	1668	1781	1777	1857	1781	1777	1846
Q Serve(g_s), s	1.3	0.0	5.6	1.0	0.0	14.1	6.4	46.6	46.7	14.0	34.3	34.3
Cycle Q Clear(g_c), s	1.3	0.0	5.6	1.0	0.0	14.1	6.4	46.6	46.7	14.0	34.3	34.3
Prop In Lane	1.00		0.61	1.00		0.68	1.00		0.04	1.00		0.07
Lane Grp Cap(c), veh/h	67	0	283	18	0	229	622	974	1018	224	564	586
V/C Ratio(X)	0.30	0.00	0.32	0.85	0.00	0.87	0.17	0.75	0.75	0.94	0.93	0.93
Avail Cap(c_a), veh/h	138	0	455	80	0	391	622	974	1018	224	734	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.68	0.68	0.68	0.53	0.53	0.53
Uniform Delay (d), s/veh	56.2	0.0	43.9	59.3	0.0	50.7	37.4	41.3	41.3	52.0	39.7	39.7
Incr Delay (d2), s/veh	0.9	0.0	0.2	32.1	0.0	5.1	0.0	3.6	3.5	28.1	15.2	14.7
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	0.6	0.0	2.4	0.6	0.0	6.3	2.8	23.0	24.1	7.8	16.7	17.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.1	0.0	44.1	91.4	0.0	55.8	37.4	44.9	44.8	80.1	54.8	54.4
LnGrp LOS	E		D	F		E	D	D	D	F	D	D
Approach Vol, veh/h	110		215			1595			1280			
Approach Delay, s/veh	46.5		58.3			44.3			58.8			
Approach LOS	D		E			D			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	46.9	42.9	9.2	21.0	19.0	70.8	5.6	24.6				
Change Period (Y+Rc), s	5.0	* 4.8	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	14.6	* 50	9.3	28.1	15.1	49.4	5.4	* 32				
Max Q Clear Time (g_c+I1), s	8.4	36.3	3.3	16.1	16.0	48.7	3.0	7.6				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.4	0.0	0.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	51.1											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	245	65	290	195	190	90	1275	325	210	1055	90
Future Volume (veh/h)	120	245	65	290	195	190	90	1275	325	210	1055	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	245	65	290	195	190	90	1275	325	210	1055	90
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	323	144	292	308	275	416	1581	705	215	1182	527
Arrive On Green	0.08	0.09	0.09	0.16	0.17	0.17	0.31	0.59	0.59	0.12	0.33	0.33
Sat Flow, veh/h	1781	3554	1585	1781	1777	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	120	245	65	290	195	190	90	1275	325	210	1055	90
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.0	8.1	3.0	19.5	12.2	13.5	4.5	33.6	13.8	14.1	33.8	3.6
Cycle Q Clear(g_c), s	8.0	8.1	3.0	19.5	12.2	13.5	4.5	33.6	13.8	14.1	33.8	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	323	144	292	308	275	416	1581	705	215	1182	527
V/C Ratio(X)	0.82	0.76	0.45	0.99	0.63	0.69	0.22	0.81	0.46	0.98	0.89	0.17
Avail Cap(c_a), veh/h	172	634	283	292	428	382	416	1581	705	215	1457	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	53.3	21.3	50.1	46.1	46.6	33.3	20.5	16.4	52.6	38.0	15.8
Incr Delay (d2), s/veh	20.5	1.4	0.8	50.2	0.8	1.2	0.1	2.8	1.3	54.0	10.4	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	4.4	3.6	1.8	12.5	5.3	5.3	1.9	11.4	4.6	9.3	15.7	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.7	54.7	22.1	100.2	46.9	47.8	33.3	23.2	17.7	106.6	48.4	16.5
LnGrp LOS	E	D	C	F	D	D	C	C	B	F	D	B
Approach Vol, veh/h	430				675				1690			
Approach Delay, s/veh	55.3				70.0				22.7			
Approach LOS	E				E				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.2	45.0	15.1	26.7	19.6	58.6	25.0	16.8				
Change Period (Y+Rc), s	5.2	* 5.1	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	9.0	* 49	11.6	* 29	14.5	43.5	19.7	* 21				
Max Q Clear Time (g_c+I1), s	6.5	35.8	10.0	15.5	16.1	35.6	21.5	10.1				
Green Ext Time (p_c), s	0.0	4.1	0.0	1.1	0.0	4.0	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	44.4											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary

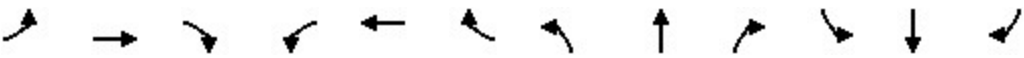
17: 34th Street & I Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	65	10	165	90	0	0	0	0	70	1265	135
Future Volume (veh/h)	0	65	10	165	90	0	0	0	0	70	1265	135
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	65	10	165	90	0				70	1265	135
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	361	55	252	113	0				159	3055	337
Arrive On Green	0.00	0.23	0.23	0.23	0.23	0.00				0.22	0.22	0.22
Sat Flow, veh/h	0	1570	242	811	490	0				237	4557	503
Grp Volume(v), veh/h	0	0	75	255	0	0				544	453	473
Grp Sat Flow(s),veh/h/ln	0	0	1812	1301	0	0				1844	1689	1765
Q Serve(g_s), s	0.0	0.0	3.0	14.4	0.0	0.0				22.9	20.6	20.6
Cycle Q Clear(g_c), s	0.0	0.0	3.0	17.4	0.0	0.0				22.9	20.6	20.6
Prop In Lane	0.00		0.13	0.65		0.00				0.13		0.29
Lane Grp Cap(c), veh/h	0	0	416	365	0	0				1236	1132	1183
V/C Ratio(X)	0.00	0.00	0.18	0.70	0.00	0.00				0.44	0.40	0.40
Avail Cap(c_a), veh/h	0	0	715	606	0	0				1236	1132	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	0.00	1.00	0.96	0.00	0.00				0.09	0.09	0.09
Uniform Delay (d), s/veh	0.0	0.0	27.9	34.4	0.0	0.0				20.5	19.6	19.6
Incr Delay (d2), s/veh	0.0	0.0	0.2	2.3	0.0	0.0				0.1	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.3	5.4	0.0	0.0				11.2	9.2	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	28.1	36.8	0.0	0.0				20.6	19.7	19.7
LnGrp LOS			C	D						C	B	B
Approach Vol, veh/h		75			255						1470	
Approach Delay, s/veh		28.1			36.8						20.0	
Approach LOS		C			D						C	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				25.2		64.8		25.2				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				35.5		45.5		35.5				
Max Q Clear Time (g_c+I1), s				5.0		24.9		19.4				
Green Ext Time (p_c), s				0.3		9.8		1.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary 18: 34th Street & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↵	↑↑						↑↑↑	
Traffic Volume (veh/h)	0	1250	225	310	1045	0	0	0	0	70	1075	40
Future Volume (veh/h)	0	1250	225	310	1045	0	0	0	0	70	1075	40
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1250	225	310	1045	0				70	1075	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2059	368	243	2428	0				65	1063	41
Arrive On Green	0.00	0.68	0.68	0.68	0.68	0.00				0.07	0.07	0.07
Sat Flow, veh/h	0	3106	538	358	3647	0				300	4906	188
Grp Volume(v), veh/h	0	733	742	310	1045	0				433	362	390
Grp Sat Flow(s),veh/h/ln	0	1777	1774	358	1777	0				1855	1702	1836
Q Serve(g_s), s	0.0	20.0	20.5	41.0	11.9	0.0				19.5	19.1	19.1
Cycle Q Clear(g_c), s	0.0	20.0	20.5	61.5	11.9	0.0				19.5	19.1	19.1
Prop In Lane	0.00		0.30	1.00		0.00				0.16		0.10
Lane Grp Cap(c), veh/h	0	1214	1212	243	2428	0				402	369	398
V/C Ratio(X)	0.00	0.60	0.61	1.27	0.43	0.00				1.08	0.98	0.98
Avail Cap(c_a), veh/h	0	1214	1212	243	2428	0				402	369	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	0.63	0.63	0.00				0.55	0.55	0.55
Uniform Delay (d), s/veh	0.0	7.7	7.8	31.2	6.4	0.0				41.8	41.6	41.6
Incr Delay (d2), s/veh	0.0	0.9	0.9	142.2	0.1	0.0				56.2	30.3	29.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.7	5.8	14.8	3.2	0.0				15.9	11.7	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	8.5	8.7	173.4	6.5	0.0				97.9	71.9	70.7
LnGrp LOS		A	A	F	A					F	E	E
Approach Vol, veh/h		1475			1355						1185	
Approach Delay, s/veh		8.6			44.7						81.0	
Approach LOS		A			D						F	
Timer - Assigned Phs				4		6			8			
Phs Duration (G+Y+Rc), s				66.0		24.0			66.0			
Change Period (Y+Rc), s				4.5		4.5			4.5			
Max Green Setting (Gmax), s				61.5		19.5			61.5			
Max Q Clear Time (g_c+I1), s				22.5		21.5			63.5			
Green Ext Time (p_c), s				13.0		0.0			0.0			
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				42.1								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary

19: 34th Street & Q Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	235	615	180	5	0	0	0	0	45	0
Future Volume (veh/h)	20	0	235	615	180	5	0	0	0	0	45	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856				1856	1856	1856
Adj Flow Rate, veh/h	20	0	235	574	237	5				0	45	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3				3	3	3
Cap, veh/h	64	23	513	853	646	14				0	1008	0
Arrive On Green	0.36	0.00	0.36	0.36	0.36	0.36				0.00	0.54	0.00
Sat Flow, veh/h	58	64	1437	2272	1810	38				0	1856	0
Grp Volume(v), veh/h	255	0	0	574	0	242				0	45	0
Grp Sat Flow(s),veh/h/ln	1559	0	0	1136	0	1849				0	1856	0
Q Serve(g_s), s	0.0	0.0	0.0	14.8	0.0	8.7				0.0	1.0	0.0
Cycle Q Clear(g_c), s	11.0	0.0	0.0	25.8	0.0	8.7				0.0	1.0	0.0
Prop In Lane	0.08		0.92	1.00		0.02				0.00		0.00
Lane Grp Cap(c), veh/h	599	0	0	853	0	659				0	1008	0
V/C Ratio(X)	0.43	0.00	0.00	0.67	0.00	0.37				0.00	0.04	0.00
Avail Cap(c_a), veh/h	1030	0	0	1494	0	1181				0	1008	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.83	0.00	0.83				0.00	1.00	0.00
Uniform Delay (d), s/veh	22.2	0.0	0.0	28.4	0.0	21.4				0.0	9.6	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.8	0.0	0.3				0.0	0.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	5.4	0.0	3.5				0.0	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.7	0.0	0.0	29.2	0.0	21.7				0.0	9.7	0.0
LnGrp LOS	C			C		C					A	
Approach Vol, veh/h		255			816						45	
Approach Delay, s/veh		22.7			27.0						9.7	
Approach LOS		C			C						A	
Timer - Assigned Phs				4		6			8			
Phs Duration (G+Y+Rc), s				36.6		53.4			36.6			
Change Period (Y+Rc), s				4.5		4.5			4.5			
Max Green Setting (Gmax), s				57.5		23.5			57.5			
Max Q Clear Time (g_c+I1), s				13.0		3.0			27.8			
Green Ext Time (p_c), s				1.7		0.1			4.3			
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			25.3									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	130	130	610	90	115	1835	5	1205	105
v/c Ratio	0.54	0.54	0.92	0.64	0.49	0.84	0.04	0.45	0.12
Control Delay (s/veh)	55.8	55.8	45.4	66.4	61.1	23.3	69.2	14.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.8	55.8	45.4	66.4	61.1	23.3	69.2	14.4	1.7
Queue Length 50th (ft)	97	97	136	55	45	582	2	257	17
Queue Length 95th (ft)	166	166	#240	#184	76	#865	m13	81	0
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	277	277	717	140	254	2189	119	2758	915
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.47	0.85	0.64	0.45	0.84	0.04	0.44	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

01/14/2025

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	390	310	2080	445	1230
v/c Ratio	0.68	0.80	0.69	0.83	0.30
Control Delay (s/veh)	22.9	26.4	9.9	56.2	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.9	26.4	9.9	56.2	5.0
Queue Length 50th (ft)	50	40	132	169	105
Queue Length 95th (ft)	93	146	321	226	227
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	802	481	3021	626	4066
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.64	0.69	0.71	0.30
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

01/14/2025

			
Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	480	2375	1230
v/c Ratio	0.86	0.60	0.31
Control Delay (s/veh)	45.5	12.4	4.1
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	45.5	12.5	4.1
Queue Length 50th (ft)	127	361	65
Queue Length 95th (ft)	183	572	136
Internal Link Dist (ft)		793	1024
Turn Bay Length (ft)			
Base Capacity (vph)	837	3973	3943
Starvation Cap Reductn	0	150	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.57	0.62	0.31
Intersection Summary			

Queues

4: Watt Avenue & A Street

01/14/2025

	→	↘	↙	←	↖	↑
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	515	950	97	93	225	2250
v/c Ratio	0.80	0.37	0.67	0.60	0.33	1.17
Control Delay (s/veh)	42.3	0.7	74.3	59.5	23.9	112.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.3	0.7	74.3	59.5	23.9	112.9
Queue Length 50th (ft)	369	4	77	63	133	~752
Queue Length 95th (ft)	#623	19	133	117	135	#877
Internal Link Dist (ft)	513			883		1024
Turn Bay Length (ft)		215	100		205	
Base Capacity (vph)	644	2537	364	370	677	1921
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.37	0.27	0.25	0.33	1.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

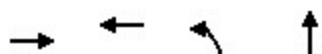
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

5: Watt Avenue & Driveway/Karl Drive

01/14/2025



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	10	140	20	2155
v/c Ratio	0.07	0.56	0.01	0.53
Control Delay (s/veh)	51.9	18.7	7.0	10.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.9	18.7	7.0	10.9
Queue Length 50th (ft)	7	4	1	583
Queue Length 95th (ft)	25	66	m10	m407
Internal Link Dist (ft)	245	409		1856
Turn Bay Length (ft)			195	
Base Capacity (vph)	156	500	1432	4103
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.06	0.28	0.01	0.53

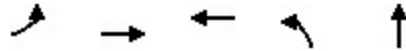
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	265	5	25	300	1920
v/c Ratio	0.82	0.01	0.32	0.25	0.56
Control Delay (s/veh)	67.4	29.4	42.5	5.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.4	29.4	42.5	5.8	9.3
Queue Length 50th (ft)	198	3	8	66	522
Queue Length 95th (ft)	287	12	37	68	128
Internal Link Dist (ft)		571	391		634
Turn Bay Length (ft)	180			190	
Base Capacity (vph)	348	939	495	1203	3453
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.01	0.05	0.25	0.56
Intersection Summary					

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025



Lane Group	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	10	220	10	2015	125
v/c Ratio	0.16	0.83	0.01	0.52	0.10
Control Delay (s/veh)	61.7	60.0	2.9	5.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.7	60.0	2.9	5.6	0.4
Queue Length 50th (ft)	8	120	1	21	0
Queue Length 95th (ft)	26	196	m2	154	m1
Internal Link Dist (ft)	135	542		1064	
Turn Bay Length (ft)			200		200
Base Capacity (vph)	69	428	1339	3841	1222
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.51	0.01	0.52	0.10

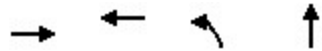
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	130	75	5	2145
v/c Ratio	0.76	0.34	0.00	0.53
Control Delay (s/veh)	77.0	40.9	6.2	6.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	77.0	40.9	6.2	6.9
Queue Length 50th (ft)	99	42	1	140
Queue Length 95th (ft)	159	85	m3	282
Internal Link Dist (ft)	1211	396		1126
Turn Bay Length (ft)			230	
Base Capacity (vph)	327	408	1421	4051
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.18	0.00	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

9: Watt Avenue & Van Owen Street

01/14/2025



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	30	195	2065
v/c Ratio	0.37	0.12	0.44
Control Delay (s/veh)	45.6	0.4	0.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	45.6	0.4	0.9
Queue Length 50th (ft)	11	12	164
Queue Length 95th (ft)	42	5	16
Internal Link Dist (ft)	284		1152
Turn Bay Length (ft)		200	
Base Capacity (vph)	427	1639	4688
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.07	0.12	0.44
Intersection Summary			

Queues

11: Watt Avenue & Elkhorn Boulevard

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	430	920	995	140	335	1660	255
v/c Ratio	0.88	0.51	0.87	0.25	0.25	0.85	0.38
Control Delay (s/veh)	70.1	20.0	47.4	15.5	26.2	40.2	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.1	20.0	47.4	15.5	26.2	40.2	17.5
Queue Length 50th (ft)	168	231	379	36	84	474	79
Queue Length 95th (ft)	#243	287	#470	86	112	417	123
Internal Link Dist (ft)		1213	520			552	
Turn Bay Length (ft)	210			200	300		215
Base Capacity (vph)	524	1848	1156	567	1326	1960	676
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.50	0.86	0.25	0.25	0.85	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	5	25	20	165	1710	55	680
v/c Ratio	0.05	0.42	0.12	0.12	0.68	0.52	0.64
Control Delay (s/veh)	53.0	77.9	1.6	5.6	21.2	91.4	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.0	77.9	1.6	5.6	21.2	91.4	28.0
Queue Length 50th (ft)	4	19	0	39	428	40	97
Queue Length 95th (ft)	17	#64	0	m55	460	m72	178
Internal Link Dist (ft)	1252	498			770		
Turn Bay Length (ft)			100	330		200	120
Base Capacity (vph)	302	60	162	1429	2510	122	1190
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.42	0.12	0.12	0.68	0.45	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

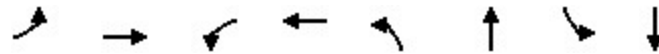
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	90	15	200	105	1490	210	1070
v/c Ratio	0.15	0.34	0.23	0.77	0.23	0.75	0.73	0.66
Control Delay (s/veh)	54.4	23.4	64.0	49.2	34.5	21.7	71.1	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.4	23.4	64.0	49.2	34.5	21.7	71.1	14.5
Queue Length 50th (ft)	15	25	12	91	46	271	173	205
Queue Length 95th (ft)	40	68	35	165	m92	#771	m194	m185
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	137	496	79	454	464	1995	291	1632
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.18	0.19	0.44	0.23	0.75	0.72	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	120	245	65	290	385	90	1275	325	210	1055	90
v/c Ratio	0.76	0.66	0.18	1.00	0.53	0.31	0.93	0.45	0.71	0.76	0.12
Control Delay (s/veh)	82.5	59.8	1.1	103.4	24.8	38.5	33.4	9.5	61.1	35.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	82.5	59.8	1.1	103.4	24.8	38.5	33.4	9.5	61.1	35.1	0.3
Queue Length 50th (ft)	92	97	0	227	71	50	357	26	153	367	0
Queue Length 95th (ft)	#180	137	0	#409	117	m86	#654	m94	#263	418	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	171	631	454	290	933	288	1373	725	296	1466	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.39	0.14	1.00	0.41	0.31	0.93	0.45	0.71	0.72	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

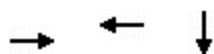
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

17: 34th Street & I Street

01/14/2025



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	75	255	1470
v/c Ratio	0.17	0.75	0.45
Control Delay (s/veh)	22.0	44.4	7.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	22.0	44.4	7.7
Queue Length 50th (ft)	29	134	39
Queue Length 95th (ft)	56	194	m227
Internal Link Dist (ft)	498	1211	2545
Turn Bay Length (ft)			
Base Capacity (vph)	720	552	3260
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.10	0.46	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

18: 34th Street & Elkhorn Boulevard

01/14/2025



Lane Group	EBT	WBL	WBT	SBT
Lane Group Flow (vph)	1475	310	1045	1185
v/c Ratio	0.62	1.91	0.43	1.08
Control Delay (s/veh)	9.3	452.0	7.1	84.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.3	452.0	7.1	84.7
Queue Length 50th (ft)	211	~182	122	~285
Queue Length 95th (ft)	271	#346	157	#377
Internal Link Dist (ft)	1204		1213	2562
Turn Bay Length (ft)		205		
Base Capacity (vph)	2363	162	2418	1097
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.62	1.91	0.43	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

19: 34th Street & Q Street

01/14/2025



Lane Group	EBT	WBL	WBT	SBT
Lane Group Flow (vph)	255	529	271	45
v/c Ratio	0.36	0.83	0.55	0.05
Control Delay (s/veh)	4.2	37.0	25.5	13.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.2	37.0	25.5	13.3
Queue Length 50th (ft)	7	147	130	12
Queue Length 95th (ft)	44	174	171	36
Internal Link Dist (ft)	486		1252	1142
Turn Bay Length (ft)				
Base Capacity (vph)	1080	1119	870	989
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.47	0.31	0.05
Intersection Summary				

Lane Reduction Alternative AM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	0	470	25	0	25	670	1070	80	0	1430	210
Future Volume (veh/h)	140	0	470	25	0	25	670	1070	80	0	1430	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1899	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	140	0	470	25	0	25	670	1070	80	0	1430	210
Peak Hour 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
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	316	0	281	22	0	22	975	2440	182	1	1431	638
Arrive On Green	0.09	0.00	0.09	0.03	0.00	0.03	0.29	0.75	0.75	0.00	0.83	0.83
Sat Flow, veh/h	3478	0	3095	852	0	852	3374	3272	245	1739	3469	1547
Grp Volume(v), veh/h	140	0	470	50	0	0	670	567	583	0	1430	210
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1703	0	0	1687	1735	1782	1739	1735	1547
Q Serve(g_s), s	4.6	0.0	10.9	3.1	0.0	0.0	21.1	14.8	14.8	0.0	49.3	3.9
Cycle Q Clear(g_c), s	4.6	0.0	10.9	3.1	0.0	0.0	21.1	14.8	14.8	0.0	49.3	3.9
Prop In Lane	1.00		1.00	0.50		0.50	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	316	0	281	44	0	0	975	1294	1329	1	1431	638
V/C Ratio(X)	0.44	0.00	1.67	1.14	0.00	0.00	0.69	0.44	0.44	0.00	1.00	0.33
Avail Cap(c_a), veh/h	316	0	281	44	0	0	975	1294	1329	116	1622	723
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.82	0.82
Uniform Delay (d), s/veh	51.7	0.0	54.5	58.5	0.0	0.0	37.8	5.8	5.8	0.0	10.5	6.5
Incr Delay (d2), s/veh	0.4	0.0	317.6	178.6	0.0	0.0	1.7	1.1	1.1	0.0	21.3	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	16.7	3.5	0.0	0.0	8.8	4.9	5.0	0.0	8.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.0	0.0	372.1	237.0	0.0	0.0	39.5	6.8	6.8	0.0	31.8	7.6
LnGrp LOS	D		F	F			D	A	A		C	A
Approach Vol, veh/h	610			50			1820			1640		
Approach Delay, s/veh	298.6			237.0			18.9			28.7		
Approach LOS	F			F			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	38.2	56.8		16.4	0.0	95.0		8.6				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.5		5.5				
Max Green Setting (Gmax), s	28.1	56.1		10.9	8.0	* 77		3.1				
Max Q Clear Time (g_c+I1), s	23.1	51.3		12.9	0.0	16.8		5.1				
Green Ext Time (p_c), s	0.3	2.3		0.0	0.0	2.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	66.9											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

01/14/2025

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	110	765	0	1275	50	765	1335
Future Volume (vph)	110	765	0	1275	50	765	1335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.95		0.97	0.95
Frt	0.88	0.85		0.99		1.00	1.00
Flt Protected	0.99	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3097	1413		3452		3367	3471
Flt Permitted	0.99	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3097	1413		3452		3367	3471
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	765	0	1275	50	765	1335
RTOR Reduction (vph)	344	343	0	2	0	0	0
Lane Group Flow (vph)	149	39	0	1323	0	765	1335
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	12.1	12.1		61.7		30.1	96.8
Effective Green, g (s)	12.1	12.1		61.7		30.1	96.8
Actuated g/C Ratio	0.10	0.10		0.51		0.25	0.81
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	312	142		1774		844	2799
v/s Ratio Prot	c0.05			c0.38		c0.23	0.38
v/s Ratio Perm		0.03					
v/c Ratio	0.48	0.27		0.75		0.91	0.48
Uniform Delay, d1	51.0	49.9		23.0		43.6	3.6
Progression Factor	1.00	1.00		0.85		0.83	2.06
Incremental Delay, d2	0.4	0.4		2.7		9.7	0.4
Delay (s)	51.4	50.3		22.1		45.9	7.9
Level of Service	D	D		C		D	A
Approach Delay (s/veh)	50.9			22.1			21.8
Approach LOS	D			C			C
Intersection Summary							
HCM 2000 Control Delay (s/veh)			27.8		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.76				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			83.3%		ICU Level of Service		E
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

01/14/2025

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	290	390	1685	1745	70
Future Volume (veh/h)	50	290	390	1685	1745	70
Initial Q (Qb), veh	0	0	0	0	0	0
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	290	390	1685	1745	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	155	242	965	2900	1740	776
Arrive On Green	0.09	0.09	0.37	1.00	0.99	0.99
Sat Flow, veh/h	1767	2768	3428	3618	3618	1572
Grp Volume(v), veh/h	50	290	390	1685	1745	70
Grp Sat Flow(s),veh/h/ln	1767	1384	1714	1763	1763	1572
Q Serve(g_s), s	3.2	10.5	10.1	0.0	59.2	0.0
Cycle Q Clear(g_c), s	3.2	10.5	10.1	0.0	59.2	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	155	242	965	2900	1740	776
V/C Ratio(X)	0.32	1.20	0.40	0.58	1.00	0.09
Avail Cap(c_a), veh/h	155	242	965	2909	2154	961
HCM Platoon Ratio	1.00	1.00	1.33	1.33	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.57	0.57	0.60	0.60
Uniform Delay (d), s/veh	51.4	54.8	30.1	0.0	0.8	0.2
Incr Delay (d2), s/veh	0.4	121.8	0.1	0.5	17.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.7	3.9	0.2	4.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	51.9	176.5	30.2	0.5	18.2	0.3
LnGrp LOS	D	F	C	A	F	A
Approach Vol, veh/h	340			2075	1815	
Approach Delay, s/veh	158.2			6.1	17.5	
Approach LOS	F			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.7	68.3			104.0	16.0
Change Period (Y+Rc), s	* 5.3	5.7			* 5.3	5.5
Max Green Setting (Gmax), s	* 20	73.3			* 99	10.5
Max Q Clear Time (g_c+I1), s	12.1	61.2			2.0	12.5
Green Ext Time (p_c), s	0.2	4.8			6.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			23.2			
HCM 6th LOS			C			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	45	365	285	75	30	310	1340	85	35	1140	70
Future Volume (veh/h)	100	45	365	285	75	30	310	1340	85	35	1140	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	84	365	195	201	30	310	1340	85	35	1140	70
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	114	120	627	256	229	34	590	2002	127	44	962	59
Arrive On Green	0.06	0.06	0.06	0.14	0.14	0.14	0.67	1.00	1.00	0.03	0.28	0.28
Sat Flow, veh/h	1767	1856	1572	1767	1578	235	1767	3367	213	1767	3374	207
Grp Volume(v), veh/h	73	84	365	195	0	231	310	700	725	35	595	615
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1813	1767	1763	1817	1767	1763	1818
Q Serve(g_s), s	4.8	5.3	0.0	12.7	0.0	15.0	10.8	0.0	0.0	2.4	34.2	34.2
Cycle Q Clear(g_c), s	4.8	5.3	0.0	12.7	0.0	15.0	10.8	0.0	0.0	2.4	34.2	34.2
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.12	1.00		0.11
Lane Grp Cap(c), veh/h	114	120	627	256	0	263	590	1048	1081	44	502	518
V/C Ratio(X)	0.64	0.70	0.58	0.76	0.00	0.88	0.53	0.67	0.67	0.79	1.18	1.19
Avail Cap(c_a), veh/h	383	402	866	383	0	393	590	1048	1081	44	502	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.81	0.81	0.81	0.86	0.86	0.86
Uniform Delay (d), s/veh	54.8	55.0	28.3	49.3	0.0	50.3	15.1	0.0	0.0	58.2	42.9	42.9
Incr Delay (d2), s/veh	2.2	2.8	0.3	2.1	0.0	10.2	0.3	2.7	2.7	52.8	99.7	99.8
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	2.2	2.6	8.2	5.8	0.0	7.5	3.3	0.8	0.8	1.7	28.5	29.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.0	57.8	28.6	51.4	0.0	60.4	15.4	2.7	2.7	110.9	142.6	142.7
LnGrp LOS	E	E	C	D		E	B	A	A	F	F	F
Approach Vol, veh/h		522			426			1735			1245	
Approach Delay, s/veh		37.3			56.3			5.0			141.7	
Approach LOS		D			E			A			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	44.9	39.0		13.2	7.7	76.2		22.9				
Change Period (Y+Rc), s	* 4.8	* 4.8		5.5	4.7	4.8		5.5				
Max Green Setting (Gmax), s	* 13	* 34		26.0	3.0	44.5		26.0				
Max Q Clear Time (g_c+I1), s	12.8	36.2		7.3	4.4	2.0		17.0				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	3.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 58.2

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	145	5	120	10	1220	70	40	1175	5
Future Volume (veh/h)	0	0	5	145	5	120	10	1220	70	40	1175	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	0	5	145	5	120	10	1220	70	40	1175	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	22	0	20	160	6	133	33	1311	75	432	2198	9
Arrive On Green	0.00	0.00	0.01	0.18	0.18	0.18	0.01	0.26	0.26	0.49	1.00	1.00
Sat Flow, veh/h	1753	0	1560	893	31	739	1753	3362	193	1753	3571	15
Grp Volume(v), veh/h	0	0	5	270	0	0	10	634	656	40	575	605
Grp Sat Flow(s),veh/h/ln	1753	0	1560	1663	0	0	1753	1749	1806	1753	1749	1838
Q Serve(g_s), s	0.0	0.0	0.4	19.1	0.0	0.0	0.7	42.5	42.6	1.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.4	19.1	0.0	0.0	0.7	42.5	42.6	1.5	0.0	0.0
Prop In Lane	1.00		1.00	0.54		0.44	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	22	0	20	298	0	0	33	682	704	432	1076	1131
V/C Ratio(X)	0.00	0.00	0.25	0.90	0.00	0.00	0.30	0.93	0.93	0.09	0.53	0.53
Avail Cap(c_a), veh/h	146	0	130	409	0	0	117	764	789	432	1076	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.63	0.63	0.63	0.74	0.74	0.74
Uniform Delay (d), s/veh	0.0	0.0	58.7	48.2	0.0	0.0	58.5	42.7	42.8	23.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.4	15.7	0.0	0.0	1.2	15.0	14.8	0.0	1.4	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	9.3	0.0	0.0	0.3	21.7	22.5	0.6	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	61.1	63.9	0.0	0.0	59.6	57.7	57.6	23.4	1.4	1.3
LnGrp LOS			E	E			E	E	E	C	A	A
Approach Vol, veh/h	5			270			1300			1220		
Approach Delay, s/veh	61.1			63.9			57.7			2.1		
Approach LOS	E			E			E			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	78.7		7.0	34.3	51.6		27.0				
Change Period (Y+Rc), s	5.0	4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	8.0	51.7		10.0	8.0	* 52		29.5				
Max Q Clear Time (g_c+I1), s	2.7	2.0		2.4	3.5	44.6		21.1				
Green Ext Time (p_c), s	0.0	2.7		0.0	0.0	2.2		0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	34.0											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	40	80	65	40	60	140	1165	75	55	1010	205
Future Volume (veh/h)	215	40	80	65	40	60	140	1165	75	55	1010	205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	215	40	80	65	40	60	140	1165	75	55	1010	205
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	226	49	99	207	52	77	498	1193	77	460	971	197
Arrive On Green	0.13	0.09	0.09	0.12	0.08	0.08	0.57	0.72	0.72	0.26	0.34	0.34
Sat Flow, veh/h	1753	548	1096	1753	665	997	1753	3336	215	1753	2897	587
Grp Volume(v), veh/h	215	0	120	65	0	100	140	610	630	55	609	606
Grp Sat Flow(s),veh/h/ln	1753	0	1644	1753	0	1661	1753	1749	1802	1753	1749	1735
Q Serve(g_s), s	14.6	0.0	8.6	4.1	0.0	7.1	4.9	39.5	39.7	2.9	40.2	40.2
Cycle Q Clear(g_c), s	14.6	0.0	8.6	4.1	0.0	7.1	4.9	39.5	39.7	2.9	40.2	40.2
Prop In Lane	1.00		0.67	1.00		0.60	1.00		0.12	1.00		0.34
Lane Grp Cap(c), veh/h	226	0	148	207	0	129	498	625	644	460	586	581
V/C Ratio(X)	0.95	0.00	0.81	0.31	0.00	0.78	0.28	0.98	0.98	0.12	1.04	1.04
Avail Cap(c_a), veh/h	226	0	537	207	0	471	498	656	676	460	586	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.79	0.79	0.79	0.84	0.84	0.84
Uniform Delay (d), s/veh	51.9	0.0	53.6	48.5	0.0	54.3	19.6	16.6	16.6	33.7	39.9	39.9
Incr Delay (d2), s/veh	45.3	0.0	3.9	0.3	0.0	3.7	0.1	26.6	26.5	0.0	44.7	45.9
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	9.2	0.0	3.7	1.8	0.0	3.1	1.9	11.2	11.6	1.2	24.0	24.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	97.2	0.0	57.5	48.8	0.0	58.1	19.7	43.2	43.1	33.7	84.6	85.8
LnGrp LOS	F		E	D		E	B	D	D	C	F	F
Approach Vol, veh/h	335		165				1380			1270		
Approach Delay, s/veh	82.9		54.4				40.8			83.0		
Approach LOS	F		D				D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	39.3	45.2	21.0	14.5	36.7	47.8	19.4	16.1				
Change Period (Y+Rc), s	5.2	* 5	5.5	* 5.2	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	10.0	* 40	15.5	* 34	5.1	45.0	10.1	39.2				
Max Q Clear Time (g_c+I1), s	6.9	42.2	16.6	9.1	4.9	41.7	6.1	10.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	1.2	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	63.0											
HCM 6th LOS	E											
Notes												

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	30	5	55	15	995	400	195	1470	5
Future Volume (veh/h)	5	5	5	30	5	55	15	995	400	195	1470	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	5	5	5	30	5	55	15	995	400	195	1470	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	6	6	6	91	7	76	442	1263	563	688	1785	6
Arrive On Green	0.01	0.01	0.01	0.05	0.05	0.05	0.25	0.36	0.36	0.39	0.50	0.50
Sat Flow, veh/h	570	570	570	1753	132	1448	1753	3497	1560	1753	3575	12
Grp Volume(v), veh/h	15	0	0	30	0	60	15	995	400	195	719	756
Grp Sat Flow(s),veh/h/ln	1710	0	0	1753	0	1580	1753	1749	1560	1753	1749	1839
Q Serve(g_s), s	1.1	0.0	0.0	2.0	0.0	4.5	0.8	30.5	26.4	9.1	41.9	42.0
Cycle Q Clear(g_c), s	1.1	0.0	0.0	2.0	0.0	4.5	0.8	30.5	26.4	9.1	41.9	42.0
Prop In Lane	0.33		0.33	1.00		0.92	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	17	0	0	91	0	82	442	1263	563	688	873	918
V/C Ratio(X)	0.88	0.00	0.00	0.33	0.00	0.73	0.03	0.79	0.71	0.28	0.82	0.82
Avail Cap(c_a), veh/h	50	0	0	354	0	319	442	1379	615	688	943	991
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	1.00	0.68	0.68	0.68	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	0.0	54.8	0.0	56.0	33.9	34.2	32.9	24.9	25.5	25.5
Incr Delay (d2), s/veh	36.2	0.0	0.0	0.8	0.0	4.5	0.0	3.5	5.1	0.1	8.7	8.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.9	0.0	1.9	0.3	13.3	10.6	3.8	18.7	19.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	95.6	0.0	0.0	55.6	0.0	60.6	33.9	37.7	38.1	25.0	34.2	33.8
LnGrp LOS	F			E		E	C	D	D	C	C	C
Approach Vol, veh/h	15			90			1410			1670		
Approach Delay, s/veh	95.6			58.9			37.8			33.0		
Approach LOS	F			E			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	35.0	65.2		6.7	51.9	48.3		13.1				
Change Period (Y+Rc), s	4.8	5.3		5.5	4.8	* 5		6.8				
Max Green Setting (Gmax), s	5.2	64.7		3.5	23.1	* 47		24.2				
Max Q Clear Time (g_c+I1), s	2.8	44.0		3.1	11.1	32.5		6.5				
Green Ext Time (p_c), s	0.0	16.0		0.0	0.1	10.8		0.1				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	36.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary 8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	15	25	30	20	30	25	930	15	25	1640	65
Future Volume (veh/h)	25	15	25	30	20	30	25	930	15	25	1640	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	25	15	25	30	20	30	25	930	15	25	1640	65
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	108	54	116	71	36	39	507	1068	17	877	1754	69
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.29	0.30	0.30	0.67	0.68	0.68
Sat Flow, veh/h	796	722	1560	393	477	522	1753	3522	57	1753	3430	135
Grp Volume(v), veh/h	40	0	25	80	0	0	25	462	483	25	833	872
Grp Sat Flow(s),veh/h/ln	1518	0	1560	1392	0	0	1753	1749	1830	1753	1749	1816
Q Serve(g_s), s	0.0	0.0	1.8	4.2	0.0	0.0	1.2	30.0	30.0	0.6	49.9	50.9
Cycle Q Clear(g_c), s	2.8	0.0	1.8	7.0	0.0	0.0	1.2	30.0	30.0	0.6	49.9	50.9
Prop In Lane	0.62		1.00	0.37		0.37	1.00		0.03	1.00		0.07
Lane Grp Cap(c), veh/h	162	0	116	145	0	0	507	530	555	877	894	929
V/C Ratio(X)	0.25	0.00	0.21	0.55	0.00	0.00	0.05	0.87	0.87	0.03	0.93	0.94
Avail Cap(c_a), veh/h	221	0	178	206	0	0	507	1239	1297	877	1233	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	0.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	52.6	0.0	52.2	54.7	0.0	0.0	30.8	39.6	39.6	10.1	17.4	17.5
Incr Delay (d2), s/veh	0.3	0.0	0.3	1.2	0.0	0.0	0.0	2.2	2.1	0.0	14.5	15.0
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	1.1	0.0	0.7	2.4	0.0	0.0	0.5	13.0	13.5	0.2	18.4	19.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.9	0.0	52.6	55.9	0.0	0.0	30.8	41.8	41.7	10.1	31.9	32.5
LnGrp LOS	D		D	E			C	D	D	B	C	C
Approach Vol, veh/h	65			80			970			1730		
Approach Delay, s/veh	52.8			55.9			41.4			31.9		
Approach LOS	D			E			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.0	66.8		14.3	64.4	41.4		14.3				
Change Period (Y+Rc), s	4.3	5.4		5.3	4.3	* 5		5.3				
Max Green Setting (Gmax), s	6.7	84.6		13.7	6.8	* 85		13.7				
Max Q Clear Time (g_c+I1), s	3.2	52.9		4.8	2.6	32.0		9.0				
Green Ext Time (p_c), s	0.0	8.4		0.0	0.0	4.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	36.3											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	45	0	20	70	960	5	15	1700	0
Future Volume (veh/h)	0	0	0	45	0	20	70	960	5	15	1700	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	0	0	45	0	20	70	960	5	15	1700	0
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	0	101	85	104	2	24	472	2863	15	44	1934	0
Arrive On Green	0.00	0.00	0.00	0.05	0.00	0.05	0.27	0.80	0.80	0.03	0.55	0.00
Sat Flow, veh/h	0	1841	1560	973	31	446	1753	3567	19	1753	3589	0
Grp Volume(v), veh/h	0	0	0	65	0	0	70	471	494	15	1700	0
Grp Sat Flow(s),veh/h/ln	0	1841	1560	1450	0	0	1753	1749	1837	1753	1749	0
Q Serve(g_s), s	0.0	0.0	0.0	5.2	0.0	0.0	3.6	8.7	8.7	1.0	50.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.3	0.0	0.0	3.6	8.7	8.7	1.0	50.7	0.0
Prop In Lane	0.00		1.00	0.69		0.31	1.00		0.01	1.00		0.00
Lane Grp Cap(c), veh/h	0	101	85	130	0	0	472	1404	1475	44	1934	0
V/C Ratio(X)	0.00	0.00	0.00	0.50	0.00	0.00	0.15	0.34	0.34	0.34	0.88	0.00
Avail Cap(c_a), veh/h	0	445	377	400	0	0	472	1404	1475	79	1988	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)	0.00	0.00	0.00	1.00	0.00	0.00	0.94	0.94	0.94	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	56.1	0.0	0.0	33.4	3.2	3.2	57.5	23.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.1	0.3	0.3	1.7	6.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.0	0.0	0.0	1.6	2.3	2.5	0.5	21.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	57.2	0.0	0.0	33.4	3.5	3.5	59.2	29.4	0.0
LnGrp LOS				E			C			A		
Approach Vol, veh/h	0			65			1035			1715		
Approach Delay, s/veh	0.0			57.2			5.5			29.7		
Approach LOS				E			A			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.3	71.4		11.4	7.3	101.3		11.4				
Change Period (Y+Rc), s	5.0	* 5		4.8	4.3	5.0		4.8				
Max Green Setting (Gmax), s	8.8	* 68		29.0	5.4	71.5		29.0				
Max Q Clear Time (g_c+I1), s	5.6	52.7		0.0	3.0	10.7		7.3				
Green Ext Time (p_c), s	0.0	13.6		0.0	0.0	16.5		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.4									
HCM 6th LOS			C									
Notes												

HCM 6th TWSC
10: Watt Avenue & Commercial Drveway/Milton Way

01/14/2025

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↖ ↗ ↘			↖ ↗ ↘		
Traffic Vol, veh/h	0	0	145	0	0	15	20	1065	10	40	1545	125
Future Vol, veh/h	0	0	145	0	0	15	20	1065	10	40	1545	125
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	145	0	0	15	20	1065	10	40	1545	125

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	835	-	-	538	1670	0	0	1075	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	5.36	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	3.13	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	265	0	0	415	181	-	-	357	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	265	-	-	415	181	-	-	357	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	33.9		14		0.5		0.4	
HCM LOS	D		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	181	-	-	265	415	357	-
HCM Lane V/C Ratio	0.11	-	-	0.547	0.036	0.112	-
HCM Control Delay (s/veh)	27.3	-	-	33.9	14	16.4	-
HCM Lane LOS	D	-	-	D	B	C	-
HCM 95th %tile Q (veh)	0.4	-	-	3	0.1	0.4	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	770	235	290	780	60	230	555	125	110	1390	240
Future Volume (veh/h)	225	770	235	290	780	60	230	555	125	110	1390	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	225	770	235	290	780	60	230	555	125	110	1390	240
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	279	899	401	343	970	433	380	2079	645	162	1482	256
Arrive On Green	0.08	0.25	0.25	0.10	0.28	0.28	0.11	0.41	0.41	0.05	0.34	0.34
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4348	750
Grp Volume(v), veh/h	225	770	235	290	780	60	230	555	125	110	1079	551
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1721
Q Serve(g_s), s	7.7	25.0	15.7	10.0	24.7	3.4	7.7	8.7	4.1	3.8	37.2	37.2
Cycle Q Clear(g_c), s	7.7	25.0	15.7	10.0	24.7	3.4	7.7	8.7	4.1	3.8	37.2	37.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	279	899	401	343	970	433	380	2079	645	162	1151	586
V/C Ratio(X)	0.81	0.86	0.59	0.85	0.80	0.14	0.60	0.27	0.19	0.68	0.94	0.94
Avail Cap(c_a), veh/h	311	949	423	357	996	444	380	2079	645	237	1204	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	42.6	39.2	53.1	40.5	32.8	50.8	23.4	10.2	56.3	38.3	38.3
Incr Delay (d2), s/veh	4.4	3.1	1.1	15.5	5.4	0.3	2.0	0.3	0.7	1.9	15.3	24.8
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	3.4	10.9	6.0	4.9	11.0	1.3	3.4	3.5	2.2	1.6	17.0	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	45.8	40.3	68.6	45.9	33.1	52.8	23.7	10.9	58.2	53.6	63.1
LnGrp LOS	E	D	D	E	D	C	D	C	B	E	D	E
Approach Vol, veh/h	1230			1130			910			1740		
Approach Delay, s/veh	47.1			51.0			29.3			56.9		
Approach LOS	D			D			C			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.9	47.1	15.3	38.7	11.2	54.9	17.7	36.3				
Change Period (Y+Rc), s	* 5.6	* 6.2	5.5	* 5.7	5.5	* 5.6	5.7	* 5.7				
Max Green Setting (Gmax), s	* 9.5	* 43	10.9	* 34	8.3	* 45	12.5	* 32				
Max Q Clear Time (g_c+I1), s	9.7	39.2	9.7	26.7	5.8	10.7	12.0	27.0				
Green Ext Time (p_c), s	0.0	1.7	0.0	4.2	0.0	8.6	0.0	3.6				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			48.1									
HCM 6th LOS			D									
Notes												

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗		↗	↗	
Traffic Vol, veh/h	0	0	0	0	0	25	25	955	30	40	1360	0
Future Vol, veh/h	0	0	0	0	0	25	25	955	30	40	1360	0
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	-	-	0	-	-	0	210	-	-	230	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	0	0	0	25	25	955	30	40	1360	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	680	-	-	493	1360	0	0	985	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.98	-	-	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.34	-	-	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	0	0	389	0	0	516	491	-	-	685	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	389	-	-	516	491	-	-	685	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	12.3	0.3	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	491	-	-	- 516	685	-	-
HCM Lane V/C Ratio	0.051	-	-	- 0.048	0.058	-	-
HCM Control Delay (s/veh)	12.7	-	-	0 12.3	10.6	-	-
HCM Lane LOS	B	-	-	A B	B	-	-
HCM 95th %tile Q (veh)	0.2	-	-	- 0.2	0.2	-	-

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	35	45	80	35	35	85	855	60	40	1320	105
Future Volume (veh/h)	90	35	45	80	35	35	85	855	60	40	1320	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	35	45	80	35	35	85	855	60	40	1320	105
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	119	49	64	100	44	126	107	2193	154	51	2202	982
Arrive On Green	0.07	0.07	0.07	0.08	0.08	0.08	0.06	0.66	0.66	0.06	1.00	1.00
Sat Flow, veh/h	1767	737	948	1247	546	1572	1767	3342	234	1767	3526	1572
Grp Volume(v), veh/h	90	0	80	115	0	35	85	451	464	40	1320	105
Grp Sat Flow(s),veh/h/ln	1767	0	1685	1793	0	1572	1767	1763	1813	1767	1763	1572
Q Serve(g_s), s	6.0	0.0	5.6	7.6	0.0	2.5	5.7	14.2	14.2	2.7	0.0	0.0
Cycle Q Clear(g_c), s	6.0	0.0	5.6	7.6	0.0	2.5	5.7	14.2	14.2	2.7	0.0	0.0
Prop In Lane	1.00		0.56	0.70		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	119	0	113	144	0	126	107	1157	1190	51	2202	982
V/C Ratio(X)	0.76	0.00	0.71	0.80	0.00	0.28	0.80	0.39	0.39	0.79	0.60	0.11
Avail Cap(c_a), veh/h	177	0	168	269	0	236	184	1157	1190	103	2202	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.86	0.00	0.86	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	55.0	0.0	54.8	54.2	0.0	51.9	55.6	9.5	9.5	56.2	0.0	0.0
Incr Delay (d2), s/veh	3.9	0.0	2.6	3.8	0.0	0.4	5.0	1.0	1.0	7.4	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	2.5	3.6	0.0	1.0	2.6	5.1	5.3	1.2	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.9	0.0	57.4	58.0	0.0	52.3	60.6	10.5	10.5	63.6	0.9	0.2
LnGrp LOS	E		E	E		D	E	B	B	E	A	A
Approach Vol, veh/h	170				150		1000				1465	
Approach Delay, s/veh	58.2				56.7		14.8				2.6	
Approach LOS	E				E		B				A	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	11.8	80.5	13.1		7.9	84.3	14.6					
Change Period (Y+Rc), s	4.5	* 5.6	5.0		4.5	5.6	5.0					
Max Green Setting (Gmax), s	12.5	* 58	12.0		7.0	62.9	18.0					
Max Q Clear Time (g_c+I1), s	7.7	2.0	8.0		4.7	16.2	9.6					
Green Ext Time (p_c), s	0.0	23.3	0.1		0.0	10.9	0.2					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	13.3											
HCM 6th LOS	B											
Notes												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	30	25	25	150	60	995	60	185	1470	15
Future Volume (veh/h)	5	15	30	25	25	150	60	995	60	185	1470	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	5	15	30	25	25	150	60	995	60	185	1470	15
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	23	69	137	31	29	174	76	2001	121	208	2370	24
Arrive On Green	0.01	0.12	0.12	0.02	0.13	0.13	0.09	1.00	1.00	0.24	1.00	1.00
Sat Flow, veh/h	1767	552	1104	1767	230	1378	1767	3378	204	1767	3575	36
Grp Volume(v), veh/h	5	0	45	25	0	175	60	519	536	185	724	761
Grp Sat Flow(s),veh/h/ln	1767	0	1657	1767	0	1608	1767	1763	1819	1767	1763	1849
Q Serve(g_s), s	0.3	0.0	2.9	1.7	0.0	12.8	4.0	0.0	0.0	12.1	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	2.9	1.7	0.0	12.8	4.0	0.0	0.0	12.1	0.0	0.0
Prop In Lane	1.00		0.67	1.00		0.86	1.00		0.11	1.00		0.02
Lane Grp Cap(c), veh/h	23	0	206	31	0	203	76	1044	1077	208	1168	1225
V/C Ratio(X)	0.22	0.00	0.22	0.81	0.00	0.86	0.79	0.50	0.50	0.89	0.62	0.62
Avail Cap(c_a), veh/h	149	0	449	90	0	376	106	1044	1077	252	1168	1225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	0.49	0.49	0.49
Uniform Delay (d), s/veh	58.6	0.0	47.3	58.8	0.0	51.4	54.3	0.0	0.0	45.1	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.2	17.0	0.0	4.2	13.7	1.5	1.5	13.6	1.2	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	0.9	0.0	5.4	2.0	0.4	0.4	5.3	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.4	0.0	47.5	75.7	0.0	55.6	68.0	1.5	1.5	58.7	1.2	1.2
LnGrp LOS	E		D	E		E	E	A	A	E	A	A
Approach Vol, veh/h	50			200			1115			1670		
Approach Delay, s/veh	48.8			58.1			5.1			7.6		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	84.5	6.2	19.7	18.0	76.1	6.5	19.4				
Change Period (Y+Rc), s	4.4	* 5	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	7.2	* 56	10.1	28.1	17.1	46.6	6.1	* 33				
Max Q Clear Time (g_c+I1), s	6.0	2.0	2.3	14.8	14.1	2.0	3.7	4.9				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.3	0.0	1.9	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	10.7											
HCM 6th LOS	B											
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

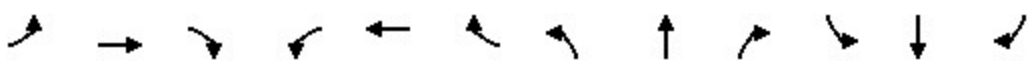
01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	145	70	345	185	235	60	965	205	180	1290	50
Future Volume (veh/h)	50	145	70	345	185	235	60	965	205	180	1290	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	145	70	345	185	235	60	965	205	180	1290	50
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	64	228	102	369	418	373	74	1521	678	205	1785	796
Arrive On Green	0.04	0.06	0.06	0.21	0.24	0.24	0.08	0.86	0.86	0.12	0.51	0.51
Sat Flow, veh/h	1767	3526	1572	1767	1763	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	50	145	70	345	185	235	60	965	205	180	1290	50
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	3.4	4.8	5.2	23.0	10.7	16.1	4.0	10.0	2.9	12.0	34.2	1.9
Cycle Q Clear(g_c), s	3.4	4.8	5.2	23.0	10.7	16.1	4.0	10.0	2.9	12.0	34.2	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	64	228	102	369	418	373	74	1521	678	205	1785	796
V/C Ratio(X)	0.78	0.64	0.69	0.93	0.44	0.63	0.81	0.63	0.30	0.88	0.72	0.06
Avail Cap(c_a), veh/h	133	629	280	378	551	491	74	1521	678	205	1785	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	54.7	54.9	46.7	39.0	41.0	54.5	5.4	4.9	52.2	23.1	15.1
Incr Delay (d2), s/veh	7.4	1.1	3.1	29.2	0.3	0.7	40.9	1.7	1.0	31.5	2.6	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.2	2.1	12.8	4.5	6.1	2.5	2.3	1.0	7.0	13.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	64.7	55.8	58.0	75.9	39.3	41.7	95.5	7.1	5.9	83.8	25.6	15.3
LnGrp LOS	E	E	E	E	D	D	F	A	A	F	C	B
Approach Vol, veh/h	265		765				1230			1520		
Approach Delay, s/veh	58.1		56.5				11.2			32.2		
Approach LOS	E		E				B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	66.0	9.7	34.4	19.0	57.0	30.4	13.7				
Change Period (Y+Rc), s	5.0	* 5.2	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	5.0	* 47	9.0	* 38	13.9	38.1	25.7	* 21				
Max Q Clear Time (g_c+l1), s	6.0	36.2	5.4	18.1	14.0	12.0	25.0	7.2				
Green Ext Time (p_c), s	0.0	4.6	0.0	1.4	0.0	4.7	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			32.1									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

17: 34th Street & I Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	
Traffic Volume (veh/h)	5	40	20	100	25	5	30	330	40	5	760	5
Future Volume (veh/h)	5	40	20	100	25	5	30	330	40	5	760	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	40	20	100	25	5	30	330	40	5	760	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	126	59	197	34	6	52	2350	283	12	2580	17
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.03	0.74	0.74	0.00	0.48	0.48
Sat Flow, veh/h	57	1172	546	1175	312	59	1781	3194	384	1781	3619	24
Grp Volume(v), veh/h	65	0	0	130	0	0	30	182	188	5	373	392
Grp Sat Flow(s),veh/h/ln	1774	0	0	1547	0	0	1781	1777	1801	1781	1777	1866
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	1.5	2.7	2.8	0.3	11.5	11.5
Cycle Q Clear(g_c), s	3.1	0.0	0.0	7.2	0.0	0.0	1.5	2.7	2.8	0.3	11.5	11.5
Prop In Lane	0.08		0.31	0.77		0.04	1.00		0.21	1.00		0.01
Lane Grp Cap(c), veh/h	234	0	0	237	0	0	52	1307	1325	12	1267	1330
V/C Ratio(X)	0.28	0.00	0.00	0.55	0.00	0.00	0.57	0.14	0.14	0.43	0.29	0.29
Avail Cap(c_a), veh/h	634	0	0	568	0	0	168	1307	1325	129	1267	1330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	0.00	0.79	0.00	0.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	37.2	0.0	0.0	38.8	0.0	0.0	43.1	3.5	3.5	44.6	9.7	9.7
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.6	0.0	0.0	9.6	0.2	0.2	18.4	0.5	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	1.3	0.0	0.0	2.8	0.0	0.0	0.8	0.8	0.8	0.2	4.6	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.8	0.0	0.0	40.4	0.0	0.0	52.7	3.7	3.7	63.0	10.2	10.2
LnGrp LOS	D			D			D	A	A	E	B	B
Approach Vol, veh/h		65			130			400			770	
Approach Delay, s/veh		37.8			40.4			7.4			10.5	
Approach LOS		D			D			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	70.7		14.2	7.1	68.7		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	39.5		30.5	8.5	37.5		30.5				
Max Q Clear Time (g_c+I1), s	2.3	4.8		5.1	3.5	13.5		9.2				
Green Ext Time (p_c), s	0.0	2.2		0.3	0.0	4.8		0.6				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			13.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary 18: 34th Street & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	945	50	290	990	30	10	50	185	55	345	205
Future Volume (veh/h)	30	945	50	290	990	30	10	50	185	55	345	205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	945	50	290	990	30	10	50	185	55	345	205
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	992	52	297	1501	45	22	538	480	74	718	418
Arrive On Green	0.03	0.29	0.29	0.17	0.43	0.43	0.01	0.30	0.30	0.01	0.11	0.11
Sat Flow, veh/h	1781	3433	182	1781	3521	107	1781	1777	1585	1781	2161	1260
Grp Volume(v), veh/h	30	489	506	290	500	520	10	50	185	55	283	267
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1851	1781	1777	1585	1781	1777	1644
Q Serve(g_s), s	1.5	24.3	24.3	14.6	20.2	20.2	0.5	1.8	8.3	2.8	13.4	13.8
Cycle Q Clear(g_c), s	1.5	24.3	24.3	14.6	20.2	20.2	0.5	1.8	8.3	2.8	13.4	13.8
Prop In Lane	1.00		0.10	1.00		0.06	1.00		1.00	1.00		0.77
Lane Grp Cap(c), veh/h	52	513	531	297	757	789	22	538	480	74	590	546
V/C Ratio(X)	0.57	0.95	0.95	0.98	0.66	0.66	0.46	0.09	0.39	0.74	0.48	0.49
Avail Cap(c_a), veh/h	115	513	531	297	757	789	99	538	480	99	590	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.48	0.48	0.48	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	31.4	31.4	37.3	20.6	20.6	44.1	22.5	24.8	43.9	32.7	32.9
Incr Delay (d2), s/veh	9.6	28.2	27.6	30.3	1.0	1.0	14.0	0.3	2.3	18.5	2.8	3.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	13.6	14.0	8.5	7.7	8.0	0.3	0.8	3.3	1.6	6.8	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.7	59.6	59.0	67.6	21.6	21.6	58.1	22.8	27.1	62.4	35.5	36.0
LnGrp LOS	D	E	E	E	C	C	E	C	C	E	D	D
Approach Vol, veh/h	1025			1310			245			605		
Approach Delay, s/veh	59.1			31.8			27.5			38.2		
Approach LOS	E			C			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	31.8	19.5	30.5	5.6	34.4	7.1	42.9				
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	5.0	26.0	15.0	26.0	5.0	26.0	5.8	35.2				
Max Q Clear Time (g_c+I1), s	4.8	10.3	16.6	26.3	2.5	15.8	3.5	22.2				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.0	0.0	2.4	0.0	4.9				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	41.5											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

19: 34th Street & Q Street

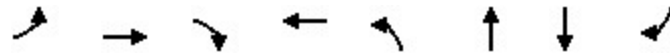
01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	125	175	200	30	10	10	30	35	10	195	5
Future Volume (veh/h)	5	125	175	200	30	10	10	30	35	10	195	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	5	125	175	200	30	10	10	30	35	10	195	5
Peak Hour 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
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	43	223	304	295	41	11	21	907	809	21	1806	46
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.01	0.52	0.52	0.01	0.52	0.52
Sat Flow, veh/h	8	708	964	703	130	36	1739	1735	1547	1739	3456	88
Grp Volume(v), veh/h	305	0	0	240	0	0	10	30	35	10	98	102
Grp Sat Flow(s),veh/h/ln	1680	0	0	869	0	0	1739	1735	1547	1739	1735	1810
Q Serve(g_s), s	0.0	0.0	0.0	11.0	0.0	0.0	0.5	0.8	1.0	0.5	2.6	2.6
Cycle Q Clear(g_c), s	13.9	0.0	0.0	24.9	0.0	0.0	0.5	0.8	1.0	0.5	2.6	2.6
Prop In Lane	0.02		0.57	0.83		0.04	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	570	0	0	347	0	0	21	907	809	21	907	946
V/C Ratio(X)	0.54	0.00	0.00	0.69	0.00	0.00	0.47	0.03	0.04	0.47	0.11	0.11
Avail Cap(c_a), veh/h	902	0	0	575	0	0	126	907	809	126	907	946
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	0.85	0.00	0.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	0.0	0.0	31.4	0.0	0.0	44.2	10.4	10.5	44.2	10.9	10.9
Incr Delay (d2), s/veh	0.8	0.0	0.0	2.1	0.0	0.0	14.6	0.1	0.1	15.1	0.2	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.0	4.9	0.0	0.0	0.3	0.3	0.3	0.3	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.7	0.0	0.0	33.5	0.0	0.0	58.8	10.5	10.6	59.2	11.1	11.1
LnGrp LOS	C			C			E	B	B	E	B	B
Approach Vol, veh/h		305			240			75			210	
Approach Delay, s/veh		26.7			33.5			17.0			13.4	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	51.5		32.9	5.6	51.5		32.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	23.5		46.5	6.5	23.5		46.5				
Max Q Clear Time (g_c+I1), s	2.5	3.0		15.9	2.5	4.6		26.9				
Green Ext Time (p_c), s	0.0	0.2		1.8	0.0	0.9		1.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				24.4								
HCM 6th LOS				C								

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	70	70	470	50	670	1150	1430	210
v/c Ratio	0.63	0.63	0.76	0.23	0.92	0.43	0.80	0.23
Control Delay (s/veh)	78.1	78.1	13.1	2.4	64.2	5.1	28.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.1	78.1	13.1	2.4	64.2	5.1	28.0	5.1
Queue Length 50th (ft)	56	56	0	0	258	137	418	43
Queue Length 95th (ft)	107	107	55	0	#351	183	641	53
Internal Link Dist (ft)		568		647		709	759	
Turn Bay Length (ft)	240				370			360
Base Capacity (vph)	148	148	673	219	780	2680	1779	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.47	0.70	0.23	0.86	0.43	0.80	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

2: Watt Avenue & Airbase Drive

01/14/2025



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	493	382	1325	765	1335
v/c Ratio	0.75	0.79	0.75	0.91	0.48
Control Delay (s/veh)	19.8	17.2	23.5	47.7	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.8	17.2	23.5	47.7	8.7
Queue Length 50th (ft)	42	0	328	324	311
Queue Length 95th (ft)	92	107	601	#391	440
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	832	552	1777	906	2800
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.69	0.75	0.84	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

3: Watt Avenue & Palm Street

01/14/2025



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	50	290	390	1685	1745	70
v/c Ratio	0.50	0.67	0.83	0.56	0.75	0.07
Control Delay (s/veh)	71.1	14.3	63.6	1.2	7.0	1.2
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	71.1	14.3	63.6	1.4	7.0	1.2
Queue Length 50th (ft)	38	0	163	28	184	1
Queue Length 95th (ft)	79	46	215	30	286	m4
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	153	506	558	2997	2335	1059
Starvation Cap Reductn	0	0	0	542	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.57	0.70	0.69	0.75	0.07

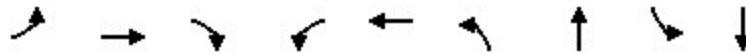
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	74	365	194	196	310	1425	35	1210
v/c Ratio	0.60	0.60	0.82	0.80	0.79	1.59	0.72	0.36	0.69
Control Delay (s/veh)	73.2	73.1	46.3	72.8	68.8	317.0	14.2	71.1	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.2	73.1	46.3	72.8	68.8	317.0	14.2	71.1	16.3
Queue Length 50th (ft)	56	60	195	154	150	~351	332	23	442
Queue Length 95th (ft)	106	110	303	227	224	#522	#233	m46	162
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	360	372	443	360	367	195	1987	98	1742
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.20	0.82	0.54	0.53	1.59	0.72	0.36	0.69

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

5: Watt Avenue & Driveway/Karl Drive

01/14/2025



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	270	10	1290	40	1180
v/c Ratio	0.01	0.85	0.09	0.57	0.35	0.49
Control Delay (s/veh)	0.0	65.3	72.5	6.4	45.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	65.3	72.5	6.4	45.0	7.1
Queue Length 50th (ft)	0	182	8	59	30	70
Queue Length 95th (ft)	0	260	m10	593	m52	422
Internal Link Dist (ft)	245	409		1853		633
Turn Bay Length (ft)			195		155	
Base Capacity (vph)	401	435	115	2249	115	2401
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.62	0.09	0.57	0.35	0.49

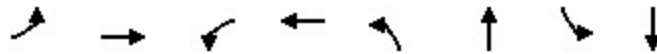
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	215	120	65	100	140	1240	55	1215
v/c Ratio	0.96	0.47	0.42	0.66	0.97	0.62	0.39	0.64
Control Delay (s/veh)	103.0	26.9	58.5	45.0	112.3	9.5	50.3	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	103.0	26.9	58.5	45.0	112.3	9.5	50.3	7.1
Queue Length 50th (ft)	168	30	48	31	116	102	45	78
Queue Length 95th (ft)	#322	90	92	85	#236	164	m#111	131
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	224	590	174	513	144	1989	143	1907
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.20	0.37	0.19	0.97	0.62	0.38	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	27	63	15	995	400	195	1475
v/c Ratio	0.26	0.35	0.51	0.23	0.44	0.35	0.77	0.52
Control Delay (s/veh)	55.6	66.4	32.1	57.1	18.3	8.4	57.7	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.6	66.4	32.1	57.1	18.3	8.4	57.7	2.2
Queue Length 50th (ft)	8	22	6	10	220	65	162	1
Queue Length 95th (ft)	31	53	53	m16	m340	m143	240	139
Internal Link Dist (ft)	135		542		1065			220
Turn Bay Length (ft)				200		200	215	
Base Capacity (vph)	57	332	347	75	2282	1137	334	2824
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.08	0.18	0.20	0.44	0.35	0.58	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	25	80	25	945	25	1705
v/c Ratio	0.44	0.15	0.66	0.33	0.35	0.14	0.61
Control Delay (s/veh)	67.0	2.0	64.6	55.3	6.6	48.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.0	2.0	64.6	55.3	6.6	48.8	6.0
Queue Length 50th (ft)	30	0	46	20	88	21	78
Queue Length 95th (ft)	65	1	96	m40	132	m29	663
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	150	231	187	99	2857	200	2805
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.11	0.43	0.25	0.33	0.13	0.61
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

Queues

9: Watt Avenue & Van Owen Street

01/14/2025



Lane Group	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	70	965	15	1700
v/c Ratio	0.42	0.66	0.32	0.22	0.59
Control Delay (s/veh)	11.4	90.1	2.6	60.4	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.4	90.1	2.6	60.4	3.2
Queue Length 50th (ft)	0	58	2	12	37
Queue Length 95th (ft)	16	#101	102	m16	78
Internal Link Dist (ft)	284		1159		341
Turn Bay Length (ft)		200		225	
Base Capacity (vph)	501	127	3035	81	2868
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.55	0.32	0.19	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

11: Watt Avenue & Elkhorn Boulevard

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	225	770	235	290	780	60	230	555	125	110	1630
v/c Ratio	0.79	0.83	0.43	0.86	0.80	0.11	0.86	0.28	0.17	0.56	0.89
Control Delay (s/veh)	73.3	50.6	12.0	76.6	47.1	0.4	74.0	17.9	2.5	70.4	30.8
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)	73.3	50.6	12.0	76.6	47.1	0.4	74.0	17.9	2.5	70.4	30.8
Queue Length 50th (ft)	89	294	31	115	293	0	95	106	7	44	352
Queue Length 95th (ft)	#140	371	102	#184	370	0	#167	45	0	m64	#469
Internal Link Dist (ft)		1265			520			552			447
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	308	943	555	354	995	574	274	1976	722	235	1831
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.82	0.42	0.82	0.78	0.10	0.84	0.28	0.17	0.47	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	90	80	115	35	85	915	40	1320	105
v/c Ratio	0.68	0.48	0.77	0.11	0.65	0.43	0.48	0.64	0.11
Control Delay (s/veh)	77.6	36.6	82.5	0.8	89.8	7.2	81.0	9.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	77.6	36.6	82.5	0.8	89.8	7.2	81.0	9.7	0.7
Queue Length 50th (ft)	69	27	88	0	69	39	34	76	0
Queue Length 95th (ft)	123	77	148	0	m102	150	m55	264	m7
Internal Link Dist (ft)		1270	498			761		1406	
Turn Bay Length (ft)	135			100	330		200		120
Base Capacity (vph)	175	207	205	363	182	2128	103	2078	988
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.39	0.56	0.10	0.47	0.43	0.39	0.64	0.11

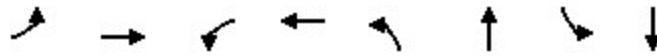
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	45	25	175	60	1055	185	1485
v/c Ratio	0.03	0.24	0.34	0.54	0.54	0.50	0.77	0.62
Control Delay (s/veh)	51.4	26.6	68.1	17.5	64.0	13.5	71.0	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.4	26.6	68.1	17.5	64.0	13.5	71.0	6.8
Queue Length 50th (ft)	4	11	19	17	47	184	154	143
Queue Length 95th (ft)	17	45	49	89	m89	236	m188	m164
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	147	471	89	491	124	2104	270	2413
Starvation Cap Reductn	0	0	0	0	0	0	0	55
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.28	0.36	0.48	0.50	0.69	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

01/14/2025

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	50	145	70	345	420	60	965	205	180	1290	50
v/c Ratio	0.47	0.53	0.22	0.93	0.44	0.44	0.71	0.28	0.68	0.80	0.06
Control Delay (s/veh)	68.1	60.0	1.6	79.2	18.5	73.0	29.0	5.4	61.2	33.4	0.1
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)	68.1	60.0	1.6	79.2	18.5	73.0	29.0	5.4	61.2	33.4	0.1
Queue Length 50th (ft)	38	57	0	263	62	49	255	1	133	443	0
Queue Length 95th (ft)	80	91	0	#441	111	96	431	57	203	#596	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	131	625	450	380	1164	136	1351	736	267	1612	812
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.23	0.16	0.91	0.36	0.44	0.71	0.28	0.67	0.80	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

17: 34th Street & I Street

01/14/2025



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	130	30	370	5	765
v/c Ratio	0.23	0.59	0.22	0.15	0.04	0.33
Control Delay (s/veh)	25.4	44.7	42.0	5.0	50.0	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.4	44.7	42.0	5.0	50.0	3.3
Queue Length 50th (ft)	23	69	16	23	3	39
Queue Length 95th (ft)	55	117	42	71	m6	m46
Internal Link Dist (ft)	498	1233		2430		2546
Turn Bay Length (ft)			150		150	
Base Capacity (vph)	603	495	169	2525	127	2353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.26	0.18	0.15	0.04	0.33

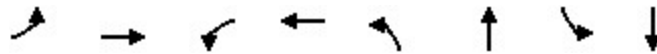
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

18: 34th Street & Elkhorn Boulevard

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	995	290	1020	10	235	55	550
v/c Ratio	0.22	0.90	0.72	0.57	0.10	0.28	0.54	0.52
Control Delay (s/veh)	42.6	42.9	44.1	18.3	49.5	6.8	60.9	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.6	42.9	44.1	18.3	49.5	6.8	60.9	15.0
Queue Length 50th (ft)	16	281	148	210	6	20	28	70
Queue Length 95th (ft)	43	#430	#298	331	m25	18	m#70	154
Internal Link Dist (ft)		1204		1265		2546		2567
Turn Bay Length (ft)	215		205		150		150	
Base Capacity (vph)	136	1102	405	1802	100	1053	101	1095
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.90	0.72	0.57	0.10	0.22	0.54	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

19: 34th Street & Q Street

01/14/2025



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	305	240	10	65	10	200
v/c Ratio	0.51	0.96	0.09	0.04	0.09	0.10
Control Delay (s/veh)	16.9	77.3	47.7	5.1	40.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	77.3	47.7	5.1	40.4	12.8
Queue Length 50th (ft)	86	131	5	0	6	24
Queue Length 95th (ft)	127	#205	m17	m13	21	68
Internal Link Dist (ft)	486	1270		2567		1142
Turn Bay Length (ft)			150		150	
Base Capacity (vph)	912	405	127	1780	127	1913
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.59	0.08	0.04	0.08	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Reduction Alternative PM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	30	715	55	20	30	500	1335	40	10	1215	130
Future Volume (veh/h)	275	30	715	55	20	30	500	1335	40	10	1215	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	296	0	715	55	20	30	500	1335	40	10	1215	130
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	558	0	497	66	24	36	544	2023	61	95	1672	746
Arrive On Green	0.16	0.00	0.16	0.07	0.07	0.07	0.16	0.57	0.57	0.11	0.94	0.94
Sat Flow, veh/h	3563	0	3170	946	344	516	3456	3523	105	1781	3554	1585
Grp Volume(v), veh/h	296	0	715	105	0	0	500	673	702	10	1215	130
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1805	0	0	1728	1777	1851	1781	1777	1585
Q Serve(g_s), s	11.5	0.0	23.5	8.6	0.0	0.0	21.4	38.9	39.0	0.8	9.6	0.9
Cycle Q Clear(g_c), s	11.5	0.0	23.5	8.6	0.0	0.0	21.4	38.9	39.0	0.8	9.6	0.9
Prop In Lane	1.00		1.00	0.52		0.29	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	558	0	497	127	0	0	544	1021	1063	95	1672	746
V/C Ratio(X)	0.53	0.00	1.44	0.83	0.00	0.00	0.92	0.66	0.66	0.11	0.73	0.17
Avail Cap(c_a), veh/h	558	0	497	174	0	0	634	1021	1063	95	1672	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	58.2	0.0	63.3	68.8	0.0	0.0	62.3	21.9	21.9	63.8	2.6	2.4
Incr Delay (d2), s/veh	0.5	0.0	209.1	15.2	0.0	0.0	16.1	3.3	3.2	0.2	2.4	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	5.2	0.0	24.0	4.6	0.0	0.0	10.6	16.8	17.5	0.3	1.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.7	0.0	272.3	84.1	0.0	0.0	78.4	25.2	25.1	63.9	5.0	2.8
LnGrp LOS	E		F	F			E	C	C	E	A	A
Approach Vol, veh/h	1011			105			1875			1355		
Approach Delay, s/veh	209.8			84.1			39.3			5.3		
Approach LOS	F			F			D			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.1	75.9		29.0	13.5	91.5		16.0				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	27.5	62.7		23.5	8.0	* 83		14.5				
Max Q Clear Time (g_c+I1), s	23.4	11.6		25.5	2.8	41.0		10.6				
Green Ext Time (p_c), s	0.2	3.7		0.0	0.0	3.3		0.1				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 69.4

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

01/14/2025

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	55	670	0	1395	215	530	1260
Future Volume (vph)	55	670	0	1395	215	530	1260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.95		0.97	0.95
Frt	0.87	0.85		0.98		1.00	1.00
Flt Protected	0.99	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3126	1441		3468		3433	3539
Flt Permitted	0.99	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3126	1441		3468		3433	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	670	0	1395	215	530	1260
RTOR Reduction (vph)	259	259	0	6	0	0	0
Lane Group Flow (vph)	131	76	0	1604	0	530	1260
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	14.1	14.1		93.8		26.0	124.8
Effective Green, g (s)	14.1	14.1		93.8		26.0	124.8
Actuated g/C Ratio	0.09	0.09		0.63		0.17	0.83
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	293	135		2168		595	2944
v/s Ratio Prot	0.04			c0.46		c0.15	0.36
v/s Ratio Perm		c0.05					
v/c Ratio	0.45	0.56		0.74		0.89	0.43
Uniform Delay, d1	64.3	65.0		19.6		60.6	3.3
Progression Factor	1.00	1.00		0.76		0.94	0.68
Incremental Delay, d2	0.4	3.2		1.9		13.1	0.4
Delay (s)	64.7	68.2		16.7		70.2	2.6
Level of Service	E	E		B		E	A
Approach Delay (s/veh)	66.3			16.7			22.6
Approach LOS	E			B			C
Intersection Summary							
HCM 2000 Control Delay (s/veh)			28.0		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.75				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			82.6%		ICU Level of Service		E
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

01/14/2025

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	210	110	1755	1610	25
Future Volume (veh/h)	25	210	110	1755	1610	25
Initial Q (Qb), veh	0	0	0	0	0	0
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	25	210	110	1755	1610	25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	157	245	153	3002	2718	1212
Arrive On Green	0.09	0.09	0.09	1.00	0.76	0.76
Sat Flow, veh/h	1795	2812	3483	3676	3676	1598
Grp Volume(v), veh/h	25	210	110	1755	1610	25
Grp Sat Flow(s),veh/h/ln	1795	1406	1742	1791	1791	1598
Q Serve(g_s), s	1.9	11.1	4.6	0.0	29.5	0.6
Cycle Q Clear(g_c), s	1.9	11.1	4.6	0.0	29.5	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	157	245	153	3002	2718	1212
V/C Ratio(X)	0.16	0.86	0.72	0.58	0.59	0.02
Avail Cap(c_a), veh/h	174	272	295	3002	2718	1212
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.56	0.56	0.71	0.71
Uniform Delay (d), s/veh	63.4	67.5	67.5	0.0	7.9	4.4
Incr Delay (d2), s/veh	0.2	19.5	1.3	0.5	0.7	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.6	2.0	0.2	10.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	63.5	87.0	68.9	0.5	8.6	4.5
LnGrp LOS	E	F	E	A	A	A
Approach Vol, veh/h	235			1865	1635	
Approach Delay, s/veh	84.5			4.5	8.5	
Approach LOS	F			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.9	119.5			131.4	18.6
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	12.7	1.1E+02			* 1.3E+02	14.5
Max Q Clear Time (g_c+I1), s	6.6	31.5			2.0	13.1
Green Ext Time (p_c), s	0.0	5.6			6.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			11.3			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	25	175	130	30	15	240	1415	200	70	1310	80
Future Volume (veh/h)	25	25	175	130	30	15	240	1415	200	70	1310	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	25	175	88	90	15	240	1415	200	70	1310	80
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	192	201	391	127	111	19	247	1465	205	384	1859	113
Arrive On Green	0.11	0.11	0.11	0.07	0.07	0.07	0.05	0.15	0.15	0.22	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1563	260	1781	3131	438	1781	3402	207
Grp Volume(v), veh/h	25	25	175	88	0	105	240	797	818	70	683	707
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1823	1781	1777	1792	1781	1777	1833
Q Serve(g_s), s	1.9	1.8	14.0	7.2	0.0	8.5	20.2	66.7	68.2	4.8	42.5	42.7
Cycle Q Clear(g_c), s	1.9	1.8	14.0	7.2	0.0	8.5	20.2	66.7	68.2	4.8	42.5	42.7
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.24	1.00		0.11
Lane Grp Cap(c), veh/h	192	201	391	127	0	130	247	832	838	384	971	1001
V/C Ratio(X)	0.13	0.12	0.45	0.69	0.00	0.81	0.97	0.96	0.98	0.18	0.70	0.71
Avail Cap(c_a), veh/h	309	324	495	310	0	317	247	832	838	384	971	1001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.82	0.82	0.82	0.88	0.88	0.88
Uniform Delay (d), s/veh	60.6	60.5	47.9	68.0	0.0	68.6	71.3	62.0	62.6	48.0	25.1	25.1
Incr Delay (d2), s/veh	0.1	0.1	0.3	2.5	0.0	4.4	43.8	19.8	22.9	0.1	3.8	3.7
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	0.9	0.9	5.6	3.4	0.0	4.1	12.7	36.6	38.3	2.2	18.5	19.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.7	60.6	48.2	70.6	0.0	73.1	115.1	81.8	85.5	48.1	28.8	28.8
LnGrp LOS	E	E	D	E		E	F	F	F	D	C	C
Approach Vol, veh/h	225		193			1855			1460			
Approach Delay, s/veh	51.0		71.9			87.7			29.8			
Approach LOS	D		E			F			C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.4	86.7		21.7	37.1	75.0		16.2				
Change Period (Y+Rc), s	4.6	* 4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	20.8	* 57		26.0	7.2	* 70		26.1				
Max Q Clear Time (g_c+I1), s	22.2	44.7		16.0	6.8	70.2		10.5				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	62.0											
HCM 6th LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	15	60	5	75	15	1130	85	65	1230	5
Future Volume (veh/h)	0	5	15	60	5	75	15	1130	85	65	1230	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	5	15	60	5	75	15	1130	85	65	1230	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	16	47	70	6	87	44	1166	88	676	2546	10
Arrive On Green	0.00	0.04	0.04	0.10	0.10	0.10	0.05	0.70	0.70	0.76	1.00	1.00
Sat Flow, veh/h	1781	412	1236	717	60	896	1781	3350	252	1781	3630	15
Grp Volume(v), veh/h	0	0	20	140	0	0	15	599	616	65	602	633
Grp Sat Flow(s),veh/h/ln	1781	0	1648	1673	0	0	1781	1777	1825	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	1.8	12.4	0.0	0.0	1.2	47.2	47.4	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	1.8	12.4	0.0	0.0	1.2	47.2	47.4	1.4	0.0	0.0
Prop In Lane	1.00		0.75	0.43		0.54	1.00		0.14	1.00		0.01
Lane Grp Cap(c), veh/h	67	0	62	163	0	0	44	618	635	676	1246	1310
V/C Ratio(X)	0.00	0.00	0.32	0.86	0.00	0.00	0.34	0.97	0.97	0.10	0.48	0.48
Avail Cap(c_a), veh/h	125	0	115	351	0	0	95	879	903	676	1246	1310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.57	0.57	0.57	0.79	0.79	0.79
Uniform Delay (d), s/veh	0.0	0.0	70.3	66.7	0.0	0.0	70.1	22.1	22.1	11.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.1	5.0	0.0	0.0	1.0	20.8	20.7	0.0	1.1	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	0.0	0.0	0.8	5.6	0.0	0.0	0.6	15.4	15.9	0.6	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	71.4	71.7	0.0	0.0	71.0	42.8	42.8	11.4	1.1	1.0
LnGrp LOS	E			E	E			D	D	B	A	A
Approach Vol, veh/h	20			140			1230			1300		
Approach Delay, s/veh	71.4			71.7			43.2			1.6		
Approach LOS	E			E			D			A		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.7	110.0	11.2		61.8	57.0	20.1					
Change Period (Y+Rc), s	5.0	4.8	5.5		4.8	* 4.8	5.5					
Max Green Setting (Gmax), s	8.0	79.2	10.5		13.7	* 74	31.5					
Max Q Clear Time (g_c+I1), s	3.2	2.0	3.8		3.4	49.4	14.4					
Green Ext Time (p_c), s	0.0	2.8	0.0		0.0	2.8	0.3					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			24.7									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	5	105	30	5	15	70	1140	15	40	1210	125
Future Volume (veh/h)	210	5	105	30	5	15	70	1140	15	40	1210	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	5	105	30	5	15	70	1140	15	40	1210	125
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	10	207	38	10	31	87	1179	16	672	2132	220
Arrive On Green	0.13	0.14	0.14	0.02	0.03	0.03	0.10	0.66	0.66	0.75	1.00	1.00
Sat Flow, veh/h	1781	73	1524	1781	412	1236	1781	3591	47	1781	3252	335
Grp Volume(v), veh/h	210	0	110	30	0	20	70	564	591	40	660	675
Grp Sat Flow(s),veh/h/ln	1781	0	1596	1781	0	1648	1781	1777	1862	1781	1777	1810
Q Serve(g_s), s	17.4	0.0	9.6	2.5	0.0	1.8	5.8	44.8	44.8	0.9	0.0	0.0
Cycle Q Clear(g_c), s	17.4	0.0	9.6	2.5	0.0	1.8	5.8	44.8	44.8	0.9	0.0	0.0
Prop In Lane	1.00		0.95	1.00		0.75	1.00		0.03	1.00		0.19
Lane Grp Cap(c), veh/h	231	0	217	38	0	42	87	583	611	672	1165	1187
V/C Ratio(X)	0.91	0.00	0.51	0.78	0.00	0.48	0.80	0.97	0.97	0.06	0.57	0.57
Avail Cap(c_a), veh/h	279	0	536	82	0	374	107	755	791	672	1165	1187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	0.86	0.86	0.86
Uniform Delay (d), s/veh	64.4	0.0	60.2	73.0	0.0	72.1	66.9	25.0	25.0	11.6	0.0	0.0
Incr Delay (d2), s/veh	25.8	0.0	0.7	12.2	0.0	3.1	21.2	27.3	26.6	0.0	1.7	1.7
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	9.5	0.0	3.9	1.3	0.0	0.8	3.0	16.9	17.6	0.4	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	90.1	0.0	60.8	85.2	0.0	75.2	88.1	52.3	51.6	11.6	1.7	1.7
LnGrp LOS	F		E	F		E	F	D	D	B	A	A
Approach Vol, veh/h	320				50				1225			
Approach Delay, s/veh	80.1				81.2				54.0			
Approach LOS	F				F				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	103.6	25.0	9.1	61.8	54.1	8.4	25.7				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	9.0	* 63	23.5	* 34	8.4	63.7	6.9	50.4				
Max Q Clear Time (g_c+I1), s	7.8	2.0	19.4	3.8	2.9	46.8	4.5	11.6				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.0	0.0	2.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			33.2									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	235	5	115	5	1310	60	115	1130	5
Future Volume (veh/h)	5	5	5	235	5	115	5	1310	60	115	1130	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	5	178	86	115	5	1310	60	115	1130	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	6	6	235	96	128	531	2258	1007	136	1484	7
Arrive On Green	0.01	0.01	0.01	0.13	0.13	0.13	0.60	1.00	1.00	0.08	0.41	0.41
Sat Flow, veh/h	579	579	579	1781	726	970	1781	3554	1585	1781	3628	16
Grp Volume(v), veh/h	15	0	0	178	0	201	5	1310	60	115	553	582
Grp Sat Flow(s),veh/h/ln	1737	0	0	1781	0	1696	1781	1777	1585	1781	1777	1867
Q Serve(g_s), s	1.3	0.0	0.0	14.5	0.0	17.5	0.2	0.0	0.0	9.6	40.1	40.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	14.5	0.0	17.5	0.2	0.0	0.0	9.6	40.1	40.1
Prop In Lane	0.33		0.33	1.00		0.57	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	18	0	0	235	0	224	531	2258	1007	136	727	764
V/C Ratio(X)	0.84	0.00	0.00	0.76	0.00	0.90	0.01	0.58	0.06	0.84	0.76	0.76
Avail Cap(c_a), veh/h	145	0	0	299	0	285	531	2258	1007	207	1028	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.1	0.0	0.0	62.8	0.0	64.1	21.3	0.0	0.0	68.4	38.1	38.1
Incr Delay (d2), s/veh	30.7	0.0	0.0	5.8	0.0	22.1	0.0	0.9	0.1	11.3	7.4	7.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	6.9	0.0	8.9	0.1	0.3	0.0	4.8	18.8	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	104.8	0.0	0.0	68.6	0.0	86.2	21.3	0.9	0.1	79.6	45.5	45.1
LnGrp LOS	F			E		F	C	A	A	E	D	D
Approach Vol, veh/h	15			379			1375			1250		
Approach Delay, s/veh	104.8			77.9			0.9			48.4		
Approach LOS	F			E			A			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	49.7	66.6		7.0	16.1	100.3		26.6				
Change Period (Y+Rc), s	5.0	* 5.3		5.5	4.6	5.0		6.8				
Max Green Setting (Gmax), s	3.1	* 87		12.5	17.4	73.0		25.2				
Max Q Clear Time (g_c+I1), s	2.2	42.1		3.3	11.6	2.0		19.5				
Green Ext Time (p_c), s	0.0	19.2		0.0	0.0	31.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				30.8								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	20	45	25	5	20	35	1410	15	35	1160	50
Future Volume (veh/h)	45	20	45	25	5	20	35	1410	15	35	1160	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	20	45	25	5	20	35	1410	15	35	1160	50
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	41	113	73	22	30	768	2737	29	66	1231	53
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.43	0.76	0.76	0.07	0.71	0.71
Sat Flow, veh/h	996	582	1585	332	305	425	1781	3602	38	1781	3471	150
Grp Volume(v), veh/h	65	0	45	50	0	0	35	695	730	35	594	616
Grp Sat Flow(s),veh/h/ln	1577	0	1585	1062	0	0	1781	1777	1863	1781	1777	1843
Q Serve(g_s), s	0.0	0.0	3.0	1.6	0.0	0.0	1.3	17.0	17.0	2.1	32.2	32.2
Cycle Q Clear(g_c), s	4.3	0.0	3.0	5.8	0.0	0.0	1.3	17.0	17.0	2.1	32.2	32.2
Prop In Lane	0.69		1.00	0.50		0.40	1.00		0.02	1.00		0.08
Lane Grp Cap(c), veh/h	168	0	113	125	0	0	768	1350	1416	66	630	654
V/C Ratio(X)	0.39	0.00	0.40	0.40	0.00	0.00	0.05	0.51	0.52	0.53	0.94	0.94
Avail Cap(c_a), veh/h	262	0	212	217	0	0	768	1350	1416	143	1157	1200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.96	0.00	0.96	1.00	0.00	0.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	49.4	0.0	48.8	49.9	0.0	0.0	18.1	5.2	5.2	50.0	15.0	15.0
Incr Delay (d2), s/veh	0.5	0.0	0.8	0.8	0.0	0.0	0.0	0.2	0.2	2.1	22.0	21.6
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	1.7	0.0	1.2	1.4	0.0	0.0	0.5	4.9	5.2	0.9	9.1	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.9	0.0	49.7	50.7	0.0	0.0	18.2	5.4	5.4	52.1	37.0	36.6
LnGrp LOS	D		D	D			B	A	A	D	D	D
Approach Vol, veh/h	110		50			1460			1245			
Approach Delay, s/veh	49.8		50.7			5.7			37.2			
Approach LOS	D		D			A			D			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	52.4	44.4	13.1		8.3	88.6	13.1					
Change Period (Y+Rc), s	5.0	* 5.4	5.3		4.2	5.0	5.3					
Max Green Setting (Gmax), s	8.7	* 72	14.7		8.8	72.0	14.7					
Max Q Clear Time (g_c+I1), s	3.3	34.2	6.3		4.1	19.0	7.8					
Green Ext Time (p_c), s	0.0	4.8	0.1		0.0	8.3	0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.9									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

01/14/2025

																										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR														
Lane Configurations																										
Traffic Volume (veh/h)	0	0	0	40	5	10	110	1395	25	55	1210	5														
Future Volume (veh/h)	0	0	0	40	5	10	110	1395	25	55	1210	5														
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0														
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00														
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
Work Zone On Approach	No			No			No			No																
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870														
Adj Flow Rate, veh/h	0	0	0	40	5	10	110	1395	25	55	1210	5														
Peak Hour 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														
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2														
Cap, veh/h	0	85	72	105	6	12	136	1711	31	607	2725	11														
Arrive On Green	0.00	0.00	0.00	0.05	0.05	0.05	0.08	0.48	0.48	0.34	0.75	0.75														
Sat Flow, veh/h	0	1870	1585	1075	134	269	1781	3572	64	1781	3630	15														
Grp Volume(v), veh/h	0	0	0	55	0	0	110	694	726	55	592	623														
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1478	0	0	1781	1777	1859	1781	1777	1868														
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	6.7	36.7	36.8	2.3	13.7	13.7														
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.1	0.0	0.0	6.7	36.7	36.8	2.3	13.7	13.7														
Prop In Lane	0.00		1.00	0.73		0.18	1.00		0.03	1.00		0.01														
Lane Grp Cap(c), veh/h	0	85	72	124	0	0	136	851	890	607	1334	1402														
V/C Ratio(X)	0.00	0.00	0.00	0.44	0.00	0.00	0.81	0.81	0.82	0.09	0.44	0.44														
Avail Cap(c_a), veh/h	0	496	421	449	0	0	227	921	963	607	1334	1402														
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.85	0.85	0.85	1.00	1.00	1.00														
Uniform Delay (d), s/veh	0.0	0.0	0.0	52.1	0.0	0.0	50.0	24.5	24.5	24.6	5.1	5.1														
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.0	3.6	5.4	5.2	0.0	1.1	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	0.0	0.0	0.0	1.5	0.0	0.0	3.1	15.9	16.6	1.0	4.4	4.6														
Unsig. Movement Delay, s/veh																										
LnGrp Delay(d), s/veh	0.0	0.0	0.0	53.0	0.0	0.0	53.6	29.9	29.7	24.7	6.2	6.1														
LnGrp LOS				D				D	C	C	A	A														
Approach Vol, veh/h	0			55			1530			1270																
Approach Delay, s/veh	0.0			53.0			31.5			7.0																
Approach LOS				D			C			A																
Timer - Assigned Phs	1	2			4	5	6	8																		
Phs Duration (G+Y+Rc), s	12.6	87.6			9.8	42.5	57.7	9.8																		
Change Period (Y+Rc), s	4.2	5.0			4.8	5.0	* 5	4.8																		
Max Green Setting (Gmax), s	14.0	52.8			29.2	9.7	* 57	29.2																		
Max Q Clear Time (g_c+I1), s	8.7	15.7			0.0	4.3	38.8	6.1																		
Green Ext Time (p_c), s	0.0	19.4			0.0	0.0	13.9	0.1																		
Intersection Summary																										
HCM 6th Ctrl Delay, s/veh					21.0																					
HCM 6th LOS					C																					
Notes																										
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.																										

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗ ↑↑↑			↗ ↑↑↑		
Traffic Vol, veh/h	0	0	185	0	0	5	60	1415	5	40	1025	290
Future Vol, veh/h	0	0	185	0	0	5	60	1415	5	40	1025	290
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	185	0	0	5	60	1415	5	40	1025	290

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	658	-	-	710	1315	0	0	1420	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	349	0	0	323	275	-	-	244	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	349	-	-	323	275	-	-	244	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	26.4	16.3	0.9	0.7
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	275	-	-	349	323	244	-
HCM Lane V/C Ratio	0.218	-	-	0.53	0.015	0.164	-
HCM Control Delay (s/veh)	21.7	-	-	26.4	16.3	22.6	-
HCM Lane LOS	C	-	-	D	C	C	-
HCM 95th %tile Q (veh)	0.8	-	-	3	0	0.6	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	900	225	305	690	140	275	1155	195	180	815	220
Future Volume (veh/h)	440	900	225	305	690	140	275	1155	195	180	815	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	440	900	225	305	690	140	275	1155	195	180	815	220
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	497	1010	450	358	868	387	327	1685	523	234	1214	325
Arrive On Green	0.14	0.29	0.29	0.10	0.25	0.25	0.10	0.33	0.33	0.07	0.31	0.31
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	3976	1065
Grp Volume(v), veh/h	440	900	225	305	690	140	275	1155	195	180	691	344
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1664
Q Serve(g_s), s	13.9	26.9	13.1	9.6	20.2	8.1	8.7	21.7	10.4	5.7	19.7	19.9
Cycle Q Clear(g_c), s	13.9	26.9	13.1	9.6	20.2	8.1	8.7	21.7	10.4	5.7	19.7	19.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	497	1010	450	358	868	387	327	1685	523	234	1031	508
V/C Ratio(X)	0.89	0.89	0.50	0.85	0.80	0.36	0.84	0.69	0.37	0.77	0.67	0.68
Avail Cap(c_a), veh/h	545	1035	462	358	868	387	327	1685	523	234	1031	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	37.6	32.7	48.4	38.9	34.3	48.9	31.7	28.0	50.4	33.4	33.4
Incr Delay (d2), s/veh	4.2	2.9	0.4	16.7	5.8	1.2	16.6	2.3	2.0	13.2	3.5	7.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	11.4	4.8	4.8	9.1	3.1	4.4	9.0	4.0	2.8	8.2	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.3	40.5	33.1	65.1	44.7	35.5	65.5	34.0	30.0	63.6	36.8	40.5
LnGrp LOS	D	D	C	E	D	D	E	C	C	E	D	D
Approach Vol, veh/h	1565			1135			1625			1215		
Approach Delay, s/veh	42.2			49.0			38.9			41.8		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	39.8	21.4	32.8	13.0	42.8	17.0	37.2				
Change Period (Y+Rc), s	5.5	* 6.2	5.5	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	10.5	* 33	17.5	* 26	7.5	* 36	11.5	32.3				
Max Q Clear Time (g_c+I1), s	10.7	21.9	15.9	22.2	7.7	23.7	11.6	28.9				
Green Ext Time (p_c), s	0.0	1.9	0.1	2.5	0.0	9.5	0.0	2.6				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	42.6											
HCM 6th LOS	D											
Notes												

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↘		↗	↗↘	
Traffic Vol, veh/h	0	0	0	0	0	35	35	1370	35	25	1235	0
Future Vol, veh/h	0	0	0	0	0	35	35	1370	35	25	1235	0
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	-	-	0	-	-	0	210	-	-	230	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	35	35	1370	35	25	1235	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	618	-	-	703	1235	0	0	1405	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	432	0	0	380	560	-	-	482	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	432	-	-	380	560	-	-	482	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	15.4	0.3	0.3
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	560	-	-	-	380	482	-
HCM Lane V/C Ratio	0.063	-	-	-	0.092	0.052	-
HCM Control Delay (s/veh)	11.9	-	-	0	15.4	12.9	-
HCM Lane LOS	B	-	-	A	C	B	-
HCM 95th %tile Q (veh)	0.2	-	-	-	0.3	0.2	-

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	25	100	40	10	20	80	1345	70	60	1050	95
Future Volume (veh/h)	85	25	100	40	10	20	80	1345	70	60	1050	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	25	100	40	10	20	80	1345	70	60	1050	95
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	31	122	58	15	64	497	2198	114	77	1419	633
Arrive On Green	0.09	0.09	0.09	0.04	0.04	0.04	0.28	0.64	0.64	0.03	0.27	0.27
Sat Flow, veh/h	1781	327	1308	1439	360	1585	1781	3437	179	1781	3554	1585
Grp Volume(v), veh/h	85	0	125	50	0	20	80	694	721	60	1050	95
Grp Sat Flow(s),veh/h/ln	1781	0	1635	1798	0	1585	1781	1777	1838	1781	1777	1585
Q Serve(g_s), s	5.0	0.0	8.3	3.0	0.0	1.3	3.7	25.4	25.6	3.7	29.7	5.0
Cycle Q Clear(g_c), s	5.0	0.0	8.3	3.0	0.0	1.3	3.7	25.4	25.6	3.7	29.7	5.0
Prop In Lane	1.00		0.80	0.80		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	167	0	153	73	0	64	497	1137	1176	77	1419	633
V/C Ratio(X)	0.51	0.00	0.82	0.69	0.00	0.31	0.16	0.61	0.61	0.78	0.74	0.15
Avail Cap(c_a), veh/h	194	0	178	163	0	144	497	1137	1176	154	1867	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	0.87	0.00	0.87	1.00	0.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	47.4	0.0	48.9	52.1	0.0	51.3	29.9	11.7	11.7	52.9	35.1	26.0
Incr Delay (d2), s/veh	0.8	0.0	17.0	4.2	0.0	1.0	0.1	2.5	2.4	3.7	2.1	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	4.1	1.5	0.0	0.6	1.6	9.3	9.6	1.7	13.5	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.2	0.0	65.9	56.3	0.0	52.3	30.0	14.2	14.1	56.5	37.2	26.3
LnGrp LOS	D		E	E		D	C	B	B	E	D	C
Approach Vol, veh/h	210				70				1495		1205	
Approach Delay, s/veh	58.8				55.1				15.0		37.3	
Approach LOS	E				E				B		D	
Timer - Assigned Phs	1	2			4	5	6			8		
Phs Duration (G+Y+Rc), s	36.3	48.9			15.3	9.3	76.0			9.5		
Change Period (Y+Rc), s	5.6	* 5			5.0	4.5	5.6			5.0		
Max Green Setting (Gmax), s	10.7	* 58			12.0	9.5	58.4			10.0		
Max Q Clear Time (g_c+I1), s	5.7	31.7			10.3	5.7	27.6			5.0		
Green Ext Time (p_c), s	0.0	12.2			0.1	0.0	17.4			0.0		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			28.0									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	45	55	35	85	185	105	1390	35	170	1280	30
Future Volume (veh/h)	15	45	55	35	85	185	105	1390	35	170	1280	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	45	55	35	85	185	105	1390	35	170	1280	30
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	146	178	44	95	206	415	1838	46	186	1357	32
Arrive On Green	0.03	0.19	0.19	0.02	0.18	0.18	0.31	0.69	0.69	0.10	0.38	0.38
Sat Flow, veh/h	1781	766	936	1781	524	1141	1781	3542	89	1781	3549	83
Grp Volume(v), veh/h	15	0	100	35	0	270	105	697	728	170	641	669
Grp Sat Flow(s),veh/h/ln	1781	0	1702	1781	0	1665	1781	1777	1854	1781	1777	1855
Q Serve(g_s), s	0.9	0.0	5.6	2.2	0.0	17.4	4.9	27.9	28.0	10.4	38.3	38.4
Cycle Q Clear(g_c), s	0.9	0.0	5.6	2.2	0.0	17.4	4.9	27.9	28.0	10.4	38.3	38.4
Prop In Lane	1.00		0.55	1.00		0.69	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	55	0	323	44	0	301	415	922	962	186	679	709
V/C Ratio(X)	0.27	0.00	0.31	0.79	0.00	0.90	0.25	0.76	0.76	0.91	0.94	0.94
Avail Cap(c_a), veh/h	151	0	486	104	0	425	415	922	962	186	750	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.75	0.75	0.75	0.51	0.51	0.51
Uniform Delay (d), s/veh	52.1	0.0	38.3	53.4	0.0	44.0	30.8	12.5	12.5	48.8	32.8	32.8
Incr Delay (d2), s/veh	1.0	0.0	0.2	11.1	0.0	13.2	0.1	4.4	4.2	26.1	14.3	14.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.4	1.1	0.0	8.3	2.0	8.0	8.3	5.8	18.1	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.0	0.0	38.5	64.5	0.0	57.2	30.9	16.9	16.8	74.8	47.1	46.8
LnGrp LOS	D		D	E		E	C	B	B	E	D	D
Approach Vol, veh/h	115		305				1530			1480		
Approach Delay, s/veh	40.4		58.0				17.8			50.2		
Approach LOS	D		E				B			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.6	46.9	8.1	24.4	15.4	62.1	7.1	25.4				
Change Period (Y+Rc), s	5.0	* 4.8	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	7.8	* 46	9.3	28.1	11.5	43.0	6.4	* 31				
Max Q Clear Time (g_c+I1), s	6.9	40.4	2.9	19.4	12.4	30.0	4.2	7.6				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.5	0.0	2.6	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	36.1											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	245	65	270	195	190	95	1245	360	190	1170	85
Future Volume (veh/h)	120	245	65	270	195	190	95	1245	360	190	1170	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	245	65	270	195	190	95	1245	360	190	1170	85
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	331	147	274	292	260	357	1588	708	198	1270	566
Arrive On Green	0.08	0.09	0.09	0.15	0.16	0.16	0.27	0.59	0.59	0.11	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	1777	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	120	245	65	270	195	190	95	1245	360	190	1170	85
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.3	7.4	2.8	16.6	11.3	12.5	4.6	29.3	14.5	11.7	34.7	2.9
Cycle Q Clear(g_c), s	7.3	7.4	2.8	16.6	11.3	12.5	4.6	29.3	14.5	11.7	34.7	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	331	147	274	292	260	357	1588	708	198	1270	566
V/C Ratio(X)	0.82	0.74	0.44	0.99	0.67	0.73	0.27	0.78	0.51	0.96	0.92	0.15
Avail Cap(c_a), veh/h	177	691	308	274	433	386	357	1588	708	198	1357	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	48.6	21.0	46.4	43.2	43.7	33.9	18.3	15.3	48.7	33.9	12.6
Incr Delay (d2), s/veh	18.4	1.2	0.8	50.4	1.0	1.5	0.1	2.4	1.5	52.5	12.3	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	4.0	3.3	1.7	10.9	4.9	4.8	1.9	9.5	4.7	7.9	16.2	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.0	49.8	21.8	96.9	44.2	45.1	34.0	20.6	16.8	101.2	46.2	13.2
LnGrp LOS	E	D	C	F	D	D	C	C	B	F	D	B
Approach Vol, veh/h	430			655			1700			1445		
Approach Delay, s/veh	50.7			66.2			20.6			51.5		
Approach LOS	D			E			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.3	44.4	14.4	24.0	17.3	54.4	22.2	16.1				
Change Period (Y+Rc), s	5.2	* 5.1	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	9.0	* 42	10.9	* 27	12.2	38.6	16.9	* 21				
Max Q Clear Time (g_c+I1), s	6.6	36.7	9.3	14.5	13.7	31.3	18.6	9.4				
Green Ext Time (p_c), s	0.0	2.6	0.0	1.1	0.0	3.8	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	41.3											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary

17: 34th Street & I Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	35	20	0	50	20	0	785	70	0	350	10
Future Volume (veh/h)	0	35	20	0	50	20	0	785	70	0	350	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	0	35	20	0	50	20	0	785	70	0	350	10
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	68	39	0	77	31	2	2746	245	2	2936	84
Arrive On Green	0.00	0.06	0.06	0.00	0.06	0.06	0.00	0.84	0.84	0.00	0.28	0.28
Sat Flow, veh/h	0	1108	633	0	1261	504	1767	3274	292	1767	3501	100
Grp Volume(v), veh/h	0	0	55	0	0	70	0	423	432	0	176	184
Grp Sat Flow(s),veh/h/ln	0	0	1742	0	0	1765	1767	1763	1803	1767	1763	1838
Q Serve(g_s), s	0.0	0.0	2.8	0.0	0.0	3.5	0.0	4.6	4.6	0.0	6.7	6.7
Cycle Q Clear(g_c), s	0.0	0.0	2.8	0.0	0.0	3.5	0.0	4.6	4.6	0.0	6.7	6.7
Prop In Lane	0.00		0.36	0.00		0.29	1.00		0.16	1.00		0.05
Lane Grp Cap(c), veh/h	0	0	107	0	0	108	2	1478	1512	2	1478	1541
V/C Ratio(X)	0.00	0.00	0.52	0.00	0.00	0.65	0.00	0.29	0.29	0.00	0.12	0.12
Avail Cap(c_a), veh/h	0	0	551	0	0	559	98	1478	1512	98	1478	1541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.94	0.00	1.00	1.00	0.00	0.91	0.91
Uniform Delay (d), s/veh	0.0	0.0	40.9	0.0	0.0	41.3	0.0	1.5	1.5	0.0	7.7	7.7
Incr Delay (d2), s/veh	0.0	0.0	3.8	0.0	0.0	6.0	0.0	0.5	0.5	0.0	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.3	0.0	0.0	1.7	0.0	0.7	0.7	0.0	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	44.7	0.0	0.0	47.3	0.0	2.0	2.0	0.0	7.8	7.8
LnGrp LOS			D			D		A	A		A	A
Approach Vol, veh/h		55			70			855			360	
Approach Delay, s/veh		44.7			47.3			2.0			7.8	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	80.0		10.0	0.0	80.0		10.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	43.0		28.5	5.0	43.0		28.5				
Max Q Clear Time (g_c+I1), s	0.0	6.6		4.8	0.0	8.7		5.5				
Green Ext Time (p_c), s	0.0	6.1		0.2	0.0	2.1		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			7.7									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary 18: 34th Street & Elkhorn Boulevard

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1170	140	155	1025	60	90	265	425	10	65	25
Future Volume (veh/h)	120	1170	140	155	1025	60	90	265	425	10	65	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	1170	140	155	1025	60	90	265	425	10	65	25
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	1098	131	164	1209	71	105	626	558	22	779	284
Arrive On Green	0.08	0.34	0.34	0.09	0.35	0.35	0.02	0.12	0.12	0.01	0.31	0.31
Sat Flow, veh/h	1781	3197	382	1781	3412	200	1781	1777	1585	1781	2550	930
Grp Volume(v), veh/h	120	649	661	155	534	551	90	265	425	10	44	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1802	1781	1777	1834	1781	1777	1585	1781	1777	1703
Q Serve(g_s), s	6.0	30.9	30.9	7.8	24.9	25.0	4.5	12.5	23.4	0.5	1.6	1.7
Cycle Q Clear(g_c), s	6.0	30.9	30.9	7.8	24.9	25.0	4.5	12.5	23.4	0.5	1.6	1.7
Prop In Lane	1.00		0.21	1.00		0.11	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	144	610	619	164	630	650	105	626	558	22	543	520
V/C Ratio(X)	0.83	1.06	1.07	0.94	0.85	0.85	0.86	0.42	0.76	0.46	0.08	0.09
Avail Cap(c_a), veh/h	144	610	619	164	630	650	105	626	558	99	543	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.46	0.46	0.46	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	29.5	29.6	40.6	26.8	26.8	43.8	31.3	36.1	44.1	22.3	22.3
Incr Delay (d2), s/veh	31.7	54.6	55.9	33.3	5.2	5.0	45.6	2.0	9.2	14.1	0.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	21.2	21.7	4.8	10.5	10.8	3.3	6.2	11.3	0.3	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	72.4	84.2	85.4	73.9	32.0	31.8	89.4	33.3	45.3	58.3	22.5	22.6
LnGrp LOS	E	F	F	E	C	C	F	C	D	E	C	C
Approach Vol, veh/h	1430			1240			780			100		
Approach Delay, s/veh	83.8			37.2			46.3			26.2		
Approach LOS	F			D			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	36.2	12.8	35.4	9.8	32.0	11.8	36.4				
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	5.0	27.8	8.3	30.9	5.3	27.5	7.3	31.9				
Max Q Clear Time (g_c+I1), s	2.5	25.4	9.8	32.9	6.5	3.7	8.0	27.0				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.0	0.0	0.4	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	57.6											
HCM 6th LOS	E											

HCM 6th Signalized Intersection Summary

19: 34th Street & Q Street

01/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	100	75	0	220	10	0	120	230	0	10	0
Future Volume (veh/h)	0	100	75	0	220	10	0	120	230	0	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	0	100	75	0	220	10	0	120	230	0	10	0
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	153	115	0	274	12	2	1312	1170	2	2624	0
Arrive On Green	0.00	0.16	0.16	0.00	0.16	0.16	0.00	1.00	1.00	0.00	0.74	0.00
Sat Flow, veh/h	0	984	738	0	1761	80	1767	1763	1572	1767	3618	0
Grp Volume(v), veh/h	0	0	175	0	0	230	0	120	230	0	10	0
Grp Sat Flow(s),veh/h/ln	0	0	1723	0	0	1841	1767	1763	1572	1767	1763	0
Q Serve(g_s), s	0.0	0.0	8.6	0.0	0.0	10.8	0.0	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	8.6	0.0	0.0	10.8	0.0	0.0	0.0	0.0	0.1	0.0
Prop In Lane	0.00		0.43	0.00		0.04	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	268	0	0	287	2	1312	1170	2	2624	0
V/C Ratio(X)	0.00	0.00	0.65	0.00	0.00	0.80	0.00	0.09	0.20	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	0	756	0	0	808	98	1312	1170	98	2624	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.96	0.00	0.76	0.76	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	35.7	0.0	0.0	36.7	0.0	0.0	0.0	0.0	3.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.7	0.0	0.0	5.0	0.0	0.1	0.3	0.0	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	0.0	0.0	3.6	0.0	0.0	5.0	0.0	0.0	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	38.4	0.0	0.0	41.7	0.0	0.1	0.3	0.0	3.0	0.0
LnGrp LOS			D			D		A	A		A	
Approach Vol, veh/h		175			230			350			10	
Approach Delay, s/veh		38.4			41.7			0.2			3.0	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	71.5		18.5	0.0	71.5		18.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	32.0		39.5	5.0	32.0		39.5				
Max Q Clear Time (g_c+I1), s	0.0	2.0		10.6	0.0	2.1		12.8				
Green Ext Time (p_c), s	0.0	2.2		0.9	0.0	0.0		1.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.4									
HCM 6th LOS			C									

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

01/14/2025



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	151	154	715	105	500	1375	10	1215	130
v/c Ratio	0.78	0.79	0.85	0.80	0.89	0.59	0.11	0.70	0.15
Control Delay (s/veh)	90.0	90.5	22.7	98.1	79.9	17.8	77.6	18.0	1.6
Queue Delay	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay (s/veh)	90.7	91.2	22.7	98.1	79.9	17.9	77.6	18.1	1.6
Queue Length 50th (ft)	152	155	69	91	248	337	9	384	6
Queue Length 95th (ft)	228	233	152	#178	310	588	m25	175	8
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	263	266	929	155	630	2331	94	1746	851
Starvation Cap Reductn	0	0	0	0	0	0	0	42	0
Spillback Cap Reductn	18	18	0	0	0	79	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.62	0.77	0.68	0.79	0.61	0.11	0.71	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

01/14/2025



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	390	335	1610	530	1260
v/c Ratio	0.71	0.85	0.74	0.89	0.43
Control Delay (s/veh)	24.5	31.7	18.1	72.4	3.0
Queue Delay	0.0	0.0	0.3	0.0	0.2
Total Delay (s/veh)	24.5	31.7	18.4	72.4	3.2
Queue Length 50th (ft)	51	51	537	231	16
Queue Length 95th (ft)	98	175	790	304	387
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	768	482	2173	661	2944
Starvation Cap Reductn	0	0	153	0	802
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.70	0.80	0.80	0.59
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

01/14/2025



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	25	210	110	1755	1610	25
v/c Ratio	0.37	0.68	0.59	0.55	0.57	0.02
Control Delay (s/veh)	84.3	19.8	79.7	4.7	4.3	1.2
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay (s/veh)	84.3	19.8	79.7	5.3	4.3	1.2
Queue Length 50th (ft)	24	0	52	369	220	1
Queue Length 95th (ft)	57	46	m74	176	130	m1
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	172	461	293	3186	2849	1278
Starvation Cap Reductn	0	0	0	929	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.46	0.38	0.78	0.57	0.02

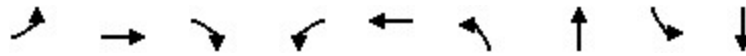
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	28	175	87	88	240	1615	70	1390
v/c Ratio	0.33	0.41	0.38	0.70	0.67	0.76	0.76	0.26	0.68
Control Delay (s/veh)	82.7	86.5	9.2	94.1	86.3	84.2	13.8	64.7	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	82.7	86.5	9.2	94.1	86.3	84.2	13.8	64.7	28.8
Queue Length 50th (ft)	22	28	19	89	84	210	252	48	250
Queue Length 95th (ft)	54	65	62	149	145	320	212	#151	698
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	291	305	459	292	297	317	2117	270	2045
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.09	0.38	0.30	0.30	0.76	0.76	0.26	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

5: Watt Avenue & Driveway/Karl Drive

01/14/2025



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	140	15	1215	65	1235
v/c Ratio	0.16	0.76	0.16	0.49	0.57	0.47
Control Delay (s/veh)	36.6	74.5	93.7	1.9	72.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (s/veh)	36.6	74.5	93.7	1.9	72.4	2.2
Queue Length 50th (ft)	5	103	15	27	65	20
Queue Length 95th (ft)	33	173	m18	164	m113	55
Internal Link Dist (ft)	245	409		1853		633
Turn Bay Length (ft)			195		155	
Base Capacity (vph)	129	382	94	2461	161	2632
Starvation Cap Reductn	0	0	0	0	0	302
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.37	0.16	0.49	0.40	0.53

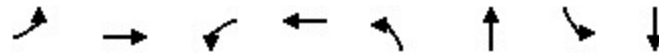
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	110	30	20	70	1155	40	1335
v/c Ratio	0.84	0.37	0.42	0.32	0.62	0.51	0.26	0.59
Control Delay (s/veh)	89.8	14.3	86.8	48.4	100.6	15.2	55.4	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	89.8	14.3	86.8	48.4	100.6	15.2	55.4	11.0
Queue Length 50th (ft)	202	4	29	5	72	150	39	469
Queue Length 95th (ft)	287	62	65	34	124	332	m72	161
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	288	605	86	386	125	2262	164	2277
Starvation Cap Reductn	0	0	0	0	0	98	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.18	0.35	0.05	0.56	0.53	0.24	0.59

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

01/14/2025



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	183	172	5	1310	60	115	1135
v/c Ratio	0.27	0.85	0.68	0.08	0.59	0.06	0.76	0.44
Control Delay (s/veh)	62.3	94.7	54.2	61.8	10.1	0.3	95.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.3	94.7	54.2	61.8	10.1	0.3	95.9	11.9
Queue Length 50th (ft)	10	186	113	5	116	0	112	158
Queue Length 95th (ft)	34	270	195	m8	408	m0	177	470
Internal Link Dist (ft)	135		542		1065			220
Turn Bay Length (ft)				200		200	215	
Base Capacity (vph)	94	282	311	62	2236	1037	205	2602
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.65	0.55	0.08	0.59	0.06	0.56	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

01/14/2025

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	45	50	35	1425	35	1210
v/c Ratio	0.56	0.20	0.41	0.28	0.51	0.38	0.44
Control Delay (s/veh)	65.7	2.0	41.6	52.5	6.5	55.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.7	2.0	41.6	52.5	6.5	55.8	5.9
Queue Length 50th (ft)	45	0	20	24	194	24	181
Queue Length 95th (ft)	88	0	57	55	313	m53	231
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	211	311	207	155	2816	141	2731
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.14	0.24	0.23	0.51	0.25	0.44
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

Queues

9: Watt Avenue & Van Owen Street

01/14/2025



Lane Group	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	110	1420	55	1215
v/c Ratio	0.56	0.67	0.51	0.51	0.47
Control Delay (s/veh)	62.9	60.5	9.4	55.7	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.9	60.5	9.4	55.7	8.2
Queue Length 50th (ft)	31	77	367	32	163
Queue Length 95th (ft)	72	113	411	m57	208
Internal Link Dist (ft)	284		1159		341
Turn Bay Length (ft)		200		225	
Base Capacity (vph)	385	228	2774	156	2589
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.48	0.51	0.35	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

11: Watt Avenue & Elkhorn Boulevard

01/14/2025

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	440	900	225	305	690	140	275	1155	195	180	1035
v/c Ratio	0.87	0.88	0.39	0.88	0.80	0.26	0.87	0.68	0.30	0.80	0.68
Control Delay (s/veh)	64.6	48.1	10.1	75.3	47.3	2.7	86.4	24.7	3.2	70.0	27.4
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)	64.6	48.1	10.1	75.3	47.3	2.7	86.4	24.7	3.2	70.0	27.4
Queue Length 50th (ft)	156	317	25	110	244	0	88	217	12	58	272
Queue Length 95th (ft)	#229	#425	87	#185	#317	17	#176	201	24	#119	234
Internal Link Dist (ft)		1265			520			552			447
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	540	1029	584	355	862	532	324	1694	657	231	1527
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.87	0.39	0.86	0.80	0.26	0.85	0.68	0.30	0.78	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	85	125	50	20	80	1415	60	1050	95
v/c Ratio	0.62	0.57	0.59	0.08	0.35	0.63	0.55	0.51	0.10
Control Delay (s/veh)	68.0	24.8	76.1	0.6	39.2	9.7	74.3	18.9	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.0	24.8	76.1	0.6	39.2	9.7	74.3	18.9	4.1
Queue Length 50th (ft)	59	17	35	0	51	31	45	184	8
Queue Length 95th (ft)	109	74	75	0	m88	573	m63	204	m14
Internal Link Dist (ft)		1270	498			761		1406	
Turn Bay Length (ft)	135			100	330		200		120
Base Capacity (vph)	193	267	116	298	249	2253	152	2123	1000
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.47	0.43	0.07	0.32	0.63	0.39	0.49	0.10

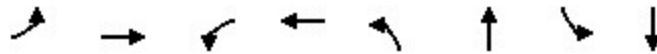
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	100	35	270	105	1425	170	1310
v/c Ratio	0.10	0.33	0.42	0.79	0.34	0.75	0.71	0.75
Control Delay (s/veh)	48.3	21.8	65.0	45.1	41.9	22.3	70.1	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.3	21.8	65.0	45.1	41.9	22.3	70.1	11.2
Queue Length 50th (ft)	10	30	24	116	58	165	129	168
Queue Length 95th (ft)	31	69	58	201	m#152	#690	m143	m148
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	149	526	102	498	309	1895	240	1746
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.19	0.34	0.54	0.34	0.75	0.71	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	120	245	65	270	385	95	1245	360	190	1170	85
v/c Ratio	0.75	0.64	0.17	1.00	0.55	0.43	0.91	0.48	0.67	0.78	0.11
Control Delay (s/veh)	75.6	54.4	1.0	101.3	23.8	42.0	30.8	8.0	55.3	31.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	75.6	54.4	1.0	101.3	23.8	42.0	30.8	8.0	55.3	31.3	0.3
Queue Length 50th (ft)	83	88	0	193	65	54	253	3	126	362	0
Queue Length 95th (ft)	#167	126	0	#364	111	m86	#596	m89	205	444	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	175	688	491	271	942	220	1366	747	285	1504	779
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.36	0.13	1.00	0.41	0.43	0.91	0.48	0.67	0.78	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

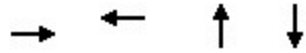
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

17: 34th Street & I Street

01/14/2025



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	55	70	855	360
v/c Ratio	0.31	0.39	0.29	0.12
Control Delay (s/veh)	31.0	35.1	2.4	1.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.0	35.1	2.4	1.3
Queue Length 50th (ft)	19	27	44	8
Queue Length 95th (ft)	53	66	77	m23
Internal Link Dist (ft)	498	1233	2430	2546
Turn Bay Length (ft)				
Base Capacity (vph)	569	575	2916	2938
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.12	0.29	0.12

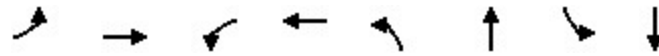
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

18: 34th Street & Elkhorn Boulevard

01/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	1310	155	1085	90	690	10	90
v/c Ratio	0.56	0.94	0.59	0.73	0.87	0.62	0.10	0.13
Control Delay (s/veh)	48.4	41.4	47.1	26.5	99.3	16.0	30.6	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.4	41.4	47.1	26.5	99.3	16.0	30.6	12.0
Queue Length 50th (ft)	64	377	81	270	52	98	3	19
Queue Length 95th (ft)	#146	#576	#190	#414	#142	159	13	37
Internal Link Dist (ft)		1204		1265		2546		2567
Turn Bay Length (ft)	215		205		150		150	
Base Capacity (vph)	216	1398	263	1496	104	1204	98	1053
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.94	0.59	0.73	0.87	0.57	0.10	0.09

Intersection Summary

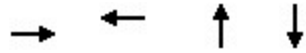
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

19: 34th Street & Q Street

01/14/2025



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	175	230	350	10
v/c Ratio	0.48	0.67	0.15	0.00
Control Delay (s/veh)	25.9	42.7	0.3	5.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.9	42.7	0.3	5.1
Queue Length 50th (ft)	61	121	0	1
Queue Length 95th (ft)	113	181	m2	3
Internal Link Dist (ft)	486	1270	2567	1142
Turn Bay Length (ft)				
Base Capacity (vph)	792	806	2319	2501
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.29	0.15	0.00

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Six Lane Alternatives AM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	5	180	20	5	20	545	1325	50	5	1925	230
Future Volume (veh/h)	70	5	180	20	5	20	545	1325	50	5	1925	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1899	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	74	0	180	20	5	20	545	1325	50	5	1925	230
Peak Hour 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
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	243	0	217	26	6	26	589	2379	90	93	2875	892
Arrive On Green	0.07	0.00	0.07	0.03	0.03	0.03	0.17	0.70	0.70	0.11	1.00	1.00
Sat Flow, veh/h	3478	0	3095	766	191	766	3374	3409	128	1739	4985	1547
Grp Volume(v), veh/h	74	0	180	45	0	0	545	674	701	5	1925	230
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1723	0	0	1687	1735	1803	1739	1662	1547
Q Serve(g_s), s	3.0	0.0	8.6	3.9	0.0	0.0	23.9	28.8	28.9	0.4	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	8.6	3.9	0.0	0.0	23.9	28.8	28.9	0.4	0.0	0.0
Prop In Lane	1.00		1.00	0.44		0.44	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	243	0	217	57	0	0	589	1211	1258	93	2875	892
V/C Ratio(X)	0.30	0.00	0.83	0.78	0.00	0.00	0.93	0.56	0.56	0.05	0.67	0.26
Avail Cap(c_a), veh/h	243	0	217	109	0	0	776	1211	1258	93	2875	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	66.3	0.0	68.9	72.0	0.0	0.0	60.9	11.2	11.2	63.6	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	21.9	8.4	0.0	0.0	12.5	1.8	1.8	0.1	1.1	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	1.3	0.0	4.1	1.9	0.0	0.0	11.2	11.0	11.5	0.2	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.5	0.0	90.7	80.3	0.0	0.0	73.4	13.0	13.0	63.7	1.1	0.6
LnGrp LOS	E		F	F			E	B	B	E	A	A
Approach Vol, veh/h	254			45			1920			2160		
Approach Delay, s/veh	83.7			80.3			30.2			1.2		
Approach LOS	F			F			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.7	91.8		16.0	13.5	110.0		10.5				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	34.5	73.7		10.5	8.0	* 1E+02		9.5				
Max Q Clear Time (g_c+I1), s	25.9	2.0		10.6	2.4	30.9		5.9				
Green Ext Time (p_c), s	0.3	7.6		0.0	0.0	3.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 19.5

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

12/06/2024

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	140	785	0	1505	60	825	1825
Future Volume (vph)	140	785	0	1505	60	825	1825
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.88	0.85		0.99		1.00	1.00
Flt Protected	0.98	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3111	1413		4959		3367	4988
Flt Permitted	0.98	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3111	1413		4959		3367	4988
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	785	0	1505	60	825	1825
RTOR Reduction (vph)	358	357	0	2	0	0	0
Lane Group Flow (vph)	175	35	0	1563	0	825	1825
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm	Perm	NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3	6				
Actuated Green, G (s)	13.5	13.5		80.0		40.4	125.4
Effective Green, g (s)	13.5	13.5		80.0		40.4	125.4
Actuated g/C Ratio	0.09	0.09		0.53		0.27	0.84
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	279	127		2644		906	4169
v/s Ratio Prot	c0.06			c0.32		c0.25	0.37
v/s Ratio Perm		0.02					
v/c Ratio	0.62	0.27		0.59		0.91	0.43
Uniform Delay, d1	65.8	63.7		23.8		53.0	3.1
Progression Factor	1.00	1.00		0.86		1.31	0.90
Incremental Delay, d2	3.1	0.4		0.8		10.4	0.2
Delay (s)	69.0	64.1		21.5		80.1	3.1
Level of Service	E	E		C		F	A
Approach Delay (s/veh)	66.9			21.5			27.1
Approach LOS	E			C			C
Intersection Summary							
HCM 2000 Control Delay (s/veh)			32.6		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.69				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		16.1
Intersection Capacity Utilization			79.6%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

12/06/2024

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	260	415	1935	2305	80
Future Volume (veh/h)	45	260	415	1935	2305	80
Initial Q (Qb), veh	0	0	0	0	0	0
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	45	260	415	1935	2305	80
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	159	249	454	4231	3382	1050
Arrive On Green	0.09	0.09	0.26	1.00	0.45	0.45
Sat Flow, veh/h	1767	2768	3428	5233	5233	1572
Grp Volume(v), veh/h	45	260	415	1935	2305	80
Grp Sat Flow(s),veh/h/ln	1767	1384	1714	1689	1689	1572
Q Serve(g_s), s	3.6	13.5	17.6	0.0	54.3	4.4
Cycle Q Clear(g_c), s	3.6	13.5	17.6	0.0	54.3	4.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	159	249	454	4231	3382	1050
V/C Ratio(X)	0.28	1.04	0.91	0.46	0.68	0.08
Avail Cap(c_a), veh/h	159	249	656	4255	3382	1050
HCM Platoon Ratio	1.00	1.00	2.00	2.00	0.67	0.67
Upstream Filter(I)	1.00	1.00	0.73	0.73	0.09	0.09
Uniform Delay (d), s/veh	63.7	68.2	54.3	0.0	28.8	15.0
Incr Delay (d2), s/veh	0.4	69.0	8.3	0.3	0.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.1	7.2	0.1	23.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	64.1	137.2	62.6	0.3	28.9	15.0
LnGrp LOS	E	F	E	A	C	B
Approach Vol, veh/h	305			2350	2385	
Approach Delay, s/veh	126.4			11.3	28.4	
Approach LOS	F			B	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	25.2	105.8			131.0	19.0
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	28.7	* 91			* 1.3E+02	13.5
Max Q Clear Time (g_c+I1), s	19.6	56.3			2.0	15.5
Green Ext Time (p_c), s	0.2	10.0			7.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			26.3			
HCM 6th LOS			C			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	35	360	290	75	30	375	1515	75	45	1790	160
Future Volume (veh/h)	100	35	360	290	75	30	375	1515	75	45	1790	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	81	360	198	205	30	375	1515	75	45	1790	160
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	306	322	273	253	226	33	311	1701	84	357	1760	157
Arrive On Green	0.17	0.17	0.17	0.14	0.14	0.14	0.06	0.11	0.11	0.27	0.49	0.49
Sat Flow, veh/h	1767	1856	1572	1767	1582	232	1767	4944	245	1767	4735	422
Grp Volume(v), veh/h	68	81	360	198	0	235	375	1035	555	45	1275	675
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1814	1767	1689	1811	1767	1689	1780
Q Serve(g_s), s	5.0	5.7	26.0	16.2	0.0	19.1	26.4	45.3	45.3	2.9	55.8	55.8
Cycle Q Clear(g_c), s	5.0	5.7	26.0	16.2	0.0	19.1	26.4	45.3	45.3	2.9	55.8	55.8
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.14	1.00		0.24
Lane Grp Cap(c), veh/h	306	322	273	253	0	259	311	1162	623	357	1255	662
V/C Ratio(X)	0.22	0.25	1.32	0.78	0.00	0.91	1.21	0.89	0.89	0.13	1.02	1.02
Avail Cap(c_a), veh/h	306	322	273	306	0	314	311	1531	821	357	1255	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	0.77	0.77	0.77
Uniform Delay (d), s/veh	53.3	53.6	62.0	62.0	0.0	63.3	70.6	63.7	63.7	44.8	37.9	37.9
Incr Delay (d2), s/veh	0.1	0.2	167.8	8.3	0.0	23.2	116.8	9.5	16.0	0.0	26.2	35.9
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	2.3	2.7	23.1	7.9	0.0	10.5	22.7	22.2	24.9	1.3	25.6	28.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.4	53.7	229.8	70.4	0.0	86.5	187.4	73.2	79.7	44.8	64.2	73.8
LnGrp LOS	D	D	F	E		F	F	E	E	D	F	F
Approach Vol, veh/h	509			433			1965			1995		
Approach Delay, s/veh	178.2			79.1			96.8			67.0		
Approach LOS	F			E			F			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.0	60.6		31.5	35.1	56.4		26.9				
Change Period (Y+Rc), s	4.6	* 4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	26.4	* 51		26.0	9.5	* 68		26.0				
Max Q Clear Time (g_c+I1), s	28.4	57.8		28.0	4.9	47.3		21.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	4.3		0.3				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 91.6

HCM 6th LOS F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	10	155	5	110	10	1440	55	40	1985	5
Future Volume (veh/h)	5	5	10	155	5	110	10	1440	55	40	1985	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	5	5	10	155	5	110	10	1440	55	40	1985	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	66	21	41	168	5	119	32	1564	60	587	3261	8
Arrive On Green	0.04	0.04	0.04	0.18	0.18	0.18	0.02	0.42	0.42	0.45	0.84	0.84
Sat Flow, veh/h	1753	548	1096	959	31	680	1753	4967	190	1753	5175	13
Grp Volume(v), veh/h	5	0	15	270	0	0	10	971	524	40	1285	705
Grp Sat Flow(s),veh/h/ln	1753	0	1644	1670	0	0	1753	1675	1807	1753	1675	1838
Q Serve(g_s), s	0.4	0.0	1.3	23.8	0.0	0.0	0.8	41.1	41.1	2.0	19.0	19.0
Cycle Q Clear(g_c), s	0.4	0.0	1.3	23.8	0.0	0.0	0.8	41.1	41.1	2.0	19.0	19.0
Prop In Lane	1.00		0.67	0.57		0.41	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	66	0	62	293	0	0	32	1055	569	587	2111	1158
V/C Ratio(X)	0.08	0.00	0.24	0.92	0.00	0.00	0.31	0.92	0.92	0.07	0.61	0.61
Avail Cap(c_a), veh/h	118	0	111	384	0	0	93	1700	917	587	2111	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.74	0.74	0.74	0.65	0.65	0.65
Uniform Delay (d), s/veh	69.7	0.0	70.1	60.8	0.0	0.0	72.3	41.8	41.8	28.2	6.0	6.0
Incr Delay (d2), s/veh	0.2	0.0	0.7	20.6	0.0	0.0	1.5	11.1	18.0	0.0	0.9	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	0.2	0.0	0.6	11.9	0.0	0.0	0.4	17.5	20.0	0.8	4.4	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.8	0.0	70.8	81.5	0.0	0.0	73.8	52.9	59.8	28.3	6.9	7.6
LnGrp LOS	E		E	F			E	D	E	C	A	A
Approach Vol, veh/h	20			270			1505			2030		
Approach Delay, s/veh	70.6			81.5			55.5			7.6		
Approach LOS	E			F			E			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	99.3		11.2	55.0	52.0		31.8				
Change Period (Y+Rc), s	5.0	4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	8.0	76.6		10.1	9.2	* 76		34.5				
Max Q Clear Time (g_c+I1), s	2.8	21.0		3.3	4.0	43.1		25.8				
Green Ext Time (p_c), s	0.0	6.5		0.0	0.0	4.1		0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				32.0								
HCM 6th LOS				C								
Notes												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	225	35	100	85	35	60	120	1385	75	65	1765	195
Future Volume (veh/h)	225	35	100	85	35	60	120	1385	75	65	1765	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	225	35	100	85	35	60	120	1385	75	65	1765	195
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	245	65	185	104	43	74	139	1467	79	611	2615	288
Arrive On Green	0.14	0.15	0.15	0.06	0.07	0.07	0.16	0.60	0.60	0.46	0.76	0.76
Sat Flow, veh/h	1753	421	1203	1753	609	1044	1753	4879	264	1753	4594	505
Grp Volume(v), veh/h	225	0	135	85	0	95	120	951	509	65	1285	675
Grp Sat Flow(s),veh/h/ln	1753	0	1624	1753	0	1653	1753	1675	1793	1753	1675	1750
Q Serve(g_s), s	19.0	0.0	11.5	7.2	0.0	8.5	10.0	39.3	39.3	3.1	28.5	28.9
Cycle Q Clear(g_c), s	19.0	0.0	11.5	7.2	0.0	8.5	10.0	39.3	39.3	3.1	28.5	28.9
Prop In Lane	1.00		0.74	1.00		0.63	1.00		0.15	1.00		0.29
Lane Grp Cap(c), veh/h	245	0	250	104	0	118	139	1007	539	611	1907	996
V/C Ratio(X)	0.92	0.00	0.54	0.81	0.00	0.81	0.86	0.94	0.94	0.11	0.67	0.68
Avail Cap(c_a), veh/h	251	0	436	175	0	375	140	1382	740	611	1907	996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	0.78	0.78	0.78
Uniform Delay (d), s/veh	63.6	0.0	58.6	69.7	0.0	68.6	62.3	28.7	28.7	27.0	11.3	11.4
Incr Delay (d2), s/veh	34.1	0.0	0.7	5.6	0.0	4.8	33.1	15.9	24.6	0.0	1.5	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	10.8	0.0	4.8	3.4	0.0	3.8	5.4	13.6	15.9	1.3	8.3	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	97.8	0.0	59.3	75.4	0.0	73.5	95.3	44.6	53.3	27.1	12.8	14.3
LnGrp LOS	F		E	E		E	F	D	D	C	B	B
Approach Vol, veh/h	360				180		1580				2025	
Approach Delay, s/veh	83.3				74.4		51.3				13.8	
Approach LOS	F				E		D				B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.9	90.6	26.5	16.0	57.5	50.0	14.1	28.4				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	12.0	* 62	21.5	* 34	12.2	61.9	15.0	40.3				
Max Q Clear Time (g_c+I1), s	12.0	30.9	21.0	10.5	5.1	41.3	9.2	13.5				
Green Ext Time (p_c), s	0.0	6.3	0.0	0.2	0.0	3.8	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				36.7								
HCM 6th LOS				D								
Notes												

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	260	5	60	10	1155	400	280	2060	5
Future Volume (veh/h)	5	5	5	260	5	60	10	1155	400	280	2060	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	5	5	5	163	142	60	10	1155	400	280	2060	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	6	6	6	226	158	67	290	2003	693	301	2821	7
Arrive On Green	0.01	0.01	0.01	0.13	0.13	0.13	0.33	1.00	1.00	0.17	0.54	0.54
Sat Flow, veh/h	570	570	570	1753	1228	519	1753	3685	1276	1753	5176	13
Grp Volume(v), veh/h	15	0	0	163	0	202	10	1050	505	280	1333	732
Grp Sat Flow(s),veh/h/ln	1710	0	0	1753	0	1747	1753	1675	1611	1753	1675	1838
Q Serve(g_s), s	1.3	0.0	0.0	13.4	0.0	17.1	0.6	0.0	0.0	23.6	45.1	45.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	13.4	0.0	17.1	0.6	0.0	0.0	23.6	45.1	45.1
Prop In Lane	0.33		0.33	1.00		0.30	1.00		0.79	1.00		0.01
Lane Grp Cap(c), veh/h	18	0	0	226	0	225	290	1821	876	301	1826	1002
V/C Ratio(X)	0.85	0.00	0.00	0.72	0.00	0.90	0.03	0.58	0.58	0.93	0.73	0.73
Avail Cap(c_a), veh/h	131	0	0	283	0	282	290	1821	876	402	1972	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.1	0.0	0.0	62.8	0.0	64.4	42.1	0.0	0.0	61.3	25.8	25.8
Incr Delay (d2), s/veh	32.1	0.0	0.0	4.4	0.0	22.5	0.0	1.0	2.1	21.3	2.6	4.7
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	0.7	0.0	0.0	6.2	0.0	9.0	0.3	0.3	0.5	12.2	18.2	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	106.2	0.0	0.0	67.2	0.0	86.9	42.1	1.0	2.1	82.6	28.4	30.5
LnGrp LOS	F			E		F	D	A	A	F	C	C
Approach Vol, veh/h	15			365			1565			2345		
Approach Delay, s/veh	106.2			78.1			1.6			35.5		
Approach LOS	F			E			A			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.8	87.0		7.0	30.3	86.5		26.1				
Change Period (Y+Rc), s	5.0	* 5.3		5.5	4.6	5.0		6.8				
Max Green Setting (Gmax), s	3.6	* 88		11.5	34.4	58.0		24.2				
Max Q Clear Time (g_c+I1), s	2.6	47.1		3.3	25.6	2.0		19.1				
Green Ext Time (p_c), s	0.0	34.6		0.0	0.1	32.8		0.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	27.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	20	15	25	40	20	30	25	1085	20	30	2320	75
Future Volume (veh/h)	20	15	25	40	20	30	25	1085	20	30	2320	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	20	15	25	40	20	30	25	1085	20	30	2320	75
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	100	64	126	81	34	37	52	3926	72	56	3873	125
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.03	0.77	0.77	0.06	1.00	1.00
Sat Flow, veh/h	705	789	1560	504	423	464	1753	5080	94	1753	5001	161
Grp Volume(v), veh/h	35	0	25	90	0	0	25	715	390	30	1551	844
Grp Sat Flow(s),veh/h/ln	1493	0	1560	1391	0	0	1753	1675	1824	1753	1675	1812
Q Serve(g_s), s	0.0	0.0	1.9	5.9	0.0	0.0	1.8	8.0	8.0	2.2	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	1.9	8.4	0.0	0.0	1.8	8.0	8.0	2.2	0.0	0.0
Prop In Lane	0.57		1.00	0.44		0.33	1.00		0.05	1.00		0.09
Lane Grp Cap(c), veh/h	164	0	126	152	0	0	52	2589	1409	56	2595	1403
V/C Ratio(X)	0.21	0.00	0.20	0.59	0.00	0.00	0.48	0.28	0.28	0.54	0.60	0.60
Avail Cap(c_a), veh/h	248	0	212	236	0	0	104	2589	1409	105	2595	1403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	56.0	0.0	55.8	59.0	0.0	0.0	62.1	4.3	4.3	59.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	1.4	0.0	0.0	2.6	0.0	0.0	2.3	0.8	1.5
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	1.1	0.0	0.8	3.0	0.0	0.0	0.8	2.3	2.5	1.0	0.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.3	0.0	56.1	60.4	0.0	0.0	64.7	4.3	4.3	62.2	0.8	1.5
LnGrp LOS	E		E	E			E	A	A	E	A	A
Approach Vol, veh/h	60				90		1130				2425	
Approach Delay, s/veh	56.2				60.4		5.6				1.8	
Approach LOS	E				E		A				A	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.1	106.1	15.8		8.4	105.9	15.8					
Change Period (Y+Rc), s	4.3	5.4	5.3		4.2	* 5.4	5.3					
Max Green Setting (Gmax), s	7.7	89.6	17.7		7.8	* 90	17.7					
Max Q Clear Time (g_c+I1), s	3.8	2.0	4.6		4.2	10.0	10.4					
Green Ext Time (p_c), s	0.0	18.0	0.0		0.0	5.8	0.1					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	5.3											
HCM 6th LOS	A											
Notes												

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↔		↘	↗↗↗		↘	↗↗↗	
Traffic Volume (veh/h)	5	5	5	45	5	20	35	1125	5	20	2385	5
Future Volume (veh/h)	5	5	5	45	5	20	35	1125	5	20	2385	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	5	5	5	45	5	20	35	1125	5	20	2385	5
Peak Hour 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
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	81	66	96	98	11	25	44	4149	18	47	4172	9
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	0.03	0.80	0.80	0.03	0.81	0.81
Sat Flow, veh/h	648	1080	1560	858	171	411	1753	5164	23	1753	5178	11
Grp Volume(v), veh/h	10	0	5	70	0	0	35	730	400	20	1543	847
Grp Sat Flow(s),veh/h/ln	1728	0	1560	1440	0	0	1753	1675	1837	1753	1675	1839
Q Serve(g_s), s	0.0	0.0	0.4	5.6	0.0	0.0	2.6	7.1	7.1	1.5	21.6	21.6
Cycle Q Clear(g_c), s	0.7	0.0	0.4	6.3	0.0	0.0	2.6	7.1	7.1	1.5	21.6	21.6
Prop In Lane	0.50		1.00	0.64		0.29	1.00		0.01	1.00		0.01
Lane Grp Cap(c), veh/h	148	0	96	134	0	0	44	2692	1476	47	2699	1481
V/C Ratio(X)	0.07	0.00	0.05	0.52	0.00	0.00	0.79	0.27	0.27	0.43	0.57	0.57
Avail Cap(c_a), veh/h	403	0	350	372	0	0	93	2692	1476	78	2699	1481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	57.4	60.2	0.0	0.0	63.0	3.2	3.2	62.3	4.6	4.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.2	0.0	0.0	10.6	0.1	0.2	2.3	0.9	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	0.3	0.0	0.2	2.3	0.0	0.0	1.3	1.9	2.1	0.7	5.9	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.6	0.0	57.5	61.4	0.0	0.0	73.6	3.3	3.4	64.6	5.4	6.2
LnGrp LOS	E		E	E			E	A	A	E	A	A
Approach Vol, veh/h	15			70			1165			2410		
Approach Delay, s/veh	57.6			61.4			5.5			6.2		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	109.7		12.8	7.8	109.5		12.8				
Change Period (Y+Rc), s	4.2	5.0		4.8	4.3	5.0		4.8				
Max Green Setting (Gmax), s	6.9	79.9		29.2	5.8	80.9		29.2				
Max Q Clear Time (g_c+I1), s	4.6	23.6		2.7	3.5	9.1		8.3				
Green Ext Time (p_c), s	0.0	50.1		0.0	0.0	21.5		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				7.2								
HCM 6th LOS				A								

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗↑↑↑			↗↑↑↑		
Traffic Vol, veh/h	0	0	100	0	0	15	20	1220	10	35	2260	90
Future Vol, veh/h	0	0	100	0	0	15	20	1220	10	35	2260	90
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	100	0	0	15	20	1220	10	35	2260	90

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1175	-	-	615	2350	0	0	1230	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	5.36	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	3.13	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	157	0	0	370	82	-	-	300	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	157	-	-	370	82	-	-	300	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	61.3		15.1		1		0.3	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	82	-	-	157	370	300	-	-
HCM Lane V/C Ratio	0.244	-	-	0.637	0.041	0.117	-	-
HCM Control Delay (s/veh)	62.5	-	-	61.3	15.1	18.6	-	-
HCM Lane LOS	F	-	-	F	C	C	-	-
HCM 95th %tile Q (veh)	0.9	-	-	3.5	0.1	0.4	-	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	725	290	315	715	55	260	605	125	115	1985	270
Future Volume (veh/h)	230	725	290	315	715	55	260	605	125	115	1985	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	230	725	290	315	715	55	260	605	125	115	1985	270
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	308	832	371	303	822	366	224	2287	710	164	1960	263
Arrive On Green	0.09	0.24	0.24	0.09	0.23	0.23	0.07	0.45	0.45	0.05	0.43	0.43
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4517	606
Grp Volume(v), veh/h	230	725	290	315	715	55	260	605	125	115	1477	778
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1746
Q Serve(g_s), s	8.5	25.7	22.5	11.5	25.4	3.0	8.5	9.7	6.2	4.3	56.4	56.4
Cycle Q Clear(g_c), s	8.5	25.7	22.5	11.5	25.4	3.0	8.5	9.7	6.2	4.3	56.4	56.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	308	832	371	303	822	366	224	2287	710	164	1465	758
V/C Ratio(X)	0.75	0.87	0.78	1.04	0.87	0.15	1.16	0.26	0.18	0.70	1.01	1.03
Avail Cap(c_a), veh/h	308	868	387	303	879	392	224	2287	710	227	1465	758
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	57.7	47.8	46.5	59.2	48.0	27.0	60.7	22.2	21.2	61.0	36.8	36.8
Incr Delay (d2), s/veh	8.5	10.2	11.2	62.1	9.9	0.4	110.0	0.3	0.5	2.4	25.5	39.5
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	4.0	12.1	9.7	7.5	12.0	1.4	7.1	3.9	2.3	1.9	27.1	30.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.2	57.9	57.7	121.3	57.9	27.4	170.8	22.5	21.8	63.3	62.3	76.3
LnGrp LOS	E	E	E	F	E	C	F	C	C	E	F	F
Approach Vol, veh/h	1245			1085			990			2370		
Approach Delay, s/veh	59.4			74.8			61.3			66.9		
Approach LOS	E			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	62.6	17.4	36.0	11.7	64.9	17.0	36.4				
Change Period (Y+Rc), s	5.5	* 6.2	* 5.7	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	8.5	* 55	* 11	* 32	8.6	* 56	11.5	32.0				
Max Q Clear Time (g_c+I1), s	10.5	58.4	10.5	27.4	6.3	11.7	13.5	27.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.9	0.0	10.1	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	65.8											
HCM 6th LOS	E											
Notes												

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱	↱↑↑↑			↱↑↑↑		↱
Traffic Vol, veh/h	0	0	5	0	0	25	25	1040	20	30	1955	5
Future Vol, veh/h	0	0	5	0	0	25	25	1040	20	30	1955	5
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	-	-	0	-	-	0	210	-	-	230	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	5	0	0	25	25	1040	20	30	1955	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	978	-	-	530	1960	0	0	1060	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	7.18	5.38	-	-	5.38	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	3.94	3.14	-	-	3.14	-	-
Pot Cap-1 Maneuver	0	0	212	0	0	418	128	-	-	360	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	212	-	-	418	128	-	-	360	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	22.4		14.2		0.9		0.2	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	128	-	-	212	418	360	-
HCM Lane V/C Ratio	0.195	-	-	0.024	0.06	0.083	-
HCM Control Delay (s/veh)	39.8	-	-	22.4	14.2	15.9	-
HCM Lane LOS	E	-	-	C	B	C	-
HCM 95th %tile Q (veh)	0.7	-	-	0.1	0.2	0.3	-

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	30	55	80	10	30	45	955	75	40	1835	40
Future Volume (veh/h)	70	30	55	80	10	30	45	955	75	40	1835	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	30	55	80	10	30	45	955	75	40	1835	40
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	117	39	71	103	13	103	58	3282	257	51	3476	76
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.03	0.69	0.69	0.06	1.00	1.00
Sat Flow, veh/h	1767	587	1075	1579	197	1572	1767	4790	375	1767	5101	111
Grp Volume(v), veh/h	70	0	85	90	0	30	45	673	357	40	1214	661
Grp Sat Flow(s),veh/h/ln	1767	0	1662	1777	0	1572	1767	1689	1788	1767	1689	1836
Q Serve(g_s), s	5.0	0.0	6.5	6.5	0.0	2.4	3.3	10.2	10.2	2.9	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	6.5	6.5	0.0	2.4	3.3	10.2	10.2	2.9	0.0	0.0
Prop In Lane	1.00		0.65	0.89		1.00	1.00		0.21	1.00		0.06
Lane Grp Cap(c), veh/h	117	0	110	116	0	103	58	2314	1225	51	2301	1251
V/C Ratio(X)	0.60	0.00	0.78	0.77	0.00	0.29	0.78	0.29	0.29	0.78	0.53	0.53
Avail Cap(c_a), veh/h	163	0	153	273	0	242	132	2314	1225	102	2301	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	59.0	0.0	59.8	59.8	0.0	57.9	62.4	8.0	8.1	60.9	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	9.3	4.1	0.0	0.6	8.1	0.3	0.6	7.9	0.7	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	3.1	3.1	0.0	1.0	1.6	3.4	3.7	1.4	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.9	0.0	69.1	63.9	0.0	58.5	70.6	8.4	8.7	68.8	0.7	1.3
LnGrp LOS	E		E	E		E	E	A	A	E	A	A
Approach Vol, veh/h	155				120				1075		1915	
Approach Delay, s/veh	65.4				62.5				11.1		2.4	
Approach LOS	E				E				B		A	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.7	94.2	13.6		8.2	94.7	13.5					
Change Period (Y+Rc), s	4.5	* 5.6	5.0		4.5	5.6	5.0					
Max Green Setting (Gmax), s	9.7	* 69	12.0		7.5	70.4	20.0					
Max Q Clear Time (g_c+I1), s	5.3	2.0	8.5		4.9	12.2	8.5					
Green Ext Time (p_c), s	0.0	37.1	0.1		0.0	13.5	0.1					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	10.4											
HCM 6th LOS	B											
Notes												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	5	10	30	30	25	125	60	1095	40	100	1890	15
Future Volume (veh/h)	5	10	30	30	25	125	60	1095	40	100	1890	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	5	10	30	30	25	125	60	1095	40	100	1890	15
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	22	42	126	38	29	146	76	3363	123	121	3588	28
Arrive On Green	0.01	0.10	0.10	0.02	0.11	0.11	0.09	1.00	1.00	0.14	1.00	1.00
Sat Flow, veh/h	1767	409	1226	1767	269	1345	1767	5017	183	1767	5184	41
Grp Volume(v), veh/h	5	0	40	30	0	150	60	737	398	100	1231	674
Grp Sat Flow(s),veh/h/ln	1767	0	1635	1767	0	1614	1767	1689	1823	1767	1689	1848
Q Serve(g_s), s	0.4	0.0	2.9	2.2	0.0	11.9	4.3	0.0	0.0	7.2	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	2.9	2.2	0.0	11.9	4.3	0.0	0.0	7.2	0.0	0.0
Prop In Lane	1.00		0.75	1.00		0.83	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	22	0	168	38	0	176	76	2264	1222	121	2337	1279
V/C Ratio(X)	0.22	0.00	0.24	0.79	0.00	0.85	0.79	0.33	0.33	0.82	0.53	0.53
Avail Cap(c_a), veh/h	137	0	405	92	0	354	144	2264	1222	211	2337	1279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95	0.28	0.28	0.28
Uniform Delay (d), s/veh	63.5	0.0	53.7	63.3	0.0	56.9	58.8	0.0	0.0	55.3	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.3	12.9	0.0	4.5	6.2	0.4	0.7	1.5	0.2	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	1.1	0.0	5.1	2.0	0.1	0.2	3.0	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.4	0.0	53.9	76.3	0.0	61.4	65.0	0.4	0.7	56.8	0.2	0.4
LnGrp LOS	E		D	E		E	E	A	A	E	A	A
Approach Vol, veh/h	45				180		1195				2005	
Approach Delay, s/veh	55.2				63.8		3.7				3.1	
Approach LOS	E				E		A				A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	95.0	6.4	18.7	12.8	92.2	7.2	17.8				
Change Period (Y+Rc), s	4.4	* 5	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	10.6	* 62	10.1	28.5	15.5	57.8	6.8	* 32				
Max Q Clear Time (g_c+I1), s	6.3	2.0	2.4	13.9	9.2	2.0	4.2	4.9				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.3	0.0	2.4	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	7.2											
HCM 6th LOS	A											
Notes												

HCM 6th Signalized Intersection Summary

15: Watt Avenue & U Street/Antelope Road

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	145	75	440	185	280	55	1030	225	185	1420	45
Future Volume (veh/h)	50	145	75	440	185	280	55	1030	225	185	1420	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	145	75	440	185	280	55	1030	225	185	1420	45
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	64	233	104	431	482	430	54	1480	660	185	1744	778
Arrive On Green	0.04	0.07	0.07	0.24	0.27	0.27	0.03	0.42	0.42	0.10	0.49	0.49
Sat Flow, veh/h	1767	3526	1572	1767	1763	1572	1767	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	50	145	75	440	185	280	55	1030	225	185	1420	45
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1763	1572	1767	1763	1572
Q Serve(g_s), s	3.6	5.2	6.1	31.7	11.1	20.5	4.0	31.1	12.6	13.6	44.3	1.9
Cycle Q Clear(g_c), s	3.6	5.2	6.1	31.7	11.1	20.5	4.0	31.1	12.6	13.6	44.3	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	64	233	104	431	482	430	54	1480	660	185	1744	778
V/C Ratio(X)	0.78	0.62	0.72	1.02	0.38	0.65	1.01	0.70	0.34	1.00	0.81	0.06
Avail Cap(c_a), veh/h	126	580	259	431	586	523	54	1480	660	185	1744	778
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	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	59.1	59.5	49.2	38.3	41.7	63.0	30.9	25.5	58.2	27.8	17.1
Incr Delay (d2), s/veh	7.3	1.0	3.5	48.8	0.2	1.1	122.3	2.6	1.3	66.4	4.3	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.3	2.5	19.4	4.7	7.9	3.6	13.2	4.9	9.3	18.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.4	60.1	63.0	98.0	38.5	42.8	185.3	33.5	26.9	124.6	32.1	17.2
LnGrp LOS	E	E	E	F	D	D	F	C	C	F	C	B
Approach Vol, veh/h	270			905			1310			1650		
Approach Delay, s/veh	62.6			68.8			38.7			42.1		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	69.5	10.0	41.5	18.7	59.8	37.0	14.5				
Change Period (Y+Rc), s	5.0	* 5.2	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	4.0	* 52	9.3	* 43	13.6	42.4	31.7	* 21				
Max Q Clear Time (g_c+I1), s	6.0	46.3	5.6	22.5	15.6	33.1	33.7	8.1				
Green Ext Time (p_c), s	0.0	3.3	0.0	1.6	0.0	3.5	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	48.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Intersection Delay, s/veh	9.1											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	45	10	55	45	5	25	190	30	5	160	5
Future Vol, veh/h	5	45	10	55	45	5	25	190	30	5	160	5
Peak Hour 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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	45	10	55	45	5	25	190	30	5	160	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.4	9	9.5	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	8%	52%	3%
Vol Thru, %	78%	75%	43%	94%
Vol Right, %	12%	17%	5%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	60	105	170
LT Vol	25	5	55	5
Through Vol	190	45	45	160
RT Vol	30	10	5	5
Lane Flow Rate	245	60	105	170
Geometry Grp	1	1	1	1
Degree of Util (X)	0.306	0.082	0.147	0.218
Departure Headway (Hd)	4.492	4.944	5.037	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	799	721	710	777
Service Time	2.527	2.997	3.085	2.652
HCM Lane V/C Ratio	0.307	0.083	0.148	0.219
HCM Control Delay, s/veh	9.5	8.4	9	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.3	0.3	0.5	0.8

HCM 6th TWSC
18: 34th Street & Elkhorn Boulevard

12/06/2024

Intersection												
Int Delay, s/veh	29											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1065	15	90	1155	30	5	20	55	10	30	30
Future Vol, veh/h	30	1065	15	90	1155	30	5	20	55	10	30	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	1065	15	90	1155	30	5	20	55	10	30	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1185	0	0	1080	0	0	1906	2498	540	1953	2490	593
Stage 1	-	-	-	-	-	-	1133	1133	-	1350	1350	-
Stage 2	-	-	-	-	-	-	773	1365	-	603	1140	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	585	-	-	641	-	-	42	28	486	38	~ 29	449
Stage 1	-	-	-	-	-	-	216	276	-	159	217	-
Stage 2	-	-	-	-	-	-	358	214	-	453	274	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	585	-	-	641	-	-	-	23	486	~ 8	~ 24	449
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	23	-	~ 8	~ 24	-
Stage 1	-	-	-	-	-	-	205	262	-	151	187	-
Stage 2	-	-	-	-	-	-	241	184	-	352	260	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.3			0.8						\$ 1029.5		
HCM LOS							-			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	585	-	-	641	-	-	27
HCM Lane V/C Ratio	-	0.051	-	-	0.14	-	-	2.593
HCM Control Delay (s/veh)	-	11.5	-	-	11.5	-	-	\$ 1029.5
HCM Lane LOS	-	B	-	-	B	-	-	F
HCM 95th %tile Q (veh)	-	0.2	-	-	0.5	-	-	8.5

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Intersection Delay, s/veh	7.9											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	110	10	20	40	10	15	25	45	10	45	5
Future Vol, veh/h	5	110	10	20	40	10	15	25	45	10	45	5
Peak Hour 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
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	5	110	10	20	40	10	15	25	45	10	45	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	7.8	7.7	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	4%	29%	17%
Vol Thru, %	29%	88%	57%	75%
Vol Right, %	53%	8%	14%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	125	70	60
LT Vol	15	5	20	10
Through Vol	25	110	40	45
RT Vol	45	10	10	5
Lane Flow Rate	85	125	70	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.1	0.151	0.086	0.075
Departure Headway (Hd)	4.217	4.362	4.418	4.506
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	828	813	797
Service Time	2.228	2.362	2.433	2.519
HCM Lane V/C Ratio	0.1	0.151	0.086	0.075
HCM Control Delay, s/veh	7.7	8.1	7.8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.3	0.2

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	37	38	180	45	545	1375	5	1925	230
v/c Ratio	0.49	0.50	0.60	0.54	0.87	0.50	0.05	0.65	0.22
Control Delay (s/veh)	90.5	91.1	17.9	66.8	74.7	7.1	68.8	23.6	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	90.5	91.1	17.9	66.8	74.7	7.1	68.8	23.6	3.8
Queue Length 50th (ft)	37	38	0	24	270	188	4	351	22
Queue Length 95th (ft)	78	81	43	67	322	424	m13	322	28
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	114	115	356	118	767	2743	91	2929	1005
Starvation Cap Reductn	0	0	0	0	0	0	0	91	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.33	0.51	0.38	0.71	0.50	0.05	0.68	0.23

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

12/06/2024

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	533	392	1565	825	1825
v/c Ratio	0.83	0.81	0.59	0.91	0.43
Control Delay (s/veh)	29.5	19.3	22.8	81.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.5	19.3	22.8	81.3	3.4
Queue Length 50th (ft)	70	0	377	439	102
Queue Length 95th (ft)	129	124	528	498	84
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	963	606	2647	1032	4170
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.65	0.59	0.80	0.44
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

12/06/2024



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	45	260	415	1935	2305	80
v/c Ratio	0.52	0.68	0.84	0.43	0.65	0.07
Control Delay (s/veh)	90.7	16.8	73.3	1.7	7.2	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	90.7	16.8	73.3	1.7	7.2	1.8
Queue Length 50th (ft)	44	0	218	68	145	4
Queue Length 95th (ft)	87	49	274	112	m126	m3
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	157	485	650	4439	3507	1105
Starvation Cap Reductn	0	0	0	287	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.54	0.64	0.47	0.66	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

12/06/2024

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	68	360	197	198	375	1590	45	1950
v/c Ratio	0.51	0.50	0.85	0.84	0.82	0.75	0.63	0.17	1.08
Control Delay (s/veh)	77.8	77.1	29.5	90.9	86.7	54.7	35.2	61.3	88.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	77.8	77.1	29.5	90.9	86.7	54.7	35.2	61.3	88.5
Queue Length 50th (ft)	68	69	35	201	195	325	570	30	~732
Queue Length 95th (ft)	114	114	146	282	277	#672	536	m60	#888
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	288	296	538	294	300	498	2590	278	1798
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.23	0.67	0.67	0.66	0.75	0.61	0.16	1.08
Intersection Summary									
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.									
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.									
m Volume for 95th percentile queue is metered by upstream signal.									

Queues

5: Watt Avenue & Driveway/Karl Drive

12/06/2024



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	15	270	10	1495	40	1990
v/c Ratio	0.04	0.12	0.87	0.10	0.50	0.26	0.60
Control Delay (s/veh)	66.6	40.8	82.5	97.8	10.2	45.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.6	40.8	82.5	97.8	10.2	45.3	9.6
Queue Length 50th (ft)	5	5	242	10	38	37	170
Queue Length 95th (ft)	20	29	328	m18	187	m45	107
Internal Link Dist (ft)		245	409		1853		633
Turn Bay Length (ft)				195		155	
Base Capacity (vph)	116	120	403	92	3072	156	3302
Starvation Cap Reductn	0	0	0	0	0	0	126
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.13	0.67	0.11	0.49	0.26	0.63

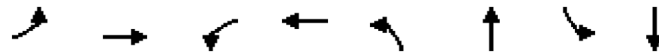
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	225	135	85	95	120	1460	65	1960
v/c Ratio	0.89	0.47	0.69	0.70	0.68	0.55	0.24	0.70
Control Delay (s/veh)	97.6	26.7	95.1	59.2	98.9	29.5	46.9	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	97.6	26.7	95.1	59.2	98.9	29.5	46.9	20.2
Queue Length 50th (ft)	212	36	83	41	110	313	56	358
Queue Length 95th (ft)	#379	107	140	102	m190	344	m77	306
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	260	505	173	415	179	2610	284	2796
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.27	0.49	0.23	0.67	0.56	0.23	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024



Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	166	159	10	1555	280	2065
v/c Ratio	0.26	0.83	0.76	0.24	0.58	0.88	0.56
Control Delay (s/veh)	62.2	95.1	79.6	99.0	32.5	88.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.2	95.1	79.6	99.0	32.5	88.2	12.6
Queue Length 50th (ft)	10	169	144	9	521	270	220
Queue Length 95th (ft)	34	249	223	m18	599	363	552
Internal Link Dist (ft)	135		542		1065		220
Turn Bay Length (ft)				200		215	
Base Capacity (vph)	85	266	270	41	2636	398	3649
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.62	0.59	0.24	0.59	0.70	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	25	90	25	1105	30	2395
v/c Ratio	0.35	0.14	0.70	0.34	0.28	0.38	0.60
Control Delay (s/veh)	64.5	2.9	75.3	72.5	4.6	63.7	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.5	2.9	75.3	72.5	4.6	63.7	12.7
Queue Length 50th (ft)	29	0	62	21	86	23	612
Queue Length 95th (ft)	62	4	116	51	138	m40	411
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	177	259	213	102	3941	106	3927
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.42	0.25	0.28	0.28	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

9: Watt Avenue & Van Owen Street

12/06/2024

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	5	70	35	1130	20	2390
v/c Ratio	0.09	0.03	0.66	0.42	0.27	0.29	0.58
Control Delay (s/veh)	56.5	0.4	75.4	84.8	2.6	57.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.5	0.4	75.4	84.8	2.6	57.7	3.7
Queue Length 50th (ft)	8	0	47	24	136	17	146
Queue Length 95th (ft)	26	0	96	69	42	m18	m155
Internal Link Dist (ft)	157		284		1159		341
Turn Bay Length (ft)				200		225	
Base Capacity (vph)	352	389	326	98	4147	81	4119
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.21	0.36	0.27	0.25	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	230	725	290	315	715	55	260	605	125	115	2255
v/c Ratio	0.76	0.85	0.61	1.05	0.83	0.11	1.11	0.27	0.16	0.59	1.06
Control Delay (s/veh)	75.5	57.7	30.1	121.8	56.6	0.5	148.5	21.1	1.3	68.6	72.9
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)	75.5	57.7	30.1	121.8	56.6	0.5	148.5	21.1	1.3	68.6	72.9
Queue Length 50th (ft)	100	307	122	~148	301	0	~138	82	0	52	~741
Queue Length 95th (ft)	#162	384	221	#245	376	0	#231	119	11	84	#838
Internal Link Dist (ft)	1265			520			552			447	
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	299	862	480	300	873	481	233	2218	781	224	2109
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.84	0.60	1.05	0.82	0.11	1.12	0.27	0.16	0.51	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	85	90	30	45	1030	40	1875
v/c Ratio	0.61	0.53	0.73	0.12	0.49	0.31	0.48	0.57
Control Delay (s/veh)	81.2	36.6	87.5	1.0	78.3	11.8	88.0	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	81.2	36.6	87.5	1.0	78.3	11.8	88.0	12.9
Queue Length 50th (ft)	58	24	75	0	39	102	36	136
Queue Length 95th (ft)	107	78	129	0	m76	142	m67	124
Internal Link Dist (ft)		1270	498			761		1406
Turn Bay Length (ft)	135			100	330		200	
Base Capacity (vph)	161	203	195	327	131	3232	104	3254
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.42	0.46	0.09	0.34	0.32	0.38	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	40	30	150	60	1135	100	1905
v/c Ratio	0.03	0.23	0.41	0.51	0.57	0.33	0.68	0.53
Control Delay (s/veh)	56.4	26.8	76.5	19.7	71.0	12.9	58.7	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.4	26.8	76.5	19.7	71.0	12.9	58.7	10.8
Queue Length 50th (ft)	4	8	25	18	51	160	83	243
Queue Length 95th (ft)	18	43	59	88	96	177	m89	m306
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	136	427	91	451	145	3395	209	3575
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.09	0.33	0.33	0.41	0.33	0.48	0.53
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

Queues

15: Watt Avenue & U Street/Antelope Road

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	50	145	75	440	465	55	1030	225	185	1420	45
v/c Ratio	0.49	0.55	0.25	1.03	0.44	0.39	0.81	0.32	0.65	0.91	0.05
Control Delay (s/veh)	75.0	65.6	2.0	99.5	20.7	65.8	33.2	8.6	62.8	45.0	0.1
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)	75.0	65.6	2.0	99.5	20.7	65.8	33.2	8.6	62.8	45.0	0.1
Queue Length 50th (ft)	41	63	0	~396	84	30	385	65	148	580	0
Queue Length 95th (ft)	85	97	0	#606	135	78	#568	89	228	#791	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	125	576	418	427	1215	140	1259	690	281	1547	778
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.25	0.18	1.03	0.38	0.39	0.82	0.33	0.66	0.92	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Six Lane Alternatives PM Synchro Reports

HCM 6th Signalized Intersection Summary

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	20	535	45	10	30	230	1775	30	10	1540	75
Future Volume (veh/h)	270	20	535	45	10	30	230	1775	30	10	1540	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	284	0	535	45	10	30	230	1775	30	10	1540	75
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	0	476	55	12	37	275	2119	36	95	2893	898
Arrive On Green	0.15	0.00	0.15	0.06	0.06	0.06	0.08	0.59	0.59	0.11	1.00	1.00
Sat Flow, veh/h	3563	0	3170	945	210	630	3456	3576	60	1781	5106	1585
Grp Volume(v), veh/h	284	0	535	85	0	0	230	880	925	10	1540	75
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1785	0	0	1728	1777	1860	1781	1702	1585
Q Serve(g_s), s	11.0	0.0	22.5	7.1	0.0	0.0	9.8	60.0	60.5	0.8	0.0	0.0
Cycle Q Clear(g_c), s	11.0	0.0	22.5	7.1	0.0	0.0	9.8	60.0	60.5	0.8	0.0	0.0
Prop In Lane	1.00		1.00	0.53		0.35	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	534	0	476	105	0	0	275	1053	1102	95	2893	898
V/C Ratio(X)	0.53	0.00	1.13	0.81	0.00	0.00	0.84	0.84	0.84	0.11	0.53	0.08
Avail Cap(c_a), veh/h	534	0	476	113	0	0	366	1053	1102	96	2893	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	58.9	0.0	63.8	69.8	0.0	0.0	68.1	24.7	24.8	63.8	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	80.2	29.8	0.0	0.0	9.5	7.9	7.7	0.2	0.6	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	14.5	4.1	0.0	0.0	4.7	26.5	27.9	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.4	0.0	143.9	99.5	0.0	0.0	77.5	32.5	32.5	63.9	0.6	0.2
LnGrp LOS	E		F	F			E	C	C	E	A	A
Approach Vol, veh/h	819			85			2035			1625		
Approach Delay, s/veh	114.6			99.5			37.6			1.0		
Approach LOS	F			F			D			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.4	90.3		28.0	13.5	94.2		14.3				
Change Period (Y+Rc), s	5.5	5.3		5.5	5.5	* 5.3		5.5				
Max Green Setting (Gmax), s	15.9	80.3		22.5	8.1	* 89		9.5				
Max Q Clear Time (g_c+I1), s	11.8	2.0		24.5	2.8	62.5		9.1				
Green Ext Time (p_c), s	0.1	5.1		0.0	0.0	5.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 39.5

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

2: Watt Avenue & Airbase Drive

12/06/2024

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	50	630	0	1855	220	535	1565
Future Volume (vph)	50	630	0	1855	220	535	1565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.2		5.4	5.6
Lane Util. Factor	0.97	0.91		0.91		0.97	0.91
Frt	0.87	0.85		0.98		1.00	1.00
Flt Protected	0.99	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3125	1441		5004		3433	5085
Flt Permitted	0.99	1.00		1.00		0.95	1.00
Satd. Flow (perm)	3125	1441		5004		3433	5085
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	630	0	1855	220	535	1565
RTOR Reduction (vph)	290	290	0	7	0	0	0
Lane Group Flow (vph)	75	25	0	2068	0	535	1565
Turn Type	Prot	Perm		NA		Prot	NA
Protected Phases	3			6		5	2
Permitted Phases		3					
Actuated Green, G (s)	11.7	11.7		95.3		26.9	127.2
Effective Green, g (s)	11.7	11.7		95.3		26.9	127.2
Actuated g/C Ratio	0.08	0.08		0.64		0.18	0.85
Clearance Time (s)	5.5	5.5		5.2		5.4	5.6
Vehicle Extension (s)	1.0	1.0		1.0		1.0	1.0
Lane Grp Cap (vph)	243	112		3179		615	4312
v/s Ratio Prot	c0.02			c0.41		c0.16	0.31
v/s Ratio Perm		0.02					
v/c Ratio	0.30	0.21		0.65		0.86	0.36
Uniform Delay, d1	65.3	64.8		16.9		59.8	2.5
Progression Factor	1.00	1.00		0.69		0.97	2.91
Incremental Delay, d2	0.2	0.3		0.6		11.2	0.2
Delay (s)	65.5	65.2		12.4		69.4	7.5
Level of Service	E	E		B		E	A
Approach Delay (s/veh)	65.4			12.4			23.2
Approach LOS	E			B			C
Intersection Summary							
HCM 2000 Control Delay (s/veh)		24.6		HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio		0.66					
Actuated Cycle Length (s)		150.0		Sum of lost time (s)		16.1	
Intersection Capacity Utilization		77.8%		ICU Level of Service		D	
Analysis Period (min)		15					
c Critical Lane Group							

HCM 6th Signalized Intersection Summary

3: Watt Avenue & Palm Street

12/06/2024

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	225	80	2260	1885	20
Future Volume (veh/h)	40	225	80	2260	1885	20
Initial Q (Qb), veh	0	0	0	0	0	0
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	40	225	80	2260	1885	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	168	263	122	4281	3920	1217
Arrive On Green	0.09	0.09	0.05	1.00	1.00	1.00
Sat Flow, veh/h	1795	2812	3483	5316	5316	1598
Grp Volume(v), veh/h	40	225	80	2260	1885	20
Grp Sat Flow(s),veh/h/ln	1795	1406	1742	1716	1716	1598
Q Serve(g_s), s	3.1	11.8	3.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	11.8	3.4	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	168	263	122	4281	3920	1217
V/C Ratio(X)	0.24	0.86	0.66	0.53	0.48	0.02
Avail Cap(c_a), veh/h	347	544	992	4281	3920	1217
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.69	0.69	0.78	0.78
Uniform Delay (d), s/veh	63.0	67.0	70.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	3.1	1.5	0.3	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.4	1.5	0.1	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	63.3	70.1	72.2	0.3	0.3	0.0
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	265			2340	1905	
Approach Delay, s/veh	69.1			2.8	0.3	
Approach LOS	E			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.5	119.9			130.5	19.5
Change Period (Y+Rc), s	5.3	* 5.7			* 5.7	5.5
Max Green Setting (Gmax), s	42.7	* 62			* 63	29.0
Max Q Clear Time (g_c+I1), s	5.4	2.0			2.0	13.8
Green Ext Time (p_c), s	0.0	7.1			10.1	0.2
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			5.6			
HCM 6th LOS			A			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary

4: Watt Avenue & A Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	25	220	125	30	25	230	2030	180	70	1520	90
Future Volume (veh/h)	100	25	220	125	30	25	230	2030	180	70	1520	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	78	220	90	79	25	230	2030	180	70	1520	90
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	283	240	128	98	31	248	2098	185	358	2474	146
Arrive On Green	0.15	0.15	0.15	0.07	0.07	0.07	0.28	0.88	0.88	0.40	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1362	431	1781	4778	420	1781	4930	292
Grp Volume(v), veh/h	63	78	220	90	0	104	230	1442	768	70	1049	561
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1793	1781	1702	1795	1781	1702	1818
Q Serve(g_s), s	4.7	5.5	20.5	7.4	0.0	8.6	18.8	50.7	54.5	3.8	0.0	0.0
Cycle Q Clear(g_c), s	4.7	5.5	20.5	7.4	0.0	8.6	18.8	50.7	54.5	3.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.23	1.00		0.16
Lane Grp Cap(c), veh/h	269	283	240	128	0	129	248	1494	788	358	1708	912
V/C Ratio(X)	0.23	0.28	0.92	0.70	0.00	0.81	0.93	0.96	0.98	0.20	0.61	0.61
Avail Cap(c_a), veh/h	310	325	276	310	0	312	304	1543	814	358	1708	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	0.91	0.91	0.91
Uniform Delay (d), s/veh	56.0	56.4	62.8	68.1	0.0	68.6	53.4	8.2	8.5	37.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	29.5	2.6	0.0	4.5	24.9	14.7	24.3	0.1	1.5	2.8
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	2.1	2.7	10.3	3.5	0.0	4.1	9.1	6.6	9.1	1.6	0.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.2	56.6	92.2	70.7	0.0	73.1	78.3	22.9	32.8	37.1	1.5	2.8
LnGrp LOS	E	E	F	E		E	E	C	C	D	A	A
Approach Vol, veh/h	361			194			2440			1680		
Approach Delay, s/veh	78.2			72.0			31.3			3.4		
Approach LOS	E			E			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.5	80.1		28.2	36.9	68.7		16.3				
Change Period (Y+Rc), s	4.6	* 4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	25.6	* 52		26.1	9.3	* 68		26.1				
Max Q Clear Time (g_c+I1), s	20.8	2.0		22.5	5.8	56.5		10.6				
Green Ext Time (p_c), s	0.0	4.6		0.1	0.0	5.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh 26.6

HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

5: Watt Avenue & Driveway/Karl Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	65	5	85	20	1885	85	60	1540	5
Future Volume (veh/h)	5	5	15	65	5	85	20	1885	85	60	1540	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	15	65	5	85	20	1885	85	60	1540	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	18	53	75	6	98	54	1941	87	580	3581	12
Arrive On Green	0.04	0.04	0.04	0.11	0.11	0.11	0.06	0.78	0.78	0.65	1.00	1.00
Sat Flow, veh/h	1781	412	1236	701	54	916	1781	5008	225	1781	5254	17
Grp Volume(v), veh/h	5	0	20	155	0	0	20	1280	690	60	998	547
Grp Sat Flow(s),veh/h/ln	1781	0	1648	1670	0	0	1781	1702	1830	1781	1702	1867
Q Serve(g_s), s	0.4	0.0	1.8	13.7	0.0	0.0	1.6	51.2	51.7	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	1.8	13.7	0.0	0.0	1.6	51.2	51.7	1.9	0.0	0.0
Prop In Lane	1.00		0.75	0.42		0.55	1.00		0.12	1.00		0.01
Lane Grp Cap(c), veh/h	77	0	71	178	0	0	54	1319	709	580	2320	1273
V/C Ratio(X)	0.07	0.00	0.28	0.87	0.00	0.00	0.37	0.97	0.97	0.10	0.43	0.43
Avail Cap(c_a), veh/h	125	0	115	340	0	0	95	1775	954	580	2320	1273
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.68	0.68	0.68	0.85	0.85	0.85
Uniform Delay (d), s/veh	68.9	0.0	69.5	66.0	0.0	0.0	69.1	16.1	16.1	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.8	5.0	0.0	0.0	1.1	14.5	22.0	0.0	0.5	0.9
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	0.2	0.0	0.8	6.2	0.0	0.0	0.7	10.8	13.1	0.8	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.0	0.0	70.3	71.0	0.0	0.0	70.2	30.6	38.2	18.0	0.5	0.9
LnGrp LOS	E		E	E			E	C	D	B	A	A
Approach Vol, veh/h	25			155			1990			1605		
Approach Delay, s/veh	70.0			71.0			33.6			1.3		
Approach LOS	E			E			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	107.0		12.0	52.8	63.7		21.5				
Change Period (Y+Rc), s	5.0	4.8		5.5	4.8	* 4.8		5.5				
Max Green Setting (Gmax), s	8.0	80.2		10.5	10.7	* 78		30.5				
Max Q Clear Time (g_c+I1), s	3.6	2.0		3.8	3.9	53.7		15.7				
Green Ext Time (p_c), s	0.0	4.3		0.0	0.0	6.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	21.7											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	5	100	30	5	15	90	1870	20	40	1520	140
Future Volume (veh/h)	200	5	100	30	5	15	90	1870	20	40	1520	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	5	100	30	5	15	90	1870	20	40	1520	140
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	10	198	38	10	31	109	1809	19	648	3088	284
Arrive On Green	0.12	0.13	0.13	0.02	0.03	0.03	0.12	0.69	0.69	0.73	1.00	1.00
Sat Flow, veh/h	1781	76	1521	1781	412	1236	1781	5209	56	1781	4758	438
Grp Volume(v), veh/h	200	0	105	30	0	20	90	1222	668	40	1087	573
Grp Sat Flow(s),veh/h/ln	1781	0	1597	1781	0	1648	1781	1702	1860	1781	1702	1792
Q Serve(g_s), s	16.6	0.0	9.2	2.5	0.0	1.8	7.4	52.1	52.1	1.0	0.0	0.0
Cycle Q Clear(g_c), s	16.6	0.0	9.2	2.5	0.0	1.8	7.4	52.1	52.1	1.0	0.0	0.0
Prop In Lane	1.00		0.95	1.00		0.75	1.00		0.03	1.00		0.24
Lane Grp Cap(c), veh/h	221	0	208	38	0	42	109	1182	646	648	2209	1163
V/C Ratio(X)	0.90	0.00	0.51	0.78	0.00	0.48	0.82	1.03	1.03	0.06	0.49	0.49
Avail Cap(c_a), veh/h	255	0	375	259	0	392	243	1182	646	648	2209	1163
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.81	0.81	0.81	0.91	0.91	0.91
Uniform Delay (d), s/veh	64.8	0.0	60.7	73.0	0.0	72.1	65.0	22.9	22.9	13.1	0.0	0.0
Incr Delay (d2), s/veh	27.9	0.0	0.7	12.1	0.0	3.1	4.7	32.6	40.9	0.0	0.7	1.4
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	9.2	0.0	3.8	1.3	0.0	0.8	3.3	17.9	21.1	0.4	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	92.7	0.0	61.4	85.1	0.0	75.2	69.7	55.5	63.8	13.2	0.7	1.4
LnGrp LOS	F		E	F		E	E	F	F	B	A	A
Approach Vol, veh/h	305		50				1980		1700			
Approach Delay, s/veh	81.9		81.2				59.0		1.2			
Approach LOS	F		F				E		A			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	102.5	24.1	9.1	59.7	57.0	8.4	24.8				
Change Period (Y+Rc), s	5.0	* 5.2	5.5	* 5.3	5.2	4.9	5.2	5.3				
Max Green Setting (Gmax), s	20.5	* 52	21.5	* 36	20.3	52.1	21.8	35.2				
Max Q Clear Time (g_c+I1), s	9.4	2.0	18.6	3.8	3.0	54.1	4.5	11.2				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	36.7											
HCM 6th LOS	D											
Notes												

HCM 6th Signalized Intersection Summary

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	185	5	170	10	1945	135	135	1440	5
Future Volume (veh/h)	5	5	5	185	5	170	10	1945	135	135	1440	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	5	180	12	170	10	1945	135	135	1440	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	6	6	226	13	190	525	3067	212	157	2194	8
Arrive On Green	0.01	0.01	0.01	0.13	0.13	0.13	0.59	1.00	1.00	0.09	0.42	0.42
Sat Flow, veh/h	579	579	579	1781	106	1496	1781	4877	337	1781	5253	18
Grp Volume(v), veh/h	15	0	0	180	0	182	10	1355	725	135	933	512
Grp Sat Flow(s),veh/h/ln	1737	0	0	1781	0	1601	1781	1702	1810	1781	1702	1867
Q Serve(g_s), s	1.3	0.0	0.0	14.7	0.0	16.8	0.3	0.0	0.0	11.2	33.0	33.0
Cycle Q Clear(g_c), s	1.3	0.0	0.0	14.7	0.0	16.8	0.3	0.0	0.0	11.2	33.0	33.0
Prop In Lane	0.33		0.33	1.00		0.93	1.00		0.19	1.00		0.01
Lane Grp Cap(c), veh/h	18	0	0	226	0	203	525	2141	1138	157	1422	780
V/C Ratio(X)	0.84	0.00	0.00	0.80	0.00	0.90	0.02	0.63	0.64	0.86	0.66	0.66
Avail Cap(c_a), veh/h	156	0	0	287	0	258	525	2141	1138	219	1958	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.1	0.0	0.0	63.6	0.0	64.5	21.8	0.0	0.0	67.5	35.0	35.0
Incr Delay (d2), s/veh	30.7	0.0	0.0	8.8	0.0	23.1	0.0	1.1	2.2	16.7	2.4	4.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	7.2	0.0	8.1	0.2	0.3	0.7	5.8	14.1	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	104.8	0.0	0.0	72.4	0.0	87.6	21.8	1.1	2.2	84.2	37.4	39.3
LnGrp LOS	F			E		F	C	A	A	F	D	D
Approach Vol, veh/h		15			362			2090			1580	
Approach Delay, s/veh		104.8			80.1			1.6			42.0	
Approach LOS		F			F			A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	49.2	67.9		7.0	17.8	99.3		25.8				
Change Period (Y+Rc), s	5.0	* 5.3		5.5	4.6	5.0		6.8				
Max Green Setting (Gmax), s	3.6	* 86		13.5	18.4	72.0		24.2				
Max Q Clear Time (g_c+I1), s	2.3	35.0		3.3	13.2	2.0		18.8				
Green Ext Time (p_c), s	0.0	27.6		0.0	0.0	53.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				24.8								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	50	20	45	25	5	25	40	2095	15	35	1505	50
Future Volume (veh/h)	50	20	45	25	5	25	40	2095	15	35	1505	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	20	45	25	5	25	40	2095	15	35	1505	50
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	40	128	61	21	35	841	4043	29	61	1655	55
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.47	0.77	0.77	0.07	0.65	0.65
Sat Flow, veh/h	893	488	1585	262	259	434	1781	5230	37	1781	5075	169
Grp Volume(v), veh/h	70	0	45	55	0	0	40	1363	747	35	1009	546
Grp Sat Flow(s),veh/h/ln	1381	0	1585	954	0	0	1781	1702	1864	1781	1702	1840
Q Serve(g_s), s	0.0	0.0	3.5	2.1	0.0	0.0	1.6	19.7	19.7	2.5	33.0	33.0
Cycle Q Clear(g_c), s	6.4	0.0	3.5	8.5	0.0	0.0	1.6	19.7	19.7	2.5	33.0	33.0
Prop In Lane	0.71		1.00	0.45		0.45	1.00		0.02	1.00		0.09
Lane Grp Cap(c), veh/h	159	0	128	118	0	0	841	2632	1441	61	1110	600
V/C Ratio(X)	0.44	0.00	0.35	0.47	0.00	0.00	0.05	0.52	0.52	0.57	0.91	0.91
Avail Cap(c_a), veh/h	265	0	240	222	0	0	841	2632	1441	134	2215	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	57.7	0.0	56.5	58.5	0.0	0.0	18.5	5.6	5.6	59.6	21.0	21.0
Incr Delay (d2), s/veh	0.7	0.0	0.6	1.1	0.0	0.0	0.0	0.1	0.2	2.9	11.8	19.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.4	1.8	0.0	0.0	0.7	5.8	6.4	1.1	9.7	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.4	0.0	57.1	59.5	0.0	0.0	18.5	5.7	5.8	62.4	32.7	40.1
LnGrp LOS	E		E	E			B	A	A	E	C	D
Approach Vol, veh/h		115			55			2150			1590	
Approach Delay, s/veh		57.9			59.5			5.9			35.9	
Approach LOS		E			E			A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	66.4	47.8		15.8	8.7	105.5		15.8				
Change Period (Y+Rc), s	5.0	* 5.4		5.3	4.2	5.0		5.3				
Max Green Setting (Gmax), s	10.7	* 85		19.7	9.8	86.0		19.7				
Max Q Clear Time (g_c+I1), s	3.6	35.0		8.4	4.5	21.7		10.5				
Green Ext Time (p_c), s	0.0	7.4		0.1	0.0	17.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			20.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

9: Watt Avenue & Van Owen Street

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	5	5	5	30	5	25	70	2120	20	55	1570	5
Future Volume (veh/h)	5	5	5	30	5	25	70	2120	20	55	1570	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	5	30	5	25	70	2120	20	55	1570	5
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	58	81	76	11	33	89	2874	27	506	4158	13
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.55	0.55	0.28	0.79	0.79
Sat Flow, veh/h	636	1143	1585	676	217	638	1781	5216	49	1781	5255	17
Grp Volume(v), veh/h	10	0	5	60	0	0	70	1383	757	55	1017	558
Grp Sat Flow(s),veh/h/ln	1779	0	1585	1531	0	0	1781	1702	1862	1781	1702	1867
Q Serve(g_s), s	0.0	0.0	0.4	4.3	0.0	0.0	5.1	39.9	40.0	3.0	11.6	11.6
Cycle Q Clear(g_c), s	0.7	0.0	0.4	5.0	0.0	0.0	5.1	39.9	40.0	3.0	11.6	11.6
Prop In Lane	0.50		1.00	0.50		0.42	1.00		0.03	1.00		0.01
Lane Grp Cap(c), veh/h	132	0	81	120	0	0	89	1876	1026	506	2694	1478
V/C Ratio(X)	0.08	0.00	0.06	0.50	0.00	0.00	0.79	0.74	0.74	0.11	0.38	0.38
Avail Cap(c_a), veh/h	413	0	361	386	0	0	110	1980	1083	506	2694	1478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	0.0	58.7	60.9	0.0	0.0	61.1	22.1	22.1	34.4	4.0	4.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.2	0.0	0.0	17.9	1.5	2.7	0.0	0.4	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	0.3	0.0	0.2	2.0	0.0	0.0	2.7	15.6	17.5	1.3	3.4	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.9	0.0	58.8	62.1	0.0	0.0	79.0	23.6	24.8	34.4	4.4	4.8
LnGrp LOS	E		E	E			E	C	C	C	A	A
Approach Vol, veh/h	15			60			2210			1630		
Approach Delay, s/veh	58.9			62.1			25.8			5.6		
Approach LOS	E			E			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	107.9		11.4	41.9	76.6		11.4				
Change Period (Y+Rc), s	4.2	5.0		4.8	5.0	* 5		4.8				
Max Green Setting (Gmax), s	8.0	78.4		29.6	10.7	* 76		29.6				
Max Q Clear Time (g_c+I1), s	7.1	13.6		2.7	5.0	42.0		7.0				
Green Ext Time (p_c), s	0.0	35.3		0.0	0.0	29.6		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	18.0											
HCM 6th LOS	B											
Notes												

HCM 6th TWSC
10: Watt Avenue & Commercial Drveway/Milton Way

12/06/2024

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗↑↑↑			↗↑↑↑		
Traffic Vol, veh/h	0	0	170	0	0	5	85	2100	15	35	1410	235
Future Vol, veh/h	0	0	170	0	0	5	85	2100	15	35	1410	235
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	-	-	0	-	-	0	240	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	170	0	0	5	85	2100	15	35	1410	235

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	823	-	-	1058	1645	0	0	2115	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	272	0	0	190	189	-	-	109	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	272	-	-	190	189	-	-	109	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	38		24.5		1.5		1.1	
HCM LOS	E		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	189	-	-	272	190	109	-
HCM Lane V/C Ratio	0.45	-	-	0.625	0.026	0.321	-
HCM Control Delay (s/veh)	38.7	-	-	38	24.5	52.9	-
HCM Lane LOS	E	-	-	E	C	F	-
HCM 95th %tile Q (veh)	2.1	-	-	3.8	0.1	1.3	-

HCM 6th Signalized Intersection Summary

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	475	850	255	355	655	150	335	1685	250	190	1015	225
Future Volume (veh/h)	475	850	255	355	655	150	335	1685	250	190	1015	225
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	475	850	255	355	655	150	335	1685	250	190	1015	225
Peak Hour 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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	523	920	410	403	796	355	384	1903	591	240	1384	306
Arrive On Green	0.15	0.26	0.26	0.12	0.23	0.23	0.11	0.38	0.38	0.07	0.33	0.33
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	3428	5066	1572	3428	4149	918
Grp Volume(v), veh/h	475	850	255	355	655	150	335	1685	250	190	826	414
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1763	1572	1714	1689	1572	1714	1689	1690
Q Serve(g_s), s	17.7	30.5	18.6	13.3	23.0	10.6	12.5	40.5	15.3	7.1	28.0	28.1
Cycle Q Clear(g_c), s	17.7	30.5	18.6	13.3	23.0	10.6	12.5	40.5	15.3	7.1	28.0	28.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	523	920	410	403	796	355	384	1903	591	240	1127	564
V/C Ratio(X)	0.91	0.92	0.62	0.88	0.82	0.42	0.87	0.89	0.42	0.79	0.73	0.73
Avail Cap(c_a), veh/h	564	930	415	409	796	355	414	1903	591	251	1127	564
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	54.2	46.8	42.4	56.5	47.8	43.1	56.8	38.0	30.1	59.5	38.2	38.2
Incr Delay (d2), s/veh	17.2	15.0	4.0	18.7	7.7	1.6	16.3	6.5	2.2	13.9	4.2	8.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	14.9	7.5	6.6	10.7	4.2	6.2	17.5	6.0	3.5	11.9	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.4	61.8	46.4	75.2	55.5	44.7	73.1	44.5	32.3	73.4	42.4	46.5
LnGrp LOS	E	E	D	E	E	D	E	D	C	E	D	D
Approach Vol, veh/h	1580			1160			2270			1430		
Approach Delay, s/veh	62.2			60.1			47.4			47.7		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	49.6	25.3	35.1	14.6	55.0	20.8	39.6				
Change Period (Y+Rc), s	5.5	* 6.2	5.5	* 5.7	5.5	* 6.2	5.5	5.7				
Max Green Setting (Gmax), s	15.7	* 42	21.4	* 28	9.5	* 48	15.5	34.3				
Max Q Clear Time (g_c+l1), s	14.5	30.1	19.7	25.0	9.1	42.5	15.3	32.5				
Green Ext Time (p_c), s	0.0	2.4	0.1	2.1	0.0	5.6	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	53.4											
HCM 6th LOS	D											
Notes												

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱	↱↑↑↑			↱↑↑↑		↱
Traffic Vol, veh/h	0	0	5	0	0	15	35	1890	35	25	1420	5
Future Vol, veh/h	0	0	5	0	0	15	35	1890	35	25	1420	5
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	-	-	0	-	-	0	210	-	-	230	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	0	0	15	35	1890	35	25	1420	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	710	-	-	963	1425	0	0	1925	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	323	0	0	220	243	-	-	136	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	323	-	-	220	243	-	-	136	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.3	22.6	0.4	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	243	-	-	323	220	136	-
HCM Lane V/C Ratio	0.144	-	-	0.015	0.068	0.184	-
HCM Control Delay (s/veh)	22.3	-	-	16.3	22.6	37.3	-
HCM Lane LOS	C	-	-	C	C	E	-
HCM 95th %tile Q (veh)	0.5	-	-	0	0.2	0.6	-

HCM 6th Signalized Intersection Summary 13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	15	80	40	10	15	110	1780	55	40	1220	95
Future Volume (veh/h)	55	15	80	40	10	15	110	1780	55	40	1220	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	15	80	40	10	15	110	1780	55	40	1220	95
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	19	100	56	14	62	718	3585	111	51	1575	123
Arrive On Green	0.07	0.07	0.07	0.04	0.04	0.04	0.40	0.70	0.70	0.06	0.65	0.65
Sat Flow, veh/h	1781	256	1368	1439	360	1585	1781	5089	157	1781	4831	376
Grp Volume(v), veh/h	55	0	95	50	0	15	110	1190	645	40	860	455
Grp Sat Flow(s),veh/h/ln	1781	0	1624	1798	0	1585	1781	1702	1842	1781	1702	1803
Q Serve(g_s), s	3.8	0.0	7.5	3.6	0.0	1.2	5.1	20.7	20.7	2.9	23.1	23.1
Cycle Q Clear(g_c), s	3.8	0.0	7.5	3.6	0.0	1.2	5.1	20.7	20.7	2.9	23.1	23.1
Prop In Lane	1.00		0.84	0.80		1.00	1.00		0.09	1.00		0.21
Lane Grp Cap(c), veh/h	130	0	119	70	0	62	718	2398	1298	51	1110	588
V/C Ratio(X)	0.42	0.00	0.80	0.71	0.00	0.24	0.15	0.50	0.50	0.78	0.77	0.77
Avail Cap(c_a), veh/h	178	0	162	194	0	171	718	2398	1298	130	1702	901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	57.6	0.0	59.3	61.7	0.0	60.6	24.7	8.7	8.7	60.9	19.2	19.3
Incr Delay (d2), s/veh	0.8	0.0	12.5	4.9	0.0	0.7	0.0	0.7	1.4	8.1	4.6	8.5
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	1.8	0.0	3.5	1.7	0.0	0.5	2.1	6.8	7.5	1.4	6.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.4	0.0	71.8	66.6	0.0	61.3	24.7	9.5	10.1	69.0	23.9	27.7
LnGrp LOS	E		E	E		E	C	A	B	E	C	C
Approach Vol, veh/h	150				65		1945				1355	
Approach Delay, s/veh	66.9				65.4		10.5				26.5	
Approach LOS	E				E		B				C	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	58.0	47.4	14.5		8.2	97.2	10.1					
Change Period (Y+Rc), s	5.6	* 5	5.0		4.5	5.6	5.0					
Max Green Setting (Gmax), s	18.5	* 65	13.0		9.5	73.4	14.0					
Max Q Clear Time (g_c+I1), s	7.1	25.1	9.5		4.9	22.7	5.6					
Green Ext Time (p_c), s	0.0	17.3	0.1		0.0	30.8	0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			20.1									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	15	40	55	30	60	120	105	1720	45	140	1430	25
Future Volume (veh/h)	15	40	55	30	60	120	105	1720	45	140	1430	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	40	55	30	60	120	105	1720	45	140	1430	25
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	96	132	38	69	138	722	3151	82	163	1523	27
Arrive On Green	0.03	0.13	0.13	0.02	0.12	0.12	0.81	1.00	1.00	0.18	0.59	0.59
Sat Flow, veh/h	1781	713	981	1781	557	1113	1781	5117	134	1781	5168	90
Grp Volume(v), veh/h	15	0	95	30	0	180	105	1144	621	140	942	513
Grp Sat Flow(s),veh/h/ln	1781	0	1694	1781	0	1670	1781	1702	1846	1781	1702	1854
Q Serve(g_s), s	1.1	0.0	6.7	2.2	0.0	13.8	1.6	0.0	0.0	9.9	33.1	33.1
Cycle Q Clear(g_c), s	1.1	0.0	6.7	2.2	0.0	13.8	1.6	0.0	0.0	9.9	33.1	33.1
Prop In Lane	1.00		0.58	1.00		0.67	1.00		0.07	1.00		0.05
Lane Grp Cap(c), veh/h	53	0	228	38	0	207	722	2096	1137	163	1003	546
V/C Ratio(X)	0.28	0.00	0.42	0.79	0.00	0.87	0.15	0.55	0.55	0.86	0.94	0.94
Avail Cap(c_a), veh/h	127	0	409	90	0	364	722	2096	1137	267	1529	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	0.43	0.43	0.43
Uniform Delay (d), s/veh	61.7	0.0	51.6	63.3	0.0	55.9	7.5	0.0	0.0	52.3	25.6	25.6
Incr Delay (d2), s/veh	1.1	0.0	0.4	12.7	0.0	4.4	0.0	0.9	1.6	3.5	9.0	14.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.9	1.1	0.0	6.1	0.6	0.3	0.5	4.1	9.4	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.7	0.0	52.0	76.0	0.0	60.3	7.5	0.9	1.6	55.8	34.6	40.0
LnGrp LOS	E		D	E		E	A	A	A	E	C	D
Approach Vol, veh/h	110		210				1870				1595	
Approach Delay, s/veh	53.5		62.5				1.5				38.2	
Approach LOS	D		E				A				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	57.7	43.1	8.6	20.6	15.8	85.1	7.2	22.0				
Change Period (Y+Rc), s	5.0	* 4.8	4.7	4.5	3.9	5.0	4.4	* 4.5				
Max Green Setting (Gmax), s	15.6	* 58	9.3	28.3	19.5	54.8	6.6	* 31				
Max Q Clear Time (g_c+I1), s	3.6	35.1	3.1	15.8	11.9	2.0	4.2	8.7				
Green Ext Time (p_c), s	0.0	3.2	0.0	0.3	0.0	4.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.9									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary 15: Watt Avenue & U Street/Antelope Road

12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	245	65	300	195	195	95	1340	425	225	1290	85
Future Volume (veh/h)	110	245	65	300	195	195	95	1340	425	225	1290	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	245	65	300	195	195	95	1340	425	225	1290	85
Peak Hour 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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	316	141	297	321	286	330	1595	711	232	1398	623
Arrive On Green	0.08	0.09	0.09	0.17	0.18	0.18	0.19	0.45	0.45	0.13	0.39	0.39
Sat Flow, veh/h	1781	3554	1585	1781	1777	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	110	245	65	300	195	195	95	1340	425	225	1290	85
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.9	8.8	3.6	21.7	13.1	14.9	6.0	43.4	26.3	16.4	44.9	3.3
Cycle Q Clear(g_c), s	7.9	8.8	3.6	21.7	13.1	14.9	6.0	43.4	26.3	16.4	44.9	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	316	141	297	321	286	330	1595	711	232	1398	623
V/C Ratio(X)	0.82	0.77	0.46	1.01	0.61	0.68	0.29	0.84	0.60	0.97	0.92	0.14
Avail Cap(c_a), veh/h	214	585	261	297	368	328	330	1595	711	232	1536	685
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	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.2	57.9	27.8	54.2	49.0	49.8	45.6	31.7	27.0	56.3	37.6	14.0
Incr Delay (d2), s/veh	6.1	1.5	0.9	54.5	1.2	3.3	0.1	4.6	3.0	50.7	11.6	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.0	2.0	14.0	5.8	6.1	2.6	18.6	10.3	10.4	20.8	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.4	59.5	28.7	108.6	50.2	53.1	45.7	36.3	30.0	107.0	49.1	14.5
LnGrp LOS	E	E	C	F	D	D	D	D	C	F	D	B
Approach Vol, veh/h	420			690			1860			1600		
Approach Delay, s/veh	56.3			76.4			35.3			55.4		
Approach LOS	E			E			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.3	56.2	15.1	29.4	22.0	63.5	27.0	17.5				
Change Period (Y+Rc), s	5.2	* 5.1	5.3	* 5.9	5.1	5.2	5.3	* 5.9				
Max Green Setting (Gmax), s	10.0	* 56	15.6	* 27	16.9	49.1	21.7	* 21				
Max Q Clear Time (g_c+I1), s	8.0	46.9	9.9	16.9	18.4	45.4	23.7	10.8				
Green Ext Time (p_c), s	0.0	4.2	0.1	1.0	0.0	2.4	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	50.5											
HCM 6th LOS	D											
Notes												

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	45	5	5	55	10	5	145	50	5	115	5
Future Vol, veh/h	5	45	5	5	55	10	5	145	50	5	115	5
Peak Hour 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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	45	5	5	55	10	5	145	50	5	115	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	8.2	8.6	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	9%	7%	4%
Vol Thru, %	73%	82%	79%	92%
Vol Right, %	25%	9%	14%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	55	70	125
LT Vol	5	5	5	5
Through Vol	145	45	55	115
RT Vol	50	5	10	5
Lane Flow Rate	200	55	70	125
Geometry Grp	1	1	1	1
Degree of Util (X)	0.236	0.072	0.091	0.154
Departure Headway (Hd)	4.243	4.724	4.67	4.444
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	848	759	768	809
Service Time	2.261	2.748	2.693	2.465
HCM Lane V/C Ratio	0.236	0.072	0.091	0.155
HCM Control Delay, s/veh	8.6	8.1	8.2	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.2	0.3	0.5

HCM 6th TWSC
18: 34th Street & Elkhorn Boulevard

12/06/2024

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱			↱↰			↱↰	
Traffic Vol, veh/h	40	1375	15	50	1080	55	5	25	80	10	25	30
Future Vol, veh/h	40	1375	15	50	1080	55	5	25	80	10	25	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	1375	15	50	1080	55	5	25	80	10	25	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1135	0	0	1390	0	0	2116	2698	695	1988	2678	568
Stage 1	-	-	-	-	-	-	1463	1463	-	1208	1208	-
Stage 2	-	-	-	-	-	-	653	1235	-	780	1470	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	611	-	-	488	-	-	29	~ 21	385	36	~ 22	466
Stage 1	-	-	-	-	-	-	135	191	-	194	254	-
Stage 2	-	-	-	-	-	-	423	247	-	354	190	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	611	-	-	488	-	-	-	~ 18	385	-	~ 18	466
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 18	-	-	~ 18	-
Stage 1	-	-	-	-	-	-	126	179	-	181	228	-
Stage 2	-	-	-	-	-	-	316	222	-	225	178	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.3	0.6		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	611	-	-	488	-	-	-
HCM Lane V/C Ratio	-	0.065	-	-	0.102	-	-	-
HCM Control Delay (s/veh)	-	11.3	-	-	13.2	-	-	-
HCM Lane LOS	-	B	-	-	B	-	-	-
HCM 95th %tile Q (veh)	-	0.2	-	-	0.3	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Intersection Delay, s/veh	8.1											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	100	35	5	140	15	5	50	35	5	10	5
Future Vol, veh/h	5	100	35	5	140	15	5	50	35	5	10	5
Peak Hour 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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	100	35	5	140	15	5	50	35	5	10	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	8.3	8	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	4%	3%	25%
Vol Thru, %	56%	71%	88%	50%
Vol Right, %	39%	25%	9%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	140	160	20
LT Vol	5	5	5	5
Through Vol	50	100	140	10
RT Vol	35	35	15	5
Lane Flow Rate	90	140	160	20
Geometry Grp	1	1	1	1
Degree of Util (X)	0.11	0.165	0.192	0.026
Departure Headway (Hd)	4.412	4.23	4.313	4.617
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	814	850	837	776
Service Time	2.432	2.244	2.313	2.641
HCM Lane V/C Ratio	0.111	0.165	0.191	0.026
HCM Control Delay, s/veh	8	8.1	8.3	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.6	0.7	0.1

Queues

1: Watt Avenue & Peacekeeper Way/Poplar Boulevard

12/06/2024



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	146	144	535	85	230	1805	10	1540	75
v/c Ratio	0.76	0.74	0.91	0.77	0.76	0.75	0.10	0.51	0.07
Control Delay (s/veh)	88.1	86.2	48.8	97.4	83.8	20.7	85.1	15.2	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	88.1	86.2	48.8	97.4	83.8	20.7	85.1	15.2	2.6
Queue Length 50th (ft)	148	145	134	68	115	531	10	354	3
Queue Length 95th (ft)	223	221	206	#170	160	861	m0	436	13
Internal Link Dist (ft)		568		647		709		759	
Turn Bay Length (ft)	240				370		115		360
Base Capacity (vph)	252	254	675	112	363	2398	95	2987	986
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.57	0.79	0.76	0.63	0.75	0.11	0.52	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: Watt Avenue & Airbase Drive

12/06/2024

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	365	315	2075	535	1565
v/c Ratio	0.68	0.78	0.65	0.86	0.36
Control Delay (s/veh)	18.2	20.6	13.1	72.0	7.9
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	18.2	20.6	13.3	72.0	7.9
Queue Length 50th (ft)	24	0	112	276	202
Queue Length 95th (ft)	72	109	316	344	312
Internal Link Dist (ft)	829		759		793
Turn Bay Length (ft)		225		330	
Base Capacity (vph)	830	521	3186	803	4313
Starvation Cap Reductn	0	0	303	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.60	0.72	0.67	0.36
Intersection Summary					

Queues

3: Watt Avenue & Palm Street

12/06/2024



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	40	225	80	2260	1885	20
v/c Ratio	0.49	0.65	0.50	0.49	0.45	0.01
Control Delay (s/veh)	89.1	17.5	73.8	4.9	8.6	5.6
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay (s/veh)	89.1	17.5	73.8	5.2	8.6	5.6
Queue Length 50th (ft)	39	0	40	233	192	1
Queue Length 95th (ft)	80	46	m59	584	466	m11
Internal Link Dist (ft)	606			793	1030	
Turn Bay Length (ft)	200		345			165
Base Capacity (vph)	345	725	986	4543	4100	1278
Starvation Cap Reductn	0	0	0	1369	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.31	0.08	0.71	0.46	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Watt Avenue & A Street

12/06/2024

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	63	220	91	89	230	2210	70	1610
v/c Ratio	0.61	0.61	0.72	0.70	0.64	0.83	0.67	0.53	0.55
Control Delay (s/veh)	92.6	91.8	22.2	94.3	78.9	68.2	24.5	92.6	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	92.6	91.8	22.2	94.3	78.9	68.2	24.5	92.6	34.0
Queue Length 50th (ft)	63	64	0	93	78	224	574	59	348
Queue Length 95th (ft)	115	115	85	153	140	268	847	#134	536
Internal Link Dist (ft)		513			883		1030		1853
Turn Bay Length (ft)	215		215	100		205		255	
Base Capacity (vph)	292	298	457	292	298	316	3275	132	2887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.21	0.48	0.31	0.30	0.73	0.67	0.53	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

5: Watt Avenue & Driveway/Karl Drive

12/06/2024



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	20	155	20	1970	60	1545
v/c Ratio	0.04	0.16	0.78	0.21	0.55	0.54	0.42
Control Delay (s/veh)	66.6	36.5	75.7	101.9	7.5	65.8	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.6	36.5	75.7	101.9	7.5	65.8	4.7
Queue Length 50th (ft)	5	5	115	21	187	58	95
Queue Length 95th (ft)	20	33	189	m32	58	108	67
Internal Link Dist (ft)		245	409		1853		633
Turn Bay Length (ft)				195		155	
Base Capacity (vph)	123	129	372	94	3524	130	3661
Starvation Cap Reductn	0	0	0	0	0	0	199
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.16	0.42	0.21	0.56	0.46	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: Watt Avenue & Freedom Park Drive/Commercial Driveway

12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	200	105	30	20	90	1890	40	1660
v/c Ratio	0.82	0.36	0.42	0.31	0.69	0.55	0.40	0.51
Control Delay (s/veh)	88.6	14.6	86.8	48.4	114.4	6.4	67.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	88.6	14.6	86.8	48.4	114.4	6.4	67.9	9.8
Queue Length 50th (ft)	192	4	29	5	85	52	39	219
Queue Length 95th (ft)	277	61	65	34	154	199	m76	146
Internal Link Dist (ft)		571		391		633		1065
Turn Bay Length (ft)	180		40		190		255	
Base Capacity (vph)	270	451	257	404	241	3422	239	3246
Starvation Cap Reductn	0	0	0	0	0	112	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.23	0.12	0.05	0.37	0.57	0.17	0.51
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

Queues

7: Watt Avenue & Private Driveway/Don Julio Boulevard

12/06/2024



Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	166	194	10	2080	135	1445
v/c Ratio	0.27	0.81	0.58	0.17	0.65	0.79	0.38
Control Delay (s/veh)	62.6	92.7	18.6	57.5	11.8	97.6	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.6	92.7	18.6	57.5	11.8	97.6	9.8
Queue Length 50th (ft)	10	169	22	9	231	131	124
Queue Length 95th (ft)	34	246	102	m17	665	203	361
Internal Link Dist (ft)	135		542		1065		220
Turn Bay Length (ft)				200		215	
Base Capacity (vph)	103	273	391	57	3180	217	3779
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.61	0.50	0.18	0.65	0.62	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: Watt Avenue & I Street/Bolivar Avenue

12/06/2024

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	45	55	40	2110	35	1555
v/c Ratio	0.64	0.21	0.43	0.24	0.50	0.42	0.40
Control Delay (s/veh)	83.1	2.4	44.9	54.5	6.0	63.1	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	83.1	2.4	44.9	54.5	6.0	63.1	12.3
Queue Length 50th (ft)	58	0	24	31	221	26	315
Queue Length 95th (ft)	107	0	66	65	328	66	357
Internal Link Dist (ft)	1233		396		1126		1159
Turn Bay Length (ft)		90		230		175	
Base Capacity (vph)	224	322	238	202	4148	133	3910
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.14	0.23	0.20	0.51	0.26	0.40
Intersection Summary							

Queues

9: Watt Avenue & Van Owen Street

12/06/2024

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	5	60	70	2140	55	1575
v/c Ratio	0.12	0.02	0.60	0.58	0.51	0.55	0.38
Control Delay (s/veh)	60.3	0.4	61.8	80.8	4.1	68.7	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	60.3	0.4	61.8	80.8	4.1	68.7	6.3
Queue Length 50th (ft)	8	0	29	62	101	49	151
Queue Length 95th (ft)	27	0	75	111	215	m67	173
Internal Link Dist (ft)	157		284		1159		341
Turn Bay Length (ft)				200		225	
Base Capacity (vph)	346	433	354	130	4145	145	4103
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.17	0.54	0.52	0.38	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

11: Watt Avenue & Elkhorn Boulevard

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	475	850	255	355	655	150	335	1685	250	190	1240
v/c Ratio	0.90	0.91	0.46	0.90	0.82	0.28	0.87	0.88	0.35	0.79	0.75
Control Delay (s/veh)	75.3	61.3	16.4	83.5	57.9	2.5	88.6	42.3	11.2	91.2	42.5
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)	75.3	61.3	16.4	83.5	57.9	2.5	88.6	42.3	11.2	91.2	42.5
Queue Length 50th (ft)	202	367	55	154	281	0	142	447	23	88	392
Queue Length 95th (ft)	#287	#487	137	#237	#374	13	#222	543	120	#143	322
Internal Link Dist (ft)		1265			520			552			447
Turn Bay Length (ft)	210		175	240		200	300		215	240	
Base Capacity (vph)	559	931	543	405	793	518	410	1899	698	248	1639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.91	0.47	0.88	0.83	0.29	0.82	0.89	0.36	0.77	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

13: Watt Avenue & Q Street/Bainbridge Drive

12/06/2024



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	95	50	15	110	1835	40	1315
v/c Ratio	0.54	0.56	0.59	0.06	0.33	0.51	0.45	0.47
Control Delay (s/veh)	78.1	29.7	85.4	0.5	46.2	16.3	84.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.1	29.7	85.4	0.5	46.2	16.3	84.9	6.3
Queue Length 50th (ft)	46	12	42	0	57	342	27	224
Queue Length 95th (ft)	89	67	83	0	m70	269	m67	31
Internal Link Dist (ft)		1270	498			761		1406
Turn Bay Length (ft)	135			100	330		200	
Base Capacity (vph)	177	234	141	298	343	3546	129	2872
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.41	0.35	0.05	0.32	0.52	0.31	0.46

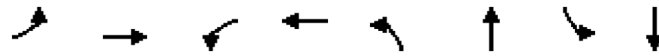
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Watt Avenue & Commercial Driveway/Larchmont Drive

12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	95	30	180	105	1765	140	1455
v/c Ratio	0.11	0.42	0.38	0.70	0.39	0.55	0.75	0.49
Control Delay (s/veh)	58.8	32.1	73.6	47.8	49.0	14.7	79.3	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.8	32.1	73.6	47.8	49.0	14.7	79.3	19.0
Queue Length 50th (ft)	12	37	25	85	80	257	118	180
Queue Length 95th (ft)	36	85	58	164	126	375	m151	m249
Internal Link Dist (ft)		106		330		1406		703
Turn Bay Length (ft)			115		200		180	
Base Capacity (vph)	126	448	94	420	269	3209	265	2973
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.21	0.32	0.43	0.39	0.55	0.53	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: Watt Avenue & U Street/Antelope Road

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	110	245	65	300	390	95	1340	425	225	1290	85
v/c Ratio	0.67	0.67	0.19	1.01	0.55	0.40	0.94	0.52	0.75	0.82	0.10
Control Delay (s/veh)	76.6	65.4	1.2	109.9	29.8	42.8	38.7	7.8	67.7	37.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	76.6	65.4	1.2	109.9	29.8	42.8	38.7	7.8	67.7	37.4	0.2
Queue Length 50th (ft)	91	106	0	~262	86	83	632	119	179	496	0
Queue Length 95th (ft)	152	147	0	#450	140	#159	#736	0	#309	565	0
Internal Link Dist (ft)		609			516		703			374	
Turn Bay Length (ft)	130		230	210		270		175	190		140
Base Capacity (vph)	212	582	421	295	816	233	1416	810	299	1576	792
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.42	0.15	1.02	0.48	0.41	0.95	0.52	0.75	0.82	0.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Appendix J: Alternatives Development Toolbox

DRAFT



DATE: January 23, 2025

TO: Cameron Shew | Sacramento County Department of Transportation

FROM: Josh Pilachowski | DKS Associates
Sean Carney | DKS Associates
Christine Bairan | DKS Associates
Sylinda Villado | DKS Associates

SUBJECT: Re-Imagine North Watt Corridor Plan: Multimodal Strategies Toolbox

INTRODUCTION

The purpose of this memo is to identify a range of multimodal strategies that can be used to improve multimodal accessibility, connectivity, and safety along the North Watt study corridor. Strategies have been categorized by mode and strategies that apply to more than one mode have been repeated in the relevant sections. **Table 1** summarizes the multimodal strategies to be discussed.

TABLE 1: MULTIMODAL STRATEGIES FOR NORTH WATT AVENUE CORRIDOR

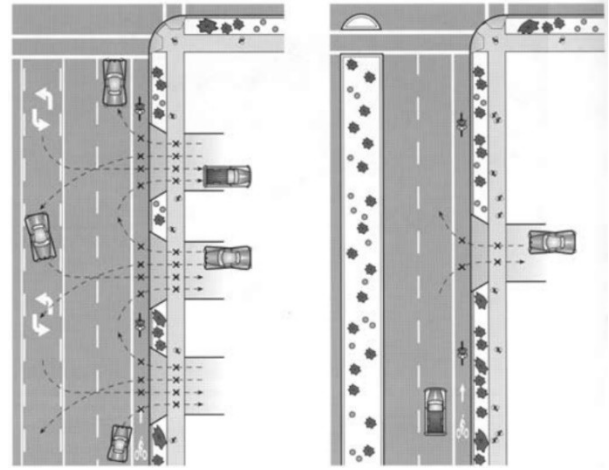
PEDESTRIAN	BICYCLE	TRANSIT	VEHICLE
Driveway Consolidation		Dedicated Bus Lanes	TWLTL
Widen Sidewalks	Class II Buffered Bike Lanes	Bus Pullouts	Stacking Lane
Leading Pedestrian Interval	Class IV Bike Lanes	Bus Amenities/Bus Stops	Turn Lanes
Universal Design and Accessibility	Bike Boxes	TSP	Lane Widening
Underground Utilities	-	Queue Jumps	Speed Survey
Bus Stop Design and Floating Bus Stops			Retro-Reflective Back Plates
ROW Acquisition			
Reduce Setback (Land Use)/ROW			
Street Greening			

Source: DKS Associates, 2024

CONSOLIDATE DRIVEWAYS

A high density of driveway entrances should be avoided to minimize traffic conflicts and construction costs. Multiple studies have shown that access point density is directly correlated with crash frequency. The TRB Access Management Manual 2nd Edition notes that an increase in access density from 10 points per mile to 20 points per mile is associated with a 41% increase in crash rate¹. Consolidating multiple, closely-spaced driveways should be considered when possible. A single, well-designed and properly-controlled driveway with good traffic circulation within the site will function more safely and efficiently than several driveways to a parcel, and conflict points are reduced both on and off the public roadway.

Source: U.S. Department of Transportation Federal Highway Administration (USDOT FHWA)



Source: Oregon Bicycle and Pedestrian Plan

WIDEN SIDEWALKS



Source: C. Shew. SacDoT

In California, the minimum width of a sidewalk should be 5 feet between the curb and building frontage in urban and rural contexts. This minimum width does not account for sidewalk obstructions such as driveway cuts, transit facilities, utility poles, or other objects that can reduce the usability of a sidewalk. Increasing sidewalk width can provide improvement among accessibility for disadvantaged users, increase pedestrian Level of Service (LOS), and allow additional width for utilities, transit stops, and street furniture. Increased sidewalk width is especially critical to sidewalks adjacent to roadways with higher traffic speeds and volumes. Based on current County Design standards which apply to the Watt Avenue corridor sidewalks should be designed to 8 feet in width.

Source: CA Highway Design Manual, NACTO

¹ Access Management Manual, 2nd Edition, Transportation Research Board, 2014

MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI)

LPI's should be implemented at intersections with signalized pedestrian crossings that have high turning vehicle volumes and have had a history of pedestrian vs. vehicle crashes. An LPI allows a pedestrian to enter the intersection before turning vehicles, enhancing the visibility of pedestrians making a crossing. The California MUTCD recommends that accessible pedestrian systems be installed alongside the implementation of LPI's to reduce potential risks for those with limited sight.

UNIVERSAL DESIGN AND ACCESSIBILITY

The concept of universal accessibility aims to go beyond designing environments just to meet standards and requirements and instead with the goal of making a facility usable by all people to the greatest extent possible. This both encompasses the current American with Disabilities Act (ADA) and MUTCD requirements for accessibility and encourages design aimed at all users, such as curb cuts and safe pathways that accommodate not just wheelchair users, but parents with strollers, and delivery workers for businesses. Universal design is concerned with incorporating the needs of users beyond those considered to be "average" or "typical" into the design of a facility.

Source: <https://www.washington.edu/doit/what-difference-between-accessible-usable-and-universal-design>

INSTALL UNDERGROUND UTILITIES

Installing underground utilities or "undergrounding" is the removal of existing utility infrastructure, such as utility poles and overhead power lines, and moving that infrastructure to underground conduits. The undergrounding of utilities can improve safety for both pedestrians and vehicles through increased pedestrian ROW, allowing for increased sidewalk width, and reducing issues that arise from vehicle and utility facility collisions such as fires or poles being knocked down creating public safety hazards. This strategy would require coordination with local utility companies including SMUD.

Source: California Public Utilities Commission

CONSOLIDATE DRIVEWAYS

See discussion under Pedestrian improvements. People riding bicycles experience similar benefits as those walking for this improvement type.

INSTALL CLASS II BIKE LANES

Class II bike lanes are established along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. Class II bike lanes may be established within the roadbed and shall be located immediately adjacent to a traffic lane as allowed in the Highway Design Manual (HDM). Note that a bikeway located behind on-street parking, physical separation, or barrier within the roadway is considered a Class IV bikeway or a separated bikeway. The minimum Class II bike lane width shall be four feet, except when adjacent to on-street parking, where the minimum bike lane width should be five feet, or on streets where the posted speeds are greater than 40 miles per hour, where the minimum bike lane width should be six feet. Caltrans Design Information Bulletin 94 also provides guidance for the consideration of buffered Class II bike lanes. Caltrans recommends that buffered Class II bike lanes be used when daily traffic exceeds 5,000 vehicles or the posted speed of the roadway exceeds 30 miles per hour.

Source: CA-Local Roadway Safety Manual and CA Highway Design Manual

INSTALL CLASS IV BIKE LANES

A Class IV bikeway is designed for the exclusive use of bicycles and includes a separation required between the bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking. Separated bikeways are most appropriate on streets with high volumes of bike traffic and/or high frequency of bike-vehicle collisions.

Source: CA-Local Roadway Safety Manual and CA Highway Design Manual

INSTALL BIKE BOXES

Bike boxes provide bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase. Typically applied at signalized intersections with high volumes of bicycles and/or motor vehicles or where there may be right or left-turning conflicts between bicyclists and motorists. Bike boxes provide benefits such as increasing visibility of bicyclists, reducing signal delay for bicyclists, helping 'right-hook' conflicts with turning vehicles at the start of the green indication, and allow pedestrians to benefit from reduced vehicle encroachment into the crosswalk. Colored pavement surface may be costly to maintain, especially in climates prone to snow or ice. Placement of markings between tire tracks will reduce wear.

Source: National Association of City Transportation Officials (NACTO)

TRANSIT

Sacramento Regional Transit (SacRT) has published a set of guidelines for the design and implementation of bus and light rail facilities. The guidelines include, among other things, design considerations for bus lanes, bus stops, and bus priority traffic signals. This discussion focuses primarily on bus lanes and bus stops, however additional design considerations can be found in the Design Guidelines for Bus and Light Rail Facilities document, accessible on SacRT's web site².

BUS LANES

EXCLUSIVE BUS LANES

An exclusive bus lane, also referred to as a dedicated bus lane, is one lane of a roadway reserved for the use of buses, usually during peak hours, though it may also be reserved all day. The advantage of an exclusive lane is that it segregates the bus from, and permits it to bypass heavily congested traffic on roadways. This results in significant time savings for the bus patron, which increases the attractiveness of public transit when compared to a private automobile. The effectiveness of an exclusive bus lane, however, depends on the level of enforcement. By reducing operating time per route, exclusive bus lanes also decrease bus operating costs and may allow for increased service frequency, further improving the attractiveness of transit.

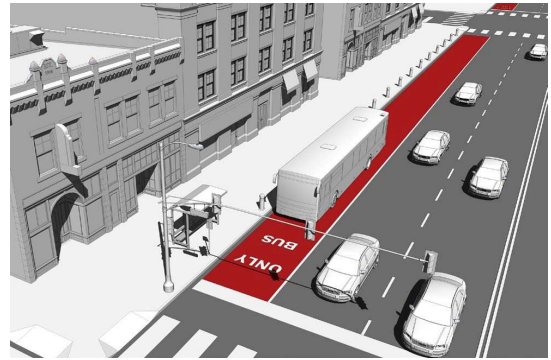
Exclusive bus lanes can be created on existing roadways or incorporated into new roadways. This can be accomplished by any one of the following:

- Eliminating the curb parking lane and reserving it for buses.
- Reserving an existing traffic lane on multi-lane, one-way arterials.
- Reserving an entire street for exclusive bus operations. Exclusive bus lanes are warranted under the conditions listed below:
 - Where volumes are at least 15 buses per hour per direction
 - On BRT routes or similar lines where SacRT has determined to make major investments
 - Exclusive bus streets may be considered when there are at least 30 buses per hour in the peak period along the street. They are particularly suited for streets along buildings with commercially oriented frontage.
 - Exclusive bus lanes may be in various locations within a street. Examples of exclusive bus lanes include the following types.

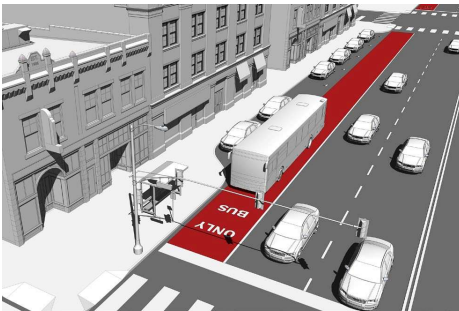
² <https://www.sacrt.com/wp-content/uploads/SacRT-Bus-Light-Rail-Design-Guidelines-2023-03.pdf>

Curbside Bus Lane

Typically used on major routes and arterials with frequent headways or where traffic congestion may significantly affect reliability. Curbside lanes run along the existing curb. "Bus Only" pavement markings should be used to emphasize the lane and deter other drivers from using it. Strict enforcement is required for curbside bus lanes to prevent encroachment of the lane through double parking, delivery vehicles and drop offs. The minimum width of a curbside bus lane is 11 feet.



Offset Bus Lanes



Typically used on major routes and arterials with frequent headways or where traffic congestion may significantly affect reliability. Offset lanes replace the rightmost lane on a street that allows parking. Strict enforcement is required for curbside bus lanes to prevent encroachment of the lane through double parking, delivery vehicles and drop offs. Bus bulbs should be installed to provide access directly to the bus. The minimum width of an off-set bus lane is 10 feet.

BUS STOPS

A bus stop is a curbside area specially designated for passenger loading and unloading. Bus stops are commonly identified by a bus stop sign, a red curb, and/or pavement markings. Complementary stops for both route directions are usually provided and connected by crosswalks to provide safe pedestrian connections to the stops in each direction.

FAR-SIDE STOPS

Far-side stops are located beyond street intersections. Far-side stops should be used wherever practical because they have several advantages over mid-block and nearside stops.

The advantages of far-side stops are:

- Creates shorter deceleration distances for buses since buses can begin their approach into the stop from the intersection.
- At signalized intersections, buses can take advantage of the red- phase in the traffic signal cycle time to pull out of the stop and reenter the traffic stream.
- Minimize interference by buses with traffic making right turns.
- Superior to mid-block and nearside stops for buses making left turns at intersections.
- Minimizes sight distance problems on approaches to intersection.
- Encourages pedestrians to cross the street behind the bus instead of in front of it.

MID-BLOCK STOPS

Mid-block stops are located between roadway intersections. Mid-block stops must be accompanied by a pedestrian crosswalk. Mid-block is typically the least desirable location for a stop, because it takes the most curb space, and is the least operationally preferable.

Mid-block stops may be used when:

- Changes in route direction require a right turn and the curb radius is short.
- It is necessary to eliminate or reduce pedestrian street crossings at the intersections.
- Large numbers of passengers assemble at the bus stop, and it is necessary to avoid overcrowding at or near intersections.
- Right-turn pockets or driveways at the corner prevent a near-side stop.
- The bus needs to make a left turn and would be unable to do so from a nearside stop.

NEARSIDE STOPS

Nearside stops are located immediately preceding street intersections. Nearside stops are typically preferred over mid-block stops, but less desirable than far-side stops because they present less than desirable conditions for (a) traffic making right turns; (b) pedestrians crossing in front of buses into traffic; and (c) buses waiting in travel lanes to enter the stop.

Nearside stops are more acceptable at stop sign-controlled intersections because the bus will always have to come to a stop for the stop sign, and by serving customers nearside the intersection, the bus avoids having to make a second stop far-side the intersection.

At signalized intersections, far-side stops are much preferred, because near-side stops can cause a bus to miss a green light. Also, at stops where the bus pulls out of traffic to serve the bus stop, re-entry is much easier at the far side of a signalized intersection, where a bus can take advantage of a red phase.

Nearside stops may also be preferable to far-side stops in settings (typically urban) with in-lane bus stops (i.e., where the bus stops in traffic). Stopping the bus in-lane far-side of an intersection can cause intersection gridlock. Whereas stopping the bus in-lane nearside an intersection may delay traffic behind the bus, but does not obstruct the intersection, and is an effective way for the bus to avoid delay re-entering traffic in lower-speed, higher-volume urban corridors.

OTHER BUS CONSIDERATIONS

BUS STOPS WITH BICYCLE FACILITIES

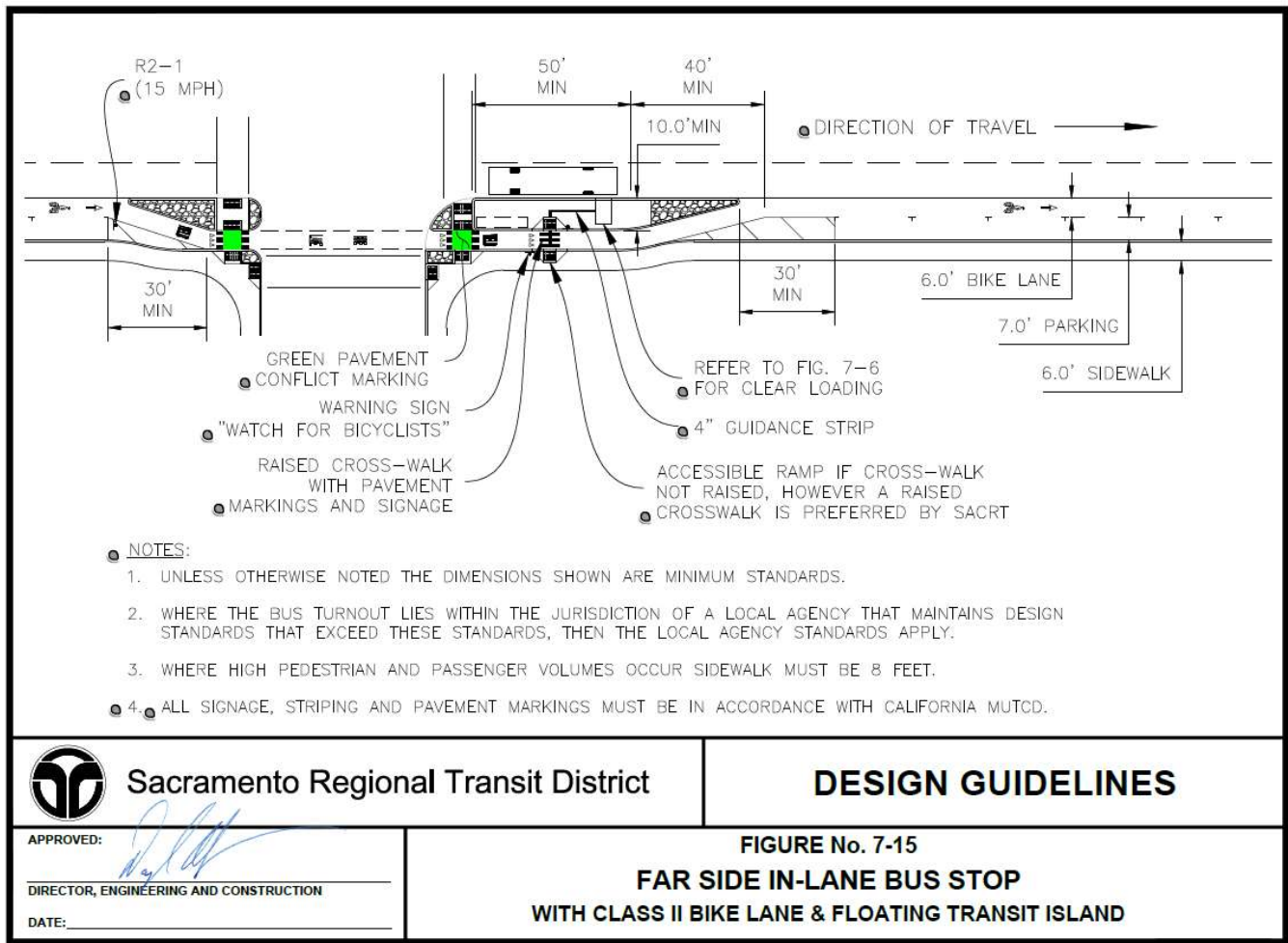
Under ideal circumstances, high-frequency bus routes and bike lanes would not be required to operate in the same space, but often times there is not sufficient right of way available to achieve separate facilities. When separation between buses and bicycles is not possible, special attention should be given at bus stops to clarify the conflicts between people on bicycles, buses, and those accessing the bus stops.

Along streets with Class II bike lanes, and where both bus frequency and bicycle volumes are low, buses may stop partially in the bike lane for passenger boarding and alighting. These locations

should have clear conflict striping and signage to alert all users of the shared operating space. Bus turnouts should be used to reduce this conflict if speeds, visibility, or volumes do not allow for safe operations at these conflict points.

For Class IV Bikeways (also referred to as Separated Bike Lanes or Cycle Track) where feasible, separation of bicycle and bus traffic should occur at bus stops by use of island bus stops, where space permits, such that bicyclists are channeled between the sidewalk and the bus boarding island. This design eliminates weaving movements or “leapfrogging” of buses and bicycles, thus improving cyclist comfort and bus operating speeds. This type of design reduces bus- bicycle conflicts but does create potential pedestrian-bicycle conflicts for pedestrians who must cross from the sidewalk, across the separated bike lane, to access the island bus stop. This potential pedestrian conflict can be mitigated through design and the provision of discrete crossing locations. Visually impaired pedestrians accessing the bus stop should be directed to the crosswalk(s) using detectable warnings and guidance strips.

The SacRT guidelines provide detailed design specifications for multiple island platform, nearside, and far-side scenarios and should be consulted to determine the most appropriate treatment for the given alternative. The figure below shows design guidelines for one such treatment documented by SacRT for a far-side in-lane bus stop.



INSTALL BUS PULLOUTS

Curbside pull-out stops are a low-cost option for bus stops on streets with curbside parking. Pull-out stops create space for the bus to wait out of traffic flow. It is noted that pull-out stops consume somewhat more time than in-lane stops, since buses exit the travel lane completely, pull to the curb for passenger boarding and alighting, and then merge back into the flow of traffic. This treatment is most useful where flow is a priority or where in-lane stops would be problematic.

Source: National Association of City Transportation Officials (NACTO)

INSTALL BUS AMENITIES/BUS STOPS

Transit stops provide opportunities to improve transit speeds and enhance the value of the street with green infrastructure and small public spaces. Passengers on all transit modes and service types can benefit from better stops. Stops provide essential information and frame the level of comfort and satisfaction riders have with transit service. Platforms enable faster boarding, good maps, and signage make trips easier, and integrating stops with adjacent buildings or green infrastructure can enhance the streetscape.

Source: National Association of City Transportation Officials (NACTO)

INCORPORATE TRANSIT SIGNAL PRIORITY (TSP)

Transit signal priority (TSP) tools modify traffic signal timing or phasing when transit vehicles are present either conditionally for late runs or unconditionally for all arriving transit. This treatment can improve reliability and travel time, especially on corridor streets with long signal cycles and distances between signals. In some cases, active TSP has reduced bus travel time by 10% and reduce delay at target intersections by up to 50%.

Implemented where signals are a major source of delay for transit, particularly when signal delay is a significant portion of transit delay even at times or locations when traffic congestion is not a primary issue. It is noted that active TSP may increase waiting times on cross streets. Additionally, coordination needs may require long-term agreements and planning of vehicle and signal equipment purchases based on goals, since not all equipment can perform all functions.

Source: National Association of City Transportation Officials (NACTO)

INSTALL QUEUE JUMP LANES

Implemented on signalized streets with low or moderately frequent bus routes, especially where transit operates in a right lane with high peak hour volumes, but relatively low right turns. Queue jump lanes combine short, dedicated transit facilities with either a leading internal or active signal priority to allow buses to easily enter traffic flow in a priority position. This treatment can significantly improve bus performance by routing vehicles through congested intersections ahead of traffic.

Source: National Association of City Transportation Officials (NACTO)

MOTORIZED VEHICLES

INSTALL LEFT-TURN LANE AND ADD LEFT TURN PHASING

Install a left-turn lane at signalized intersections that have a significant crash problem and the only alternative is to change the nature of the intersection itself. This treatment addresses all types of crashes, and the measure can be very effective at intersections with complex geometry and intersections with frequent left-turn movements.

Source: CA-Local Roadway Safety Manual

PROVIDE PROTECTED LEFT TURN PHASE (LEFT TURN ALREADY EXISTS)

Used at signalized intersections (with existing left turns pockets) that currently have a permissive left-turn or no left-turn protection that have a high frequency of angle crashes involving left turning, opposing through vehicles, and non-motorized road users. A properly timed protected left-turn phase can also help reduce rear-end, broadside, and sideswipe crashes between left-turning vehicles and the through vehicles as well as vehicles behind them.

Source: CA-Local Roadway Safety Manual

CONDUCT SPEED SURVEYS (AND REDUCE SPEED LIMIT)

Recent changes to the California Vehicle Code allow for more considerations when setting speed limits than were previously available. The County may now designate up to 20% of their roadways as safety corridors which can receive a 5-mph speed limit reduction when compared to the speed limit recommendations set solely based on the 85th percentile observed speed. Multiple studies have shown that reducing vehicle speeds significantly reduces the risk of a fatality in crashes involving pedestrians³

INSTALL RETRO-REFLECTIVE BACK PLATES

Intended to improve the visibility of the signal by providing a consistent and controlled-contrast background. Retroreflective borders also enhance the visibility of traffic signals for aging and color vision impaired drivers enabling them to understand which signal indication is illuminated. Backplates with retroreflective borders is a safety treatment that does not require significant material or labor costs to install.

Source: U.S. Department of Transportation Federal Highway Administration (USDOT FHWA)

³ NCHRP Synthesis Report 535 Pedestrian Safety Relative to Traffic-Speed Management, Transportation Research Board, 2019

GENERAL CORRIDOR STRATEGIES

MULTI-WAY BOULEVARD

A multi-way boulevard aims to provide separation of through travel lanes adjacent to residential and commercial areas. A multi-way boulevard will maintain vehicular travel while implementing pedestrian and bicyclist elements to improve overall usability and the environment of the roadway and adjacent areas. Many multi-way boulevards use landscaped medians to create a safe separation between vehicles, bicyclists and pedestrians to simultaneously calm traffic while encouraging recreational and commercial activities.

Multi-way boulevards can utilize existing frontage roads for additional width and use a frontage road as a separation of through lanes and bicycle and pedestrian facilities. Frontage roads on a multi-way boulevard can also be utilized as transit stops routes to minimize traffic and accidents on the through roadway.

Source: National Association of City Transportation Officials (NACTO) Urban Street Design Guide

INCORPORATE STREET GREENING

- Develop a plant palette to strategically plant native and drought-resistant trees responding to the local ecology and creating a comforting micro-climate.
- Implement bioswales and rain gardens to improve surface permeability, reduce runoff, and ease the load on the City's stormwater drainage system, enhancing biodiversity and mitigating urban heat islands for a more comfortable pedestrian experience.
- Ensure consistent median strip tree planting along the corridor, especially near schools and residential areas, to alter drivers' perception of actual lane width and help lower speeds.
- On frontage streets, from Elkhorn Boulevard to Don Julio Boulevard, Watt Avenue can benefit from the introduction of a buffered median strip from motorized lanes for safety as well as programming uses like seating areas, landscaped areas, etc.
- Replace sound walls currently used in residential-adjacent parts of the corridor with a double row of tree planting to provide a more aesthetic and functional barrier.
- Implement pocket parks closer to schools and other public facilities to provide green spaces and recreational areas for the community.
- Ensure that landscape strips run continuously along the corridor, linking larger green areas and providing respite for pedestrians.
- Consider policies for incorporating greening strategies within building setbacks to mitigate the effects of urban heat islands.

INCORPORATE STREET FURNISHING

- In addition to providing space for travel, streets play a big role in the public life and should be designed as public spaces as well as channels for movement.
- Street furnishings should feature a unified design to create a cohesive streetscape that enhances the overall environment.
- This can be achieved by incorporating street furnishings such as benches or seating for commuters to rest, leaning rails, pedestrian-friendly lighting, wayfinding, and other ancillary items like trash receptacles.
- Provision of bike racks and micromobility options at strategic locations encourages the use of active transportation methods for shorter trips within the neighborhood.

INCORPORATE PLACEMAKING STRATEGIES

- Placemaking helps activate strategic nodes or areas with visual or interactive features.
- Creating a visual identity that reflects the neighborhood's historical significance, diversity, and ecological features can encourage a sense of belonging.
- Establishing gateway features at key locations can reinforce a continued sense of community along the corridor.
- Safety is complementary in creating a sense of belonging. Implementing speed tables, raised crosswalks and other traffic calming features can foster interactions amongst community members by creating a more welcoming environment.
- Community awareness can be enhanced by installing interpretive signage that explains the role and benefits of landscape features, bioswales, and rain gardens, helping to educate both children and adults.

Appendix K: Level of Traffic Stress Analysis

DRAFT

BLTS Results	Existing				Minimal Impact				Hybrid Urban Boulevard				One-Way Couplet			
	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way
Length (ft)	5028	1380	2757	6600	5028	1380	2757	6600	5028	1380	2757	6600	5028	1380	2757	6600
Physically Separated?	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pavement Condition					Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Street Width (Through Lanes per Direction)	2	3	2	3	2	3	2	3	3	3	3	3	3	3	3	3
Bike Lane Width (Including Bike lane, Buffer, and Gutter)	5	0	0	5	6	6	6	6	10	10	10	10	16	16	16	16
Adjacent Parking?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Speed Limit or Prevailing Speed	45	35	35	35	45	35	35	35	45	35	35	35	45	35	35	35
ADT	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000
LTS Score	4	4	4	3	4	3	3	3	1	1	1	1	1	1	1	1

Average BLTS 3.6

3.3

1.0

1.0

Separated?
Speed/Lanes/Bike Lane Width
Mixed:
Speed/Lanes/Class/Volume

4
3
4
4

4
3
3
3

1
3
3
3

1
3
3
3

1
2
2
2

Exhibit 14-3 BLTS Criteria for Segment with Bike Lane and Adjacent Parking Lane

Prevailing or Posted Speed	1 Lane per direction			≥2 lanes per direction	
	≥ 15' bike lane + parking	14' – 14.5' bike lane + parking	≤ 13' bike lane + parking or Frequent blockage ¹	≥ 15' bike lane + parking	≤ 14.5' bike lane + parking or Frequent blockage ¹
≤25 mph	BLTS 1	BLTS 2	BLTS 3	BLTS 2	BLTS 3
30 mph	BLTS 1	BLTS 2	BLTS 3	BLTS 2	BLTS 3
35 mph	BLTS 2	BLTS 3	BLTS 3	BLTS 3	BLTS 3
≥40 mph	BLTS 2	BLTS 4	BLTS 4	BLTS 3	BLTS 4

¹Typically occurs in urban areas (i.e. delivery trucks, parking maneuvers, stopped buses).

Exhibit 14-5 Criteria for Urban/Suburban Mixed Traffic Segment – 30 mph or less

Number of Lanes	ADT (vph) ¹	Functional Class	Posted or Prevailing Speed (mph)		
			≤20	25	30
Unmarked Centerline	≤750	Local	BLTS 1	BLTS 1	BLTS 2
	750 - ≤1,500	Local /Collector	BLTS 1	BLTS 1	BLTS 2
	1,500 - ≤3,000	Collector	BLTS 2	BLTS 2	BLTS 2
	>3,000	Arterial	BLTS 2	BLTS 3	BLTS 3
1 through lane per direction	≤750	Local	BLTS 1	BLTS 1	BLTS 2
	750 - ≤1,500	Local /Collector	BLTS 2	BLTS 2	BLTS 2
	1,500 - ≤3,000	Collector	BLTS 2	BLTS 3	BLTS 3
	>3,000	Arterial	BLTS 3	BLTS 3	BLTS 3
2 through lanes per direction	≤8,000	Arterial	BLTS 3	BLTS 3	BLTS 3
	>8,000	Arterial	BLTS 3	BLTS 3	BLTS 4
3+ through lanes per direction	Any ADT	Arterial	BLTS 3	BLTS 3	BLTS 4

¹ADT is both directions for two-way streets. For one-way streets use 1.5*ADT.

Exhibit 14-4 BLTS Criteria for Segment with Bike Lane, no Adjacent Parking Lane

Prevailing or Posted Speed	1 Lane per direction				≥2 lanes per direction	
	≥ 7' (Buffered bike lane)	5.5' – 7' Bike lane	≤ 5.5' Bike lane	Frequent bike lane blockage ¹	≥ 7' (Buffered bike lane)	<7' bike lane or frequent blockage ¹
≤30 mph	BLTS 1	BLTS 1	BLTS 2	BLTS 3	BLTS 1	BLTS 3
35 mph	BLTS 2	BLTS 3	BLTS 3	BLTS 3	BLTS 2	BLTS 3
≥40 mph	BLTS 3	BLTS 4	BLTS 4	BLTS 4	BLTS 3	BLTS 4

¹Typically occurs in urban areas (i.e. delivery trucks, parking maneuvers, stopped buses).

PLTS Results		Existing				Minimal Impact				Hybrid Urban Boulevard				One-Way Couplet			
		Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way	Antelope Road to Elkhorn Boulevard	Elkhorn Boulevard to Van Owen Street	Van Owen Street to Don Julio Boulevard	Don Julio Boulevard to Peacekeeper Way
Length (ft)		5028	1380	2757	6600	5028	1380	2757	6600	5028	1380	2757	6600	5028	1380	2757	6600
Buffer Type		Bike Lane	None	None	Bike Lane	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped	Landscaped
Buffer Width		5	0	0	5	16	16	16	16	18	18	18	18	10	10	10	10
Street Width (Through Lanes per Direction)		2	3	2	3	2	3	2	3	3	3	3	3	3	3	3	3
Sidewalk Width		5	5	5	5	8	8	8	8	10	10	10	10	8	8	8	8
Sidewalk Condition		Fair/Poor	Fair	Good	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Speed Limit or Prevailing Speed		45	35	35	35	45	35	35	35	45	35	35	35	45	35	35	35
ADT		>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000	>8,000
PLTS Score		3	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2
Average PLTS		3.7				2.0				2.0				2.0			
Ex 14-21	Width/Condition	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
ex 14-22	Buffer Type/Speed	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2
ex 14-23	Total Travel Lanes/1	3	4	4	4	1	2	1	2	2	2	2	2	2	2	2	2

Exhibit 14-21 PLTS based on Sidewalk Conditions^{1,3}

Actual/Effective Sidewalk Width (ft) ²		Sidewalk Condition				
		Good	Fair	Poor	Very Poor	No Sidewalk
Actual	<4	PLTS 4	PLTS 4	PLTS 4	PLTS 4	PLTS 4
	≥4 to <5	PLTS 3	PLTS 3	PLTS 3	PLTS 4	PLTS 4
	≥5	PLTS 2	PLTS 2	PLTS 3	PLTS 4	PLTS 4
Effective	≥6 ⁴	PLTS 1	PLTS 1	PLTS 2	PLTS 3	PLTS 4

¹Can include other facilities such as walkways and shared-use paths

²Effective width is the available/useable area for the pedestrian clear of obstructions. Does not include areas occupied by store fronts or curb side features.

³Consider increasing the PLTS one level higher (Max PLTS 4) for segments that do not have illumination. Darkness requires more awareness especially if sidewalk is in fair or worse condition.

⁴Effective width should be proportional to volume as higher volume sidewalks should be wider than the base six feet. Use a minimum PLTS 2 for higher volume sidewalks that are not proportional (include documentation).

Exhibit 14-23 PLTS based on Total Buffering Width

Total Number of Travel Lanes (both directions)	Total Buffering Width (ft) ¹				
	<5	≥5 to <10	≥10 to <15	≥15 to <25	≥25
2	PLTS 2	PLTS 2	PLTS 1	PLTS 1	PLTS 1
3	PLTS 3	PLTS 2	PLTS 2	PLTS 1	PLTS 1
4 + 5	PLTS 4 ²	PLTS 3	PLTS 2	PLTS 1	PLTS 1
6	PLTS 4 ²	PLTS 4 ²	PLTS 3	PLTS 2	PLTS 2

¹Total Buffering Width is the summation of the width of buffer, width of parking, width of shoulder and width of the bike lane on the side same side of the roadway as the pedestrian facility being evaluated.

²Sections with a substantial physical barrier/tall railing between the travel lanes and the walkway (like might be found on a bridge) can be lowered to PLTS 3.

Exhibit 14-22 PLTS based on Physical Buffer Type

Physical Buffer Type				
Buffer Type ¹	Prevailing or Posted Speed			
	≤25 MPH	30 MPH	35 MPH	≥40 MPH
No Buffer (curb tight)	PLTS 2	PLTS 3	PLTS 3	PLTS 4
Solid surface	PLTS 2 ²	PLTS 2	PLTS 2	PLTS 2
Landscaped	PLTS 1	PLTS 2	PLTS 2	PLTS 2
Landscaped with trees	PLTS 1	PLTS 1	PLTS 1	PLTS 2
Vertical				

¹Combined buffers: If two or more of the buffer conditions apply, use the most appropriate, typically the lower stress level.

²If street furniture, street trees, lighting, planters, surface change, etc. are present then the PLTS can be lowered to PLTS 1.

Appendix L: Re-Imagine North Watt Corridor Plan Displacement & Loss of Use Analysis

DRAFT



MEMORANDUM

To: Cameron Shew, Sacramento County
CC: Josh Pilachowski and Sean Carney, DKS Associates
From: Robert Spencer, Urban Economics
Date: January 14, 2025
Subject: Re-Imagine North Watt Corridor Plan Displacement & Loss of Use Analysis

EXECUTIVE SUMMARY

The purpose of this technical memorandum is to quantify the potential for (1) displacement from acquisition of an entire parcel, or (2) loss of use from partial acquisition associated with right-of-way acquisition for the Re-Imagine North Watt Corridor Plan. The memorandum recommends policies and mitigation measures to minimize associated negative economic impacts.

The Plan includes two alternatives, the Minimum Impact Alternative and the Hybrid Urban Alternative. Economic impacts are particular concern for the Plan because the study area includes disadvantaged communities. For example, the southern part of the corridor ranks in the 83rd percentile of census tracts in the state based on a composite measure of pollution burden and household income (CalEnviroScreen 4.0).

The study area includes 185 parcels with frontage on Watt Avenue. Under the Hybrid Urban Alternative, displacement would occur from the acquisition of four single family parcels. Federal law requires compensation based on fair market value plus reimbursement for moving and related expenses and any price differential associated with the replacement property. There would be no full parcel acquisitions under the Minimum Impact Alternative.

The Minimum Impact and Hybrid Urban alternatives would also result in the partial acquisition of 13 and 52 parcels, respectively, resulting in some loss of use for the associated businesses. In addition to compensation for the fair market value of the partial loss of property, the County should have a policy of compensating businesses for one-time costs associated with property improvements to mitigate impacts on business operations. If the associated mitigation measures are insufficient, the County should compensate for documented loss of business income.

The Minimum Impact and Hybrid Urban alternatives would also require the partial acquisition on 84 and 81 additional parcels, respectively, with no loss of use. In these cases, the County would only compensate for the fair market value of the partial loss of property.

INTRODUCTION

The purpose of this technical memorandum is to quantify the potential for displacement and loss of use from right-of-way acquisition associated with Re-Imagine North Watt Corridor

Plan. The memorandum recommends policies and mitigation measures to minimize associated negative economic impacts. The Plan includes two alternatives, the Minimum Impact Alternative and the Hybrid Urban Alternative.

The study of displacement caused by public transportation projects has been receiving more attention in the past decade in California.¹ Displacement is typically defined in the literature as a resident being forced to move because of conditions which affect the building they live in or their immediate surroundings, and which are beyond the resident's reasonable ability to control or prevent.²

This analysis for the Re-Imagine North Watt Corridor Plan examines direct displacement caused by acquisition of an entire parcel for right-of-way improvements. This analysis also considers the potential for negative economic impacts on non-residential property and business tenants from the loss of existing uses on a property from acquisition of a portion of a parcel, and not the entire parcel, that is directly adjacent to the right-of-way ("loss of use"). Loss of parking is the most common impact from partial property acquisitions.

The effect of longer-term forces that may generate displacement, such as gentrification caused by public investment and private property redevelopment in the corridor, are the subject of a separate study for the County and are not addressed in this analysis.

EXISTING CONDITIONS

Displacement is a particular concern for disadvantaged and low-income communities because these communities have fewer resources to adapt to a forced move. This section presents the results of a geographical information systems (GIS) analysis of disadvantaged and low-income communities in the Re-Imagine North Watt Corridor Plan study area.

CalEnviroScreen 4.0

CalEnviroScreen 4.0 is an environmental health screening tool released by the California Office of Environmental Health Hazard Assessment in October 2021.³ CalEnviroScreen is a screening methodology to help identify California communities that are disproportionately burdened by multiple sources of pollution. CalEnviroScreen scores are based on 21 factors, including 13 factors related to pollution burden and eight related to population characteristics (e.g. lower income communities are more vulnerable to a given level of pollution than higher income communities). Results are reported by census tract based on the tract's percentile ranking compared to results for all other (approximately 8,000) census tracts in the state, with a higher percentile indicated a higher level of pollution burden.

CalEnviroScreen 4.0 results for the study area are shown below in **Figure 1**. The southern part of the study area is particularly burdened by pollution with a score of 83, meaning the

¹ Miriam Zuk, et al., "Gentrification, Displacement, and the Role of Public Investment", *Journal of Planning Literature*, 2018, Vol. 33(1), 31-44. See also the work of the Urban Displacement Project, a joint research project of the University of California and the University of Toronto (Chapple, K., & Thomas, T., and Zuk, M. (2021). Urban Displacement Project website. Berkeley, CA: Urban Displacement Project).

² Ibid., p. 34.

³ See <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

census tract is in the 83rd percentile of all census tracts in the state. Scores decline to 56 at the northern end of the study area.

California Climate Investments Priority Populations

CalEnviroScreen was developed to target spending through the California Climate Investments (CCI) program from revenue generated by the State's Cap-and-Trade program for reducing greenhouse gas emissions. Eligible investments under the CCI program include grants administered by the California Department of Transportation (Caltrans) for active transportation improvements such as the transit, bicycle, and pedestrian improvements included in the Re-Imagine North Watt Corridor Plan proposed alternatives.

CCI investments are aimed at improving public health, quality of life, and economic opportunity in California's most burdened communities, and at the same time, reducing pollution that causes climate change. State law requires that 35 percent of investments benefit "priority populations" defined as disadvantaged communities (scoring 75 or higher by CalEnviroScreen, described above) plus low-income communities defined as 80 percent or below statewide median income.⁴

Figure 2 shows that the entire study area would qualify as priority populations for purposes of the CCI program. The southern part of the study area qualifies as disadvantaged based on the CalEnviroScreen score and the northern area qualifies because of its low-income status.

DISPLACEMENT FROM GENTRIFICATION

Most research on displacement caused by public transportation improvements has focused on residential displacement as an outcome of neighborhood revitalization, upgrading, and/or gentrification associated with fixed rail transit projects. Both the methods and definitions of gentrification and displacement in these studies range widely and the findings are mixed due in part to methodological shortcomings.⁵

One recent study looked specifically at neighborhoods that received active transportation (bicycle and pedestrian) improvements.⁶ The study examined large active transportation projects in Fresno, Los Angeles, Sacramento, and the San Francisco Bay Area. The study matched neighborhoods where projects were located with a control neighborhoods based on similar characteristics and location. The study focused on differences in migration rates by income level, comparing the neighborhoods that received the improvements and the control neighborhoods.

⁴ See <https://www.caclimateinvestments.ca.gov>; key legislation includes Senate Bill 535, *California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund*, 2011-2012 legislative session; Assembly Bill 1550, *Greenhouse gases: investment plan: disadvantaged communities*, 2015-2016 legislative session.

⁵ Miriam Zuk, et al., "Gentrification, Displacement, and the Role of Public Investment", *Journal of Planning Literature*, 2018, Vol. 33(1), 31-44, p. 40.

⁶ Karen Chapple, et al., "Examining the Unintended Effects of Climate Change Mitigation A New Tool to Predict Investment-Related Displacement", Institute of Governmental Studies, University of California, Berkeley (research brief).

Figure 1: CalEnviroScreen 4.0

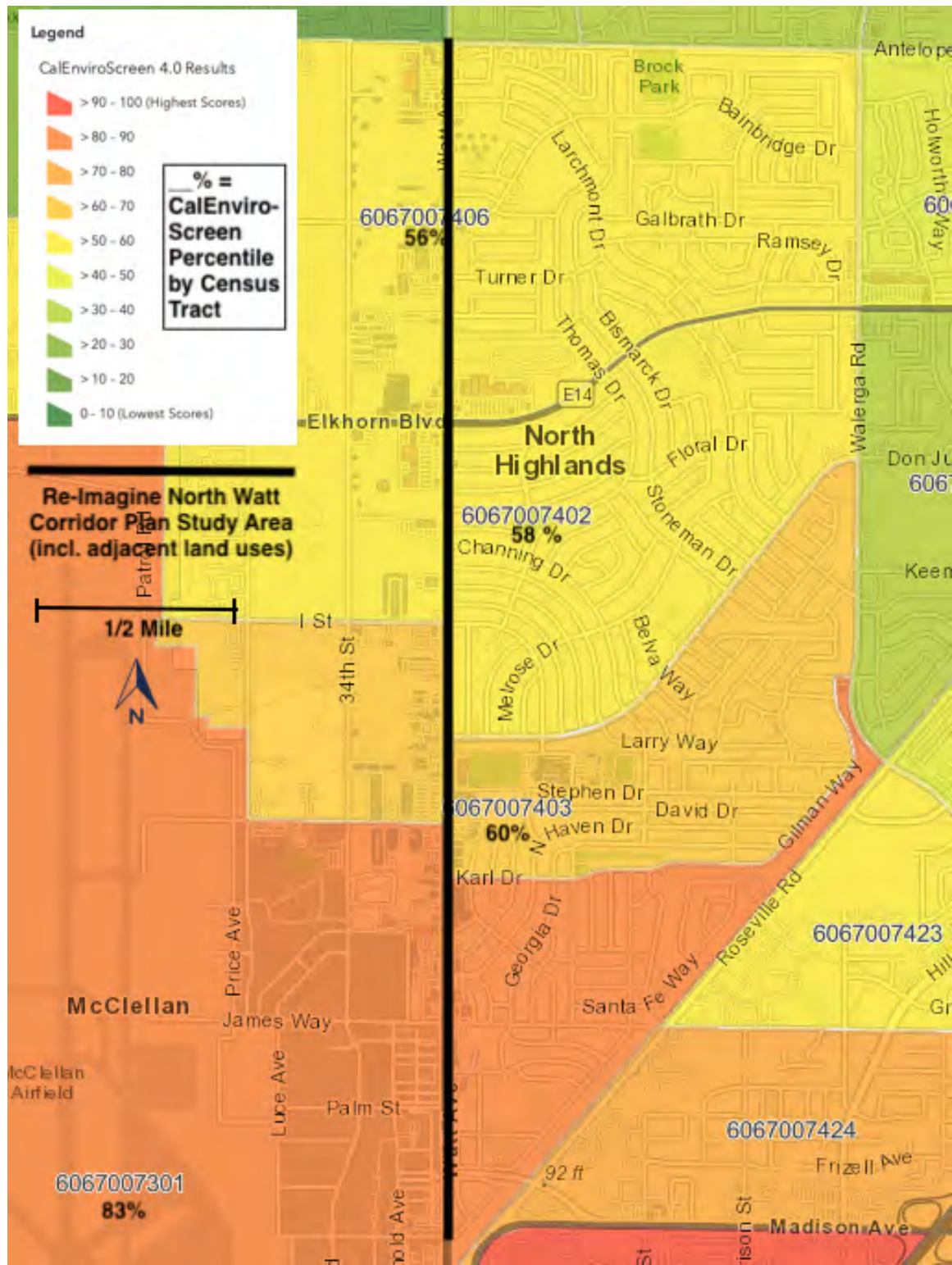
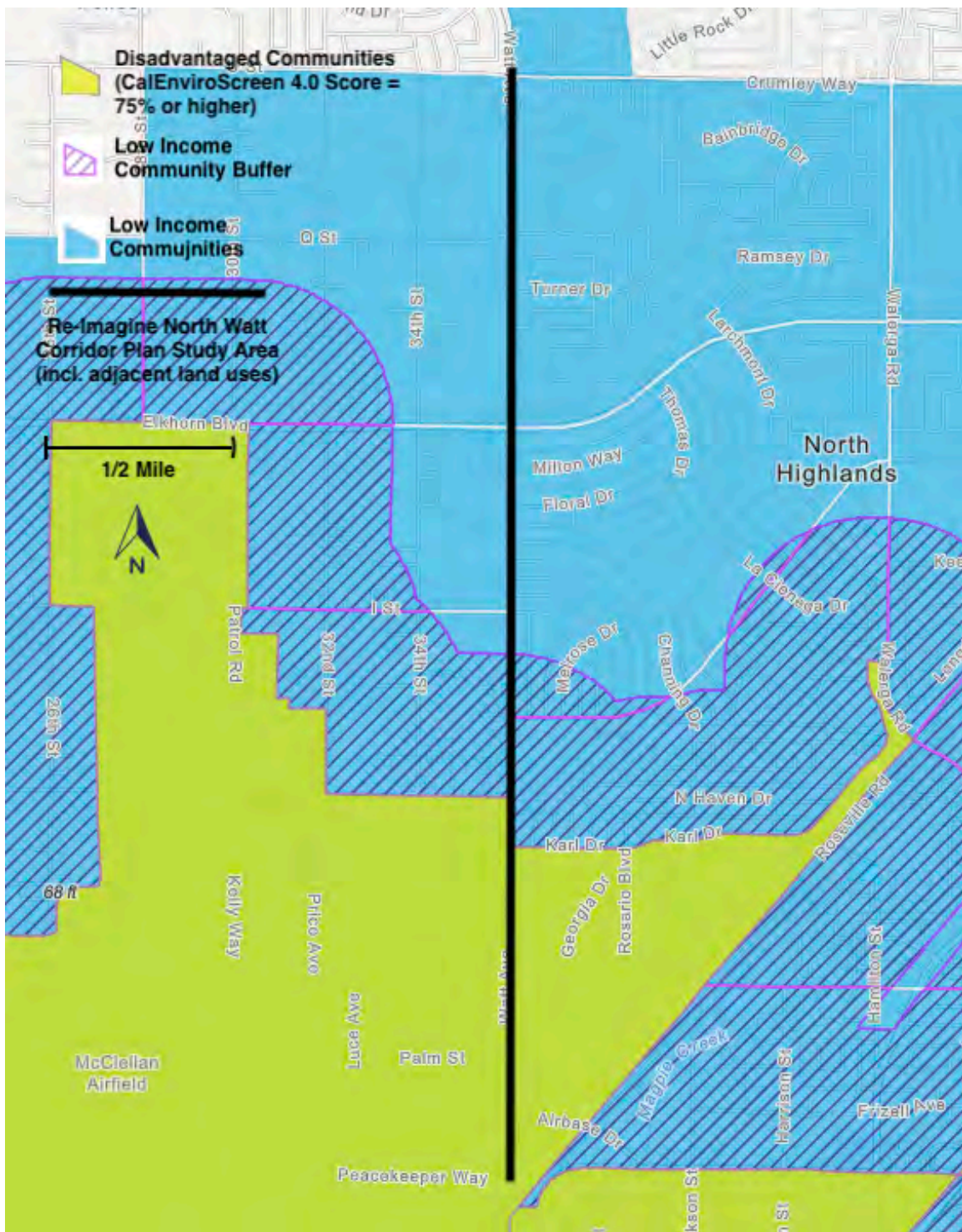


Figure 2: California Climate Investments Priority Populations 2024



The broad conclusion from the quantitative analysis is that the out-migration effects associated with active transportation projects are small and depend on local conditions. While higher out-migration rates are observed among certain income groups and at certain points in time, there is no consistent relationship detected between active transportation projects and migration rates.

Specific results from the study for active transportation projects in the Sacramento area are shown below in **Table 1**. As shown in the table, out-migration rates tend to be lower in the neighborhoods with active transportation projects, and in-migration rates tend to be higher, though results vary by income level.

Table 1: Impact of Sacramento Active Transportation Projects on Neighborhood Migration

Income Level	Active Transportation Project Neighborhoods	Control Neighborhoods	Difference
Out-Migration Rates			
Extremely Low Income	5.9%	7.2%	(1.3%)
Very Low Income	7.8%	8.6%	(0.8%)
Low Income	12.0%	10.0%	2.0%
In-Migration Rates			
Extremely Low Income	7.6%	8.6%	(1.0%)
Very Low Income	10.2%	9.6%	0.6%
Low Income	11.9%	10.7%	1.2%

Source: Karen Chapple, et al., "Examining the Unintended Effects of Climate Change Mitigation A New Tool to Predict Investment-Related Displacement", Institute of Governmental Studies, University of California, Berkeley (research brief).

The County is conducting a separate study regarding the potential displacement impacts of public investments and the redevelopment of private properties along the North Watt Avenue corridor. Consequently, this technical memorandum focuses on the direct impacts of right-of-way acquisition, discussed in the following sections.

DISPLACEMENT & LOSS OF USE FROM RIGHT-OF-WAY ACQUISITION

The direct displacement and loss of use from the Plan would be related to the acquisition of property for right-of-way. There are 185 parcels that front onto Watt Avenue within the three-mile corridor. The Hybrid Urban Alternative would require full acquisition of four parcels, all single-family homes. In addition, loss of use would occur on 52 non-residential properties from partial acquisition of a portion of the property that is directly adjacent and parallel to the existing right-of-way. The Minimum Impact Alternative would not require full acquisition of any parcels, and loss of use would occur on 13 parcels.

The impacts from the two alternatives are summarized below in **Table 2**. The data in Table 2 is based on parcels and there may be multiple businesses on one parcel.

Table 2: Impacts from Loss of Use and Displacement

	Minimum Alternative		Hybrid Urban Alternative		Difference
Type of Impact	No. of Parcels	Share	No. of Parcels	Share	No. of Parcels
Loss of Use from Partial Acquisition of Non-Residential Parcels					
Parking, 10 or More Spots	1	1%	10	5%	5
Parking, 5 to 9 Spots	3	1%	15	8%	12
Parking, Less Than 5 Spots	4	2%	6	3%	2
Subtotal – Parking	8	4%	31	17%	23
Circulation & Operations	5	3%	21	11%	16
Subtotal – Loss of Use	13	7%	52	28%	39
Displacement From Full Acquisition of Residential Parcels					
Single-family Dwelling	0	0%	4	2%	4
No Economic Impact from Loss of Use or Displacement					
Partial Acquisition of Non-Residential Parcel with No Loss of Use ^a	84	45%	81	44%	(3)
No Property Acquisition	88	48%	48	26%	(40)
Total	185	100%	185	100%	0

^a Partial acquisition with no loss of use includes, for example, vacant properties, acquisition of sidewalks and landscaping that will be replaced under the Plan Alternative, and acquisition of driveways without impending access to the property.

Source: DKS Associates.

POLICY RECOMMENDATIONS

The Re-Imagine North Watt Corridor Plan has already implemented some of the most important policy recommendations cited in literature to reduce the potential for displacement. These policies include engaging community stakeholders early in the process and designing project alternatives to minimize displacement. As the design phase of the project proceeds, the County should continue to incorporate solutions to reduce potential impacts as much as feasible while still achieving the Plan's objectives.

Additional policy recommendations discussed below focus on the impacts summarized in Table 2, above:

- ♦ Compensation to property owners (and tenants, if applicable) for full parcel acquisition of the four single family dwellings
- ♦ Compensation to non-residential property owners for partial acquisition of properties

- ◆ Potential additional compensation and other mitigation measures for business owners that would experience loss of use from partial acquisition of non-residential properties.

Property Acquisition for Right-of-Way

Federal and state statutes and regulations regarding property acquisition for transportation projects are designed to conform to the requirement of the Fifth Amendment to the U.S. Constitution that private property shall not be taken for public use without just compensation.

If the County uses federal funds for North Watt Corridor improvements, then the County would be subject to the federal Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (URA or Uniform Act). A summary of Caltrans requirements for right-of-way acquisition of private property as summarized below.⁷ Caltrans offers relocation advisory assistance to all displaced residents and business owners through an individually assigned Relocation Agent.

Financial compensation for owners of owner-occupied residential housing includes:

- ◆ Fair market value for the acquired property (“displaced dwelling”)
- ◆ Reimbursement for moving expenses to a new dwelling (“replacement dwelling”)
- ◆ Price differential payment for the difference in cost between the replacement dwelling and the displaced dwelling.
- ◆ Mortgage differential payment for any increase in mortgage interest cost between the replacement dwelling and the displaced dwelling.
- ◆ Incidental expenses in relation to the purchase of the replacement dwelling such as title search, recording fees, credit report, appraisal report, and certain other closing costs.

Financial compensation for tenants of residential housing includes:

- ◆ Reimbursement for moving expenses to a new dwelling (“replacement dwelling”)
- ◆ Rent differential payment for a total of 42 months (3.5 years) based on the difference between the base monthly rent for the displaced dwelling including average monthly cost for utilities and the lesser of:
 - The monthly rent and estimated average monthly cost of utilities for a comparable replacement dwelling as determined by Caltrans, or
 - The monthly rent and estimated average monthly cost of utilities for the dwelling rented as a replacement dwelling.
- ◆ The rent differential payment may be converted to a down payment to assist in the acquisition of a replacement dwelling.

Financial compensation for non-residential property owners and tenants includes:

- ◆ Fair market value for the acquired property (property owners only)

⁷ For more details, see <https://dot.ca.gov/programs/right-of-way/relocation-assistance-program>

The Uniform Act also requires reimbursement of business owners for moving and related expenses, plus reestablishment expenses related to the new business location. The Hybrid Urban Alternative is unlikely to generate these impacts because loss of use from anticipated partial acquisition of non-residential properties would not be significant enough to force relocation of affected businesses.

Potential Negative Economic Impacts on Businesses from Loss of Use

In addition to compensation for the taking of property, the County should consider the following policies and associated mitigation measures to minimize negative impacts on business operations from loss of use associated with partial acquisitions of a parcel.

Construction Impacts

For the construction phase of planned improvements, the County should have a policy of minimizing temporary negative economic impacts on businesses. Temporary mitigation measures may include, for example:

- ◆ Design and implement temporary access, parking, and circulation improvements
- ◆ Phase construction to minimize business disruption
- ◆ Maintain clear business signage and wayfinding
- ◆ Provide regular construction updates
- ◆ Implement "open for business" marketing campaigns.

Parking, Circulation, and other Operational Impacts

Most of the potential economic impacts from loss of use of a part of a non-residential parcel associated with right-of-way acquisition are associated with the loss of parking (see Table 2). Other impacts could occur from the loss of vehicle circulation or other operational impacts affecting customers or suppliers. The County should have a policy of compensating businesses for one-time costs associated with property improvements to mitigate impacts on business operations, and, if insufficient, compensation for documented loss of business income.

Much of the non-residential development along North Watt Avenue within the corridor is low density with large parking areas surrounding buildings. If a small share of parking is lost relative to the overall supply for a business, then the economic impact may be negligible.

If the business would lose a large share of its parking supply or have impacts on circulation or other operations significant enough to impact business income, then the County should consider the following mitigations:

- ◆ Provide technical assistance and funding for the design and construction of property improvements that could include, for example, reconstruction of access points (driveways), restriping of parking and circulation areas, reconfiguration of truck loading zones, replacement of outdoor dining areas, and any other improvements necessary to minimize negative impacts on business operations
- ◆ Provide additional or shared parking on adjacent sites

- ♦ If other measures are insufficient, provide economic compensation based on documented loss of business income above a minimum threshold.

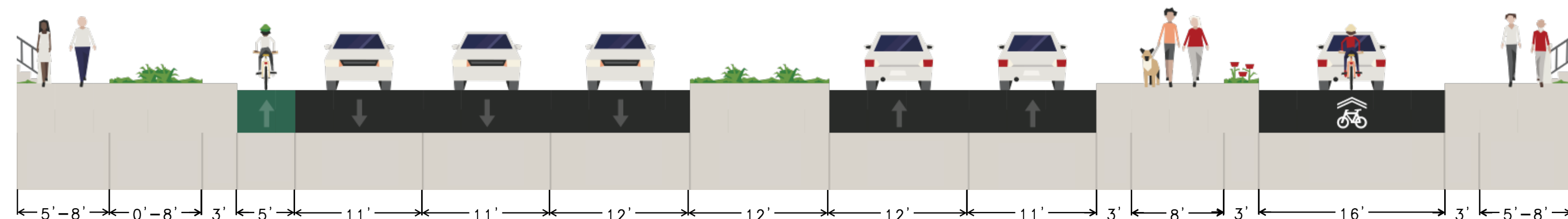
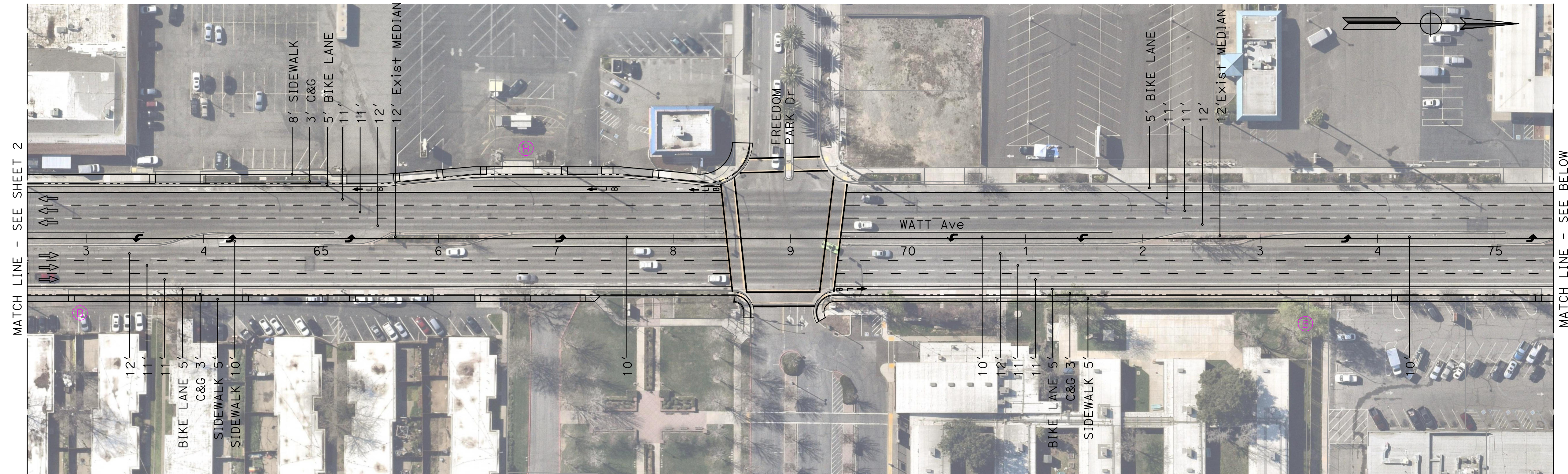
Documentation and Monitoring

The County should also consider documenting and monitoring mitigation measures, including:

- ♦ Track business impacts before and after implementation
- ♦ Monitor customer patterns and revenue changes
- ♦ Document parking utilization
- ♦ Evaluate effectiveness of mitigation measures.

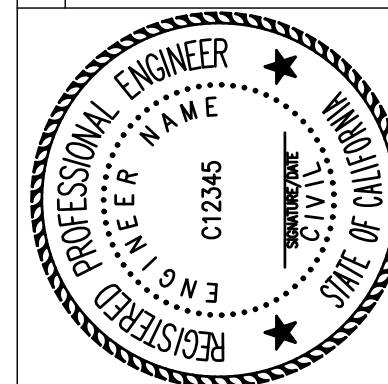
Appendix M: Minimal Impact Alternative Draft Plan Layout

DRAFT



MATCH LINE - SEE SHEET 2

MATCH LINE - SEE BELOW



SHEET

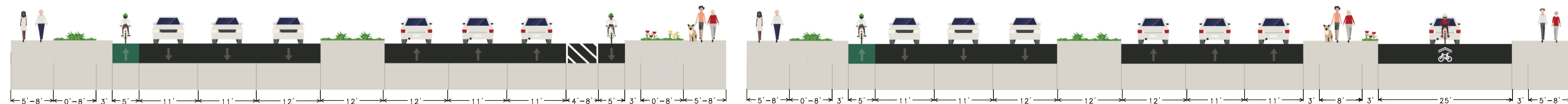
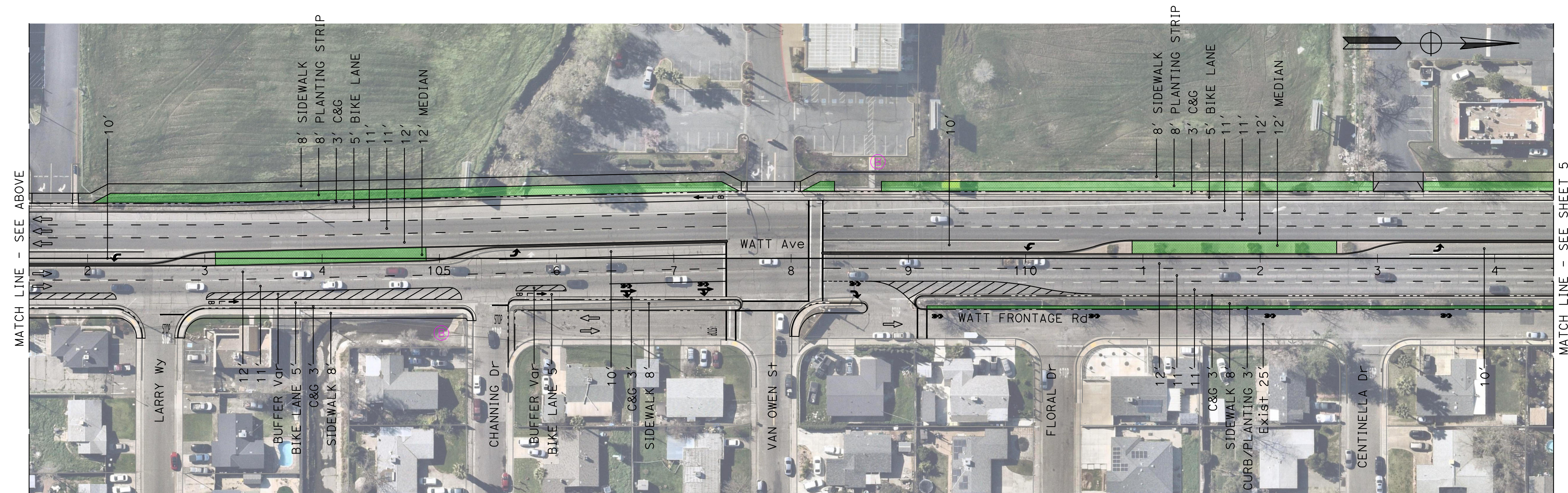
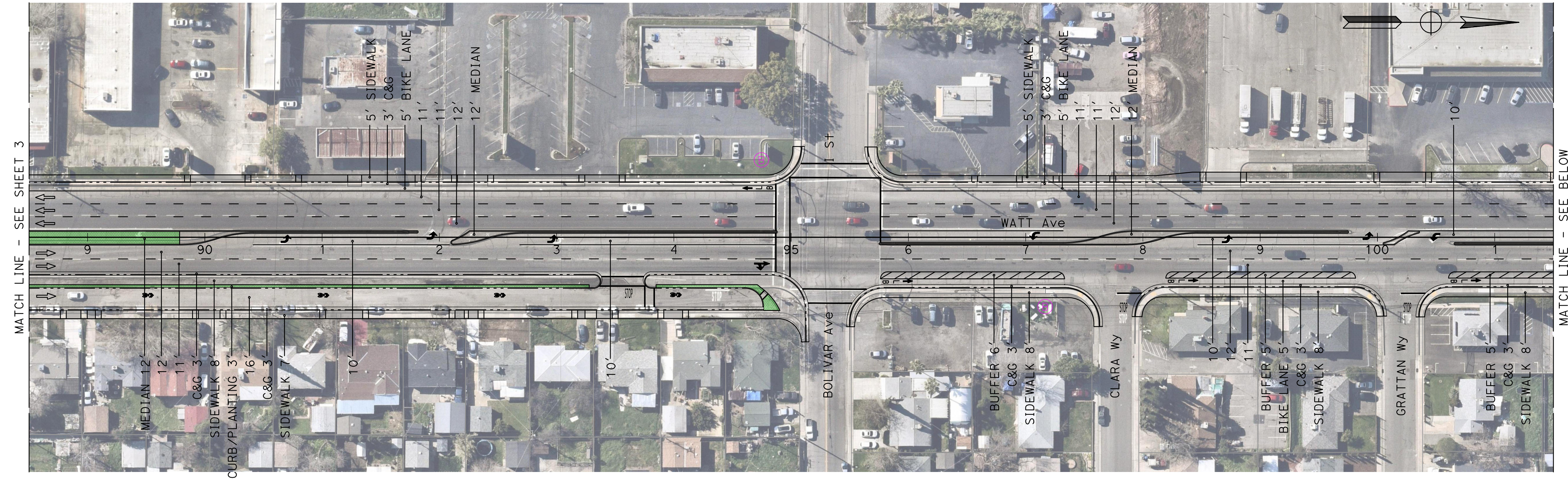
HORIZONTAL: $1"=40'$
 VERTICAL: $1"=40'$

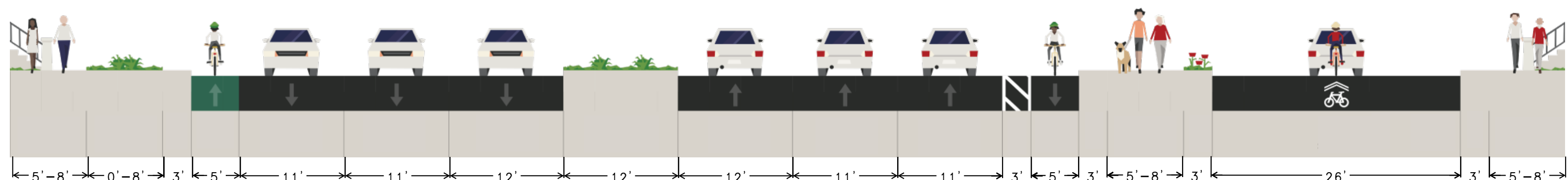
INCHES

A graphic scale bar is shown below the text. It consists of two horizontal bars. The top bar is labeled 'INCHES' and has markings at 0 and 1. The bottom bar has markings at 0 and 40. The bars are divided into alternating black and white segments, representing a checkerboard pattern.

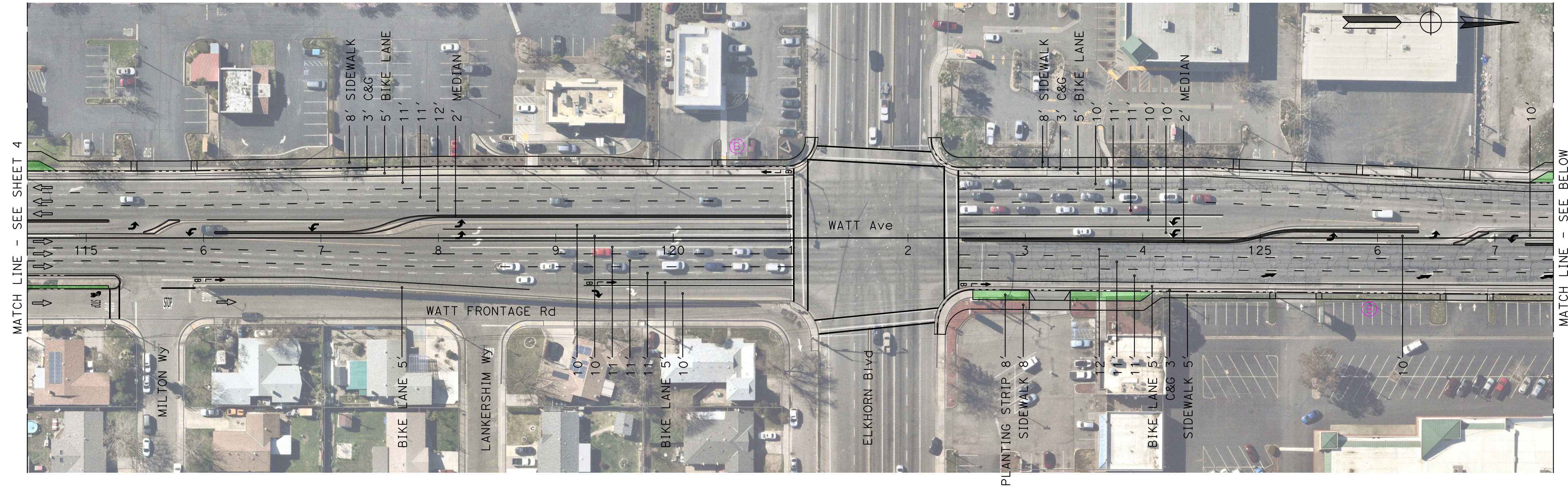
DATE

RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD





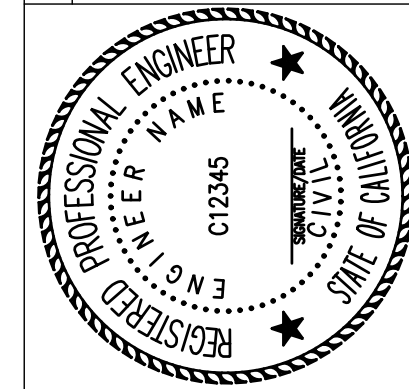
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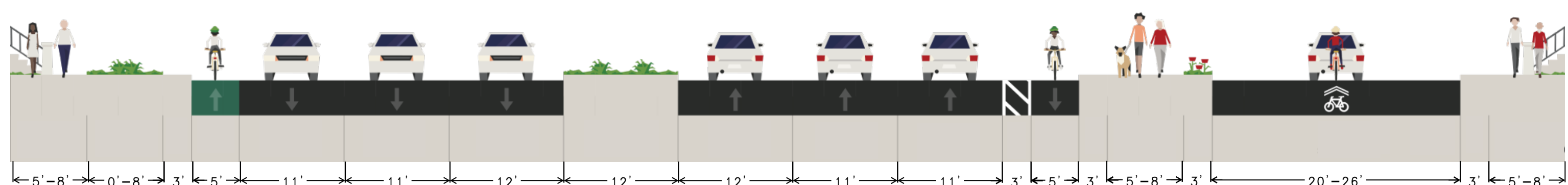
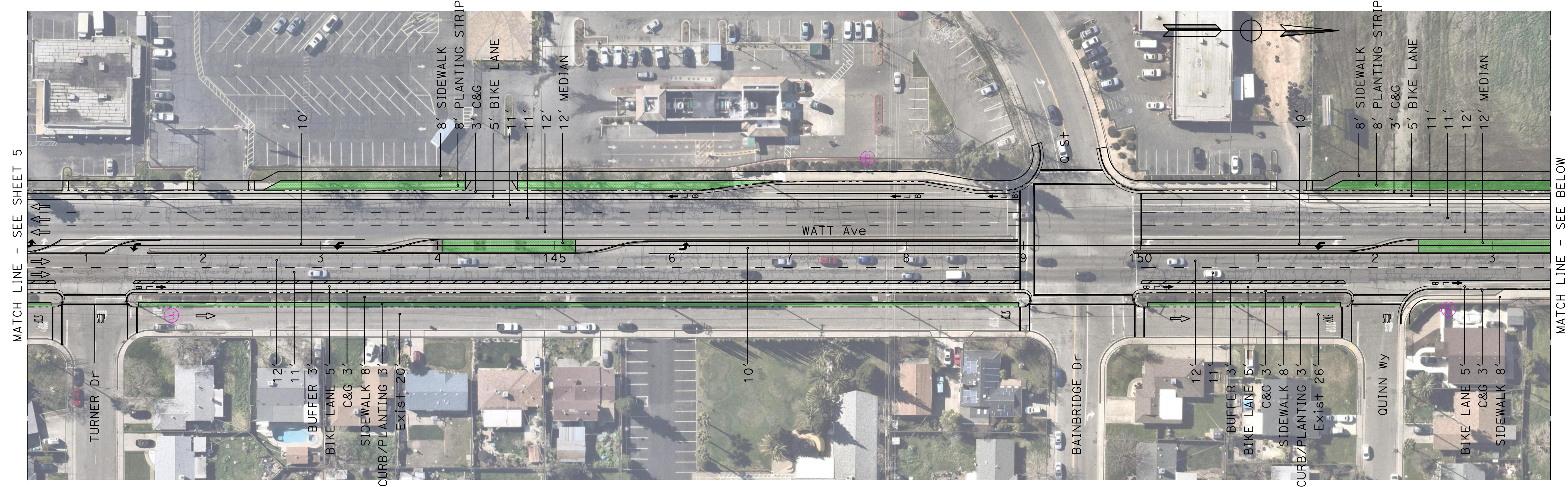


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<p align="center">DRAWING</p> <p align="center">OF</p>	
<p align="center">SHEET</p> <p align="center">5 OF 7</p>	

COUNTY OF SACRAMENTO COMMUNITY SERVICES AGENCY
DEPARTMENT OF TRANSPORTATION

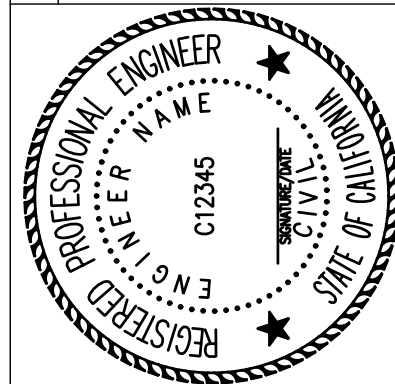
RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD

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MATCH LINE - SEE SHEET 5

MATCH LINE - SEE BELOW



REVISIONS

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RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD

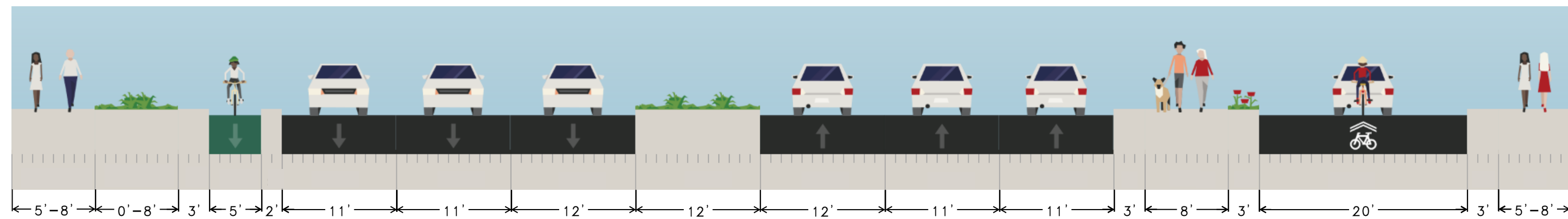
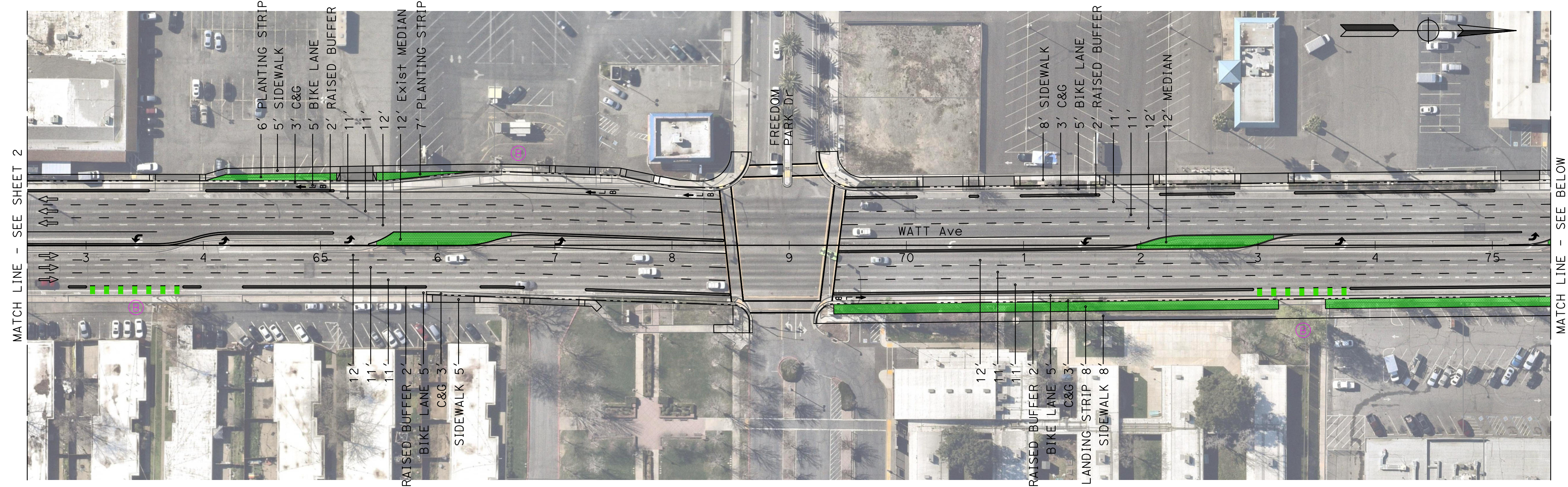
SHEET

6 OF 7

6 OF 7

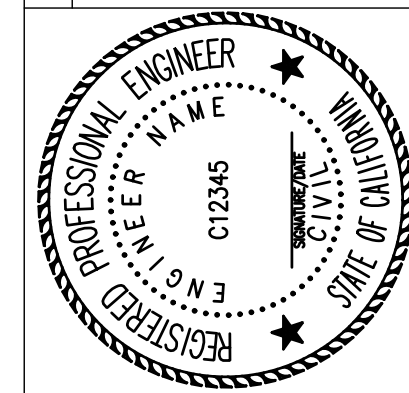
Appendix N: Hybrid Urban Boulevard Alternative Draft Plan Layout

DRAFT

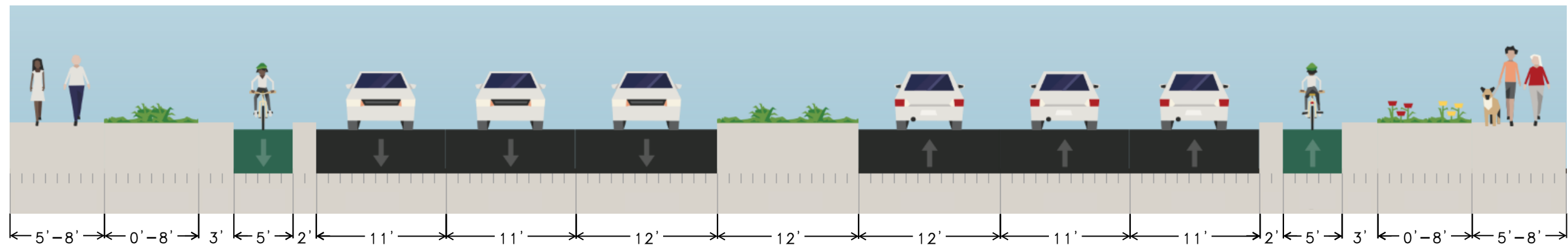
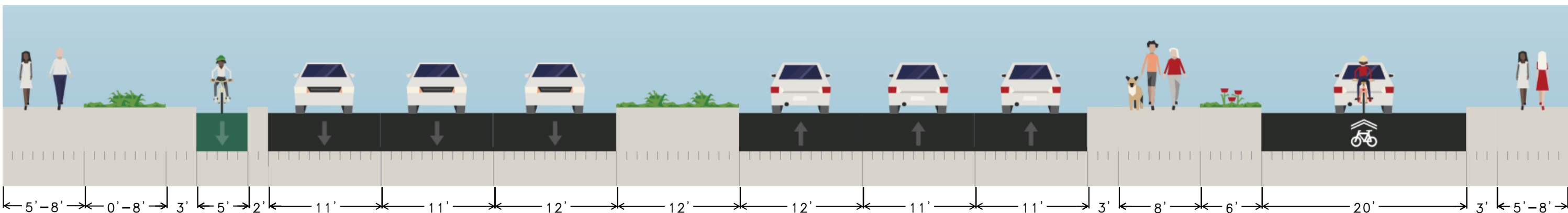
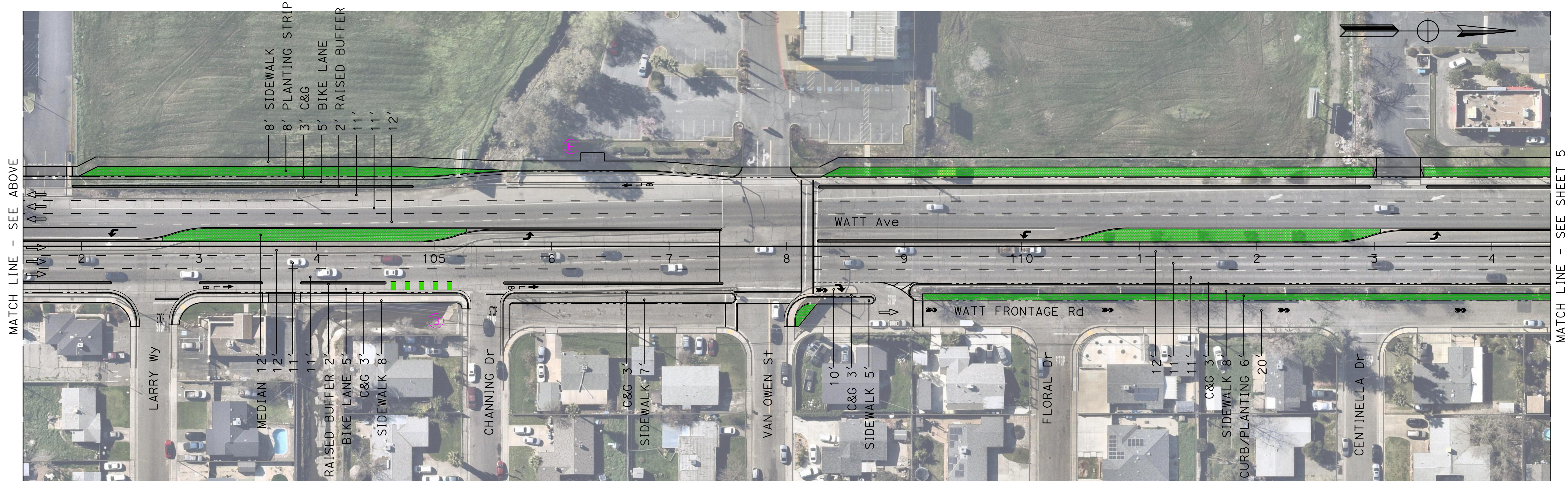
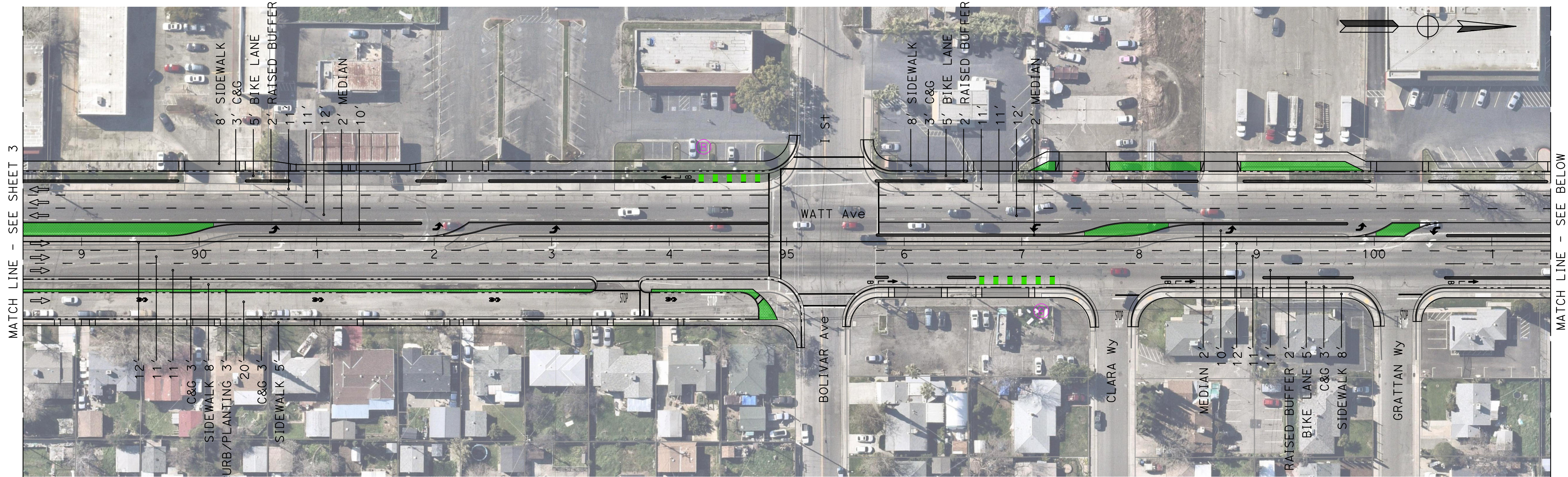
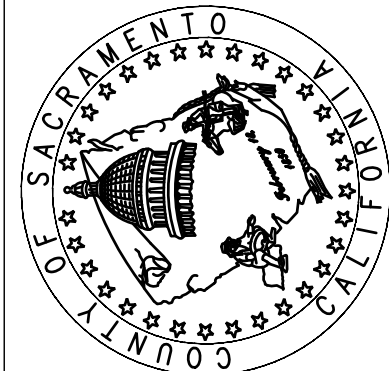


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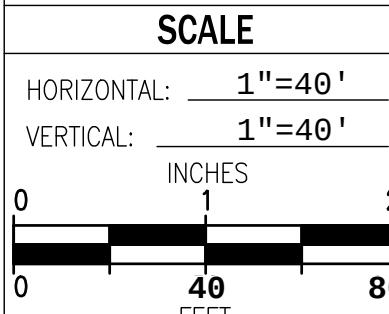
**RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD**



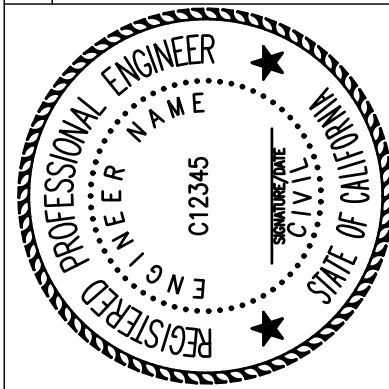
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PREPARED BY: _____ DATE: _____
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DESIGN: _____
CHECK: _____

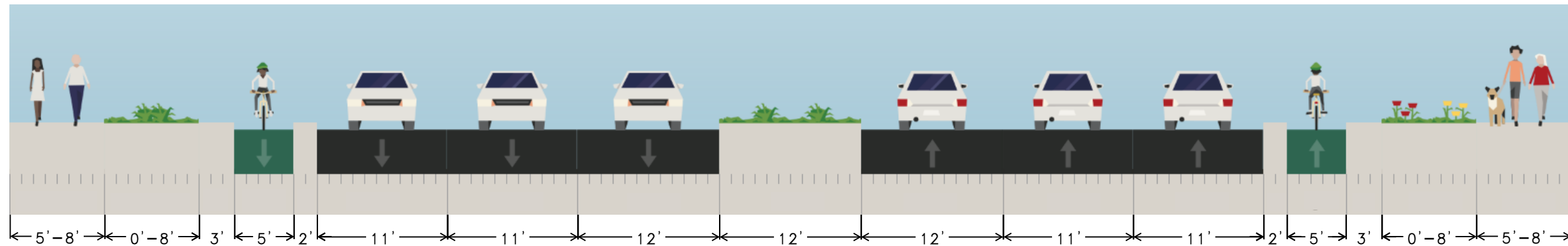
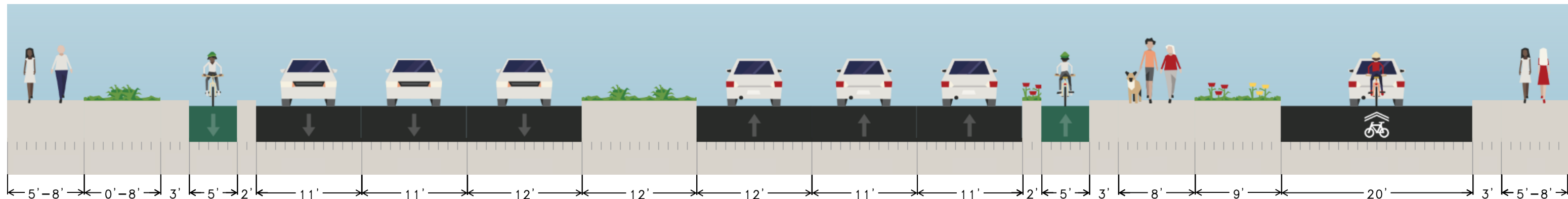
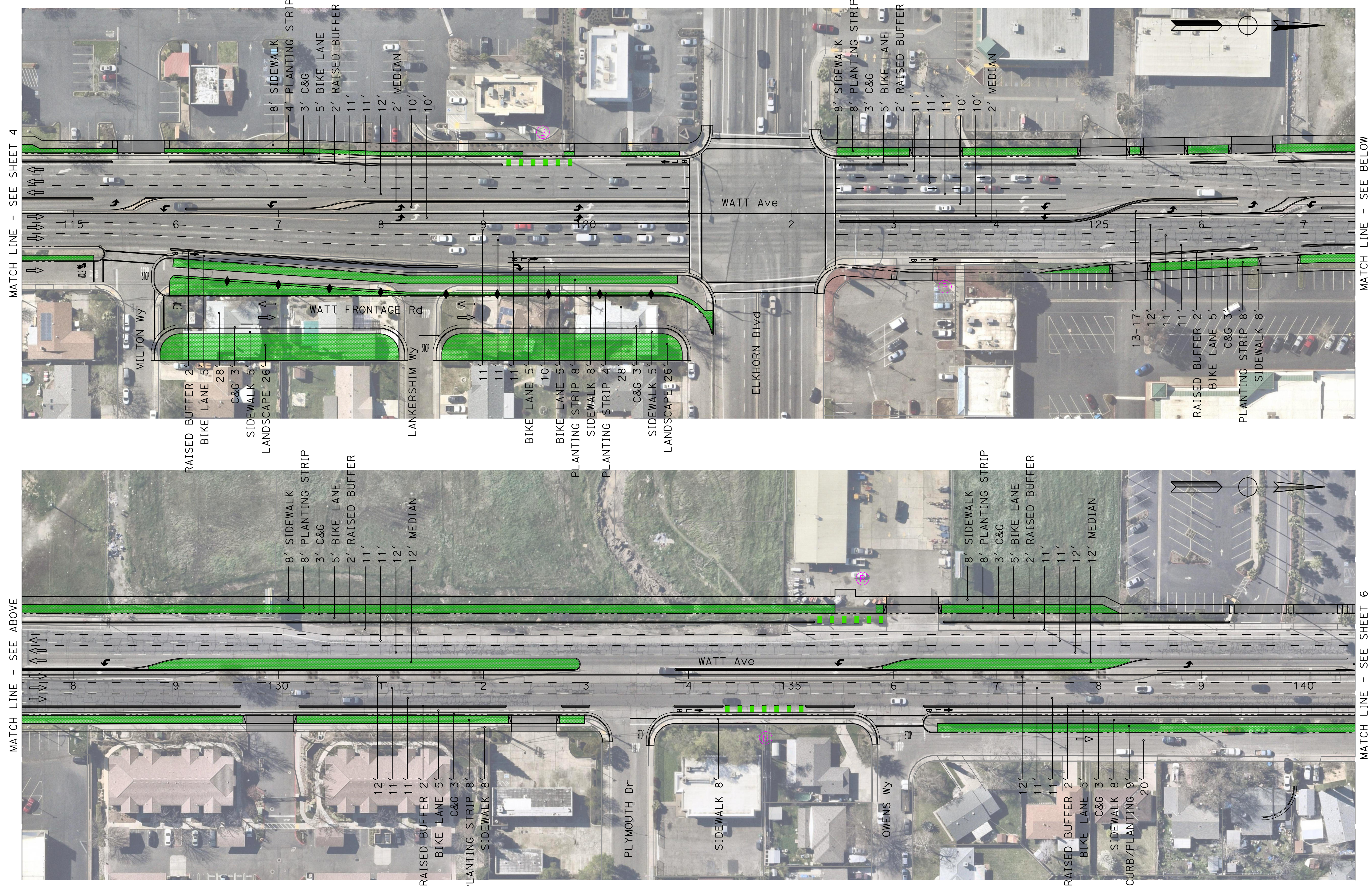


DRAWING OF SHEET 4 OF 7

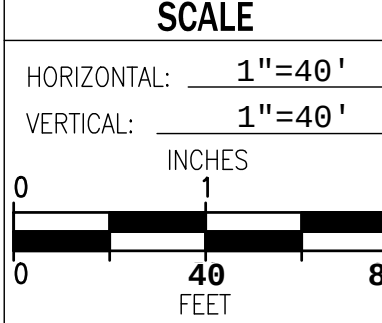


COUNTY OF SACRAMENTO COMMUNITY SERVICES AGENCY
DEPARTMENT OF TRANSPORTATION
RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD

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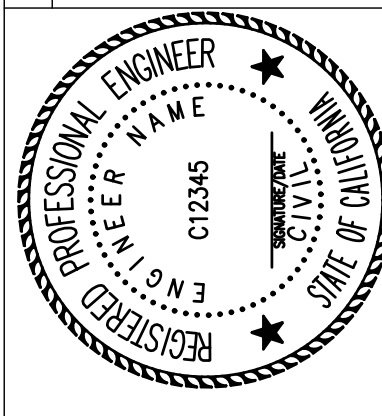


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OF _____
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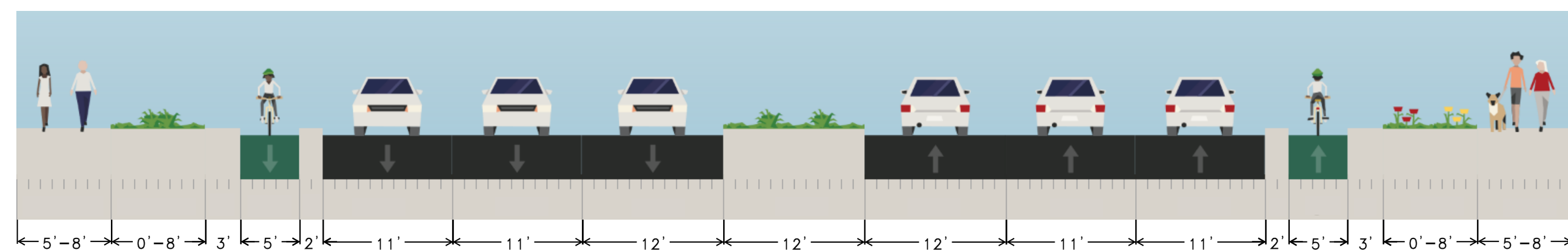
5 OF 7

COUNTY OF SACRAMENTO COMMUNITY SERVICES AGENCY
DEPARTMENT OF TRANSPORTATION

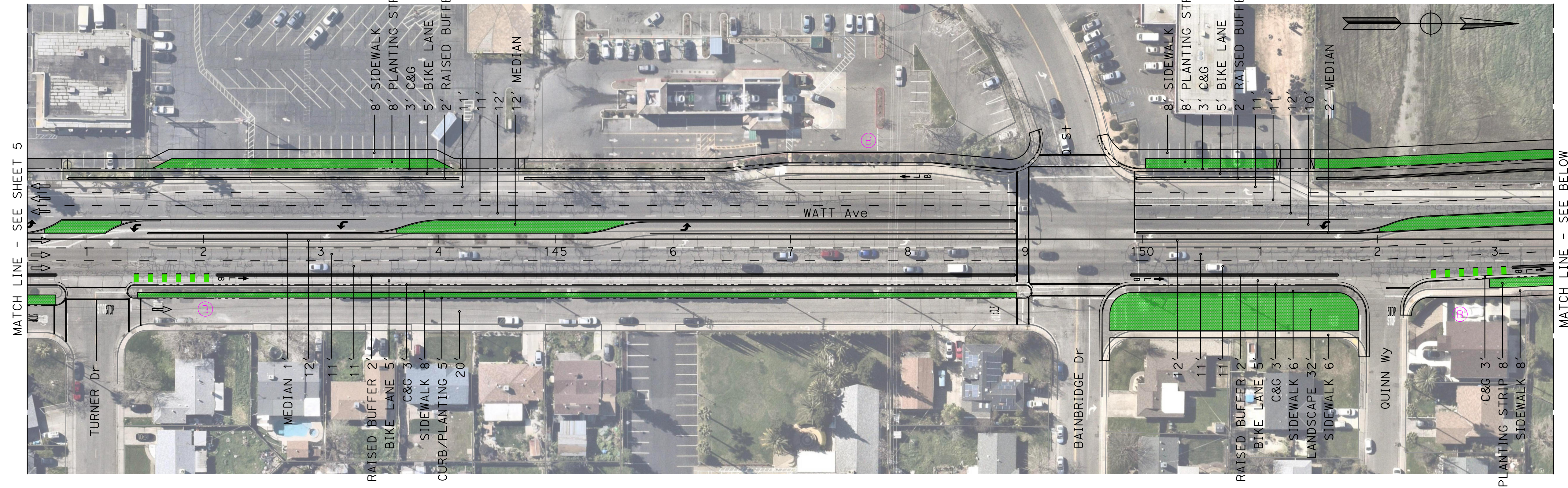
RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD



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PLANFILE NO.



SCALE

HORIZONTAL: 1"=40'

VERTICAL: 1"=40'



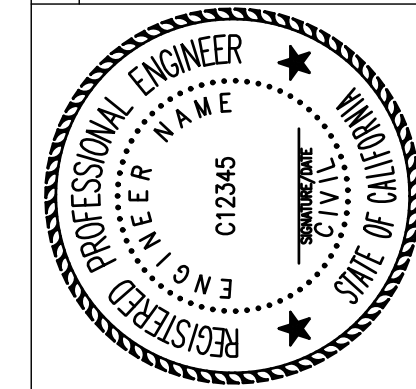
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OF

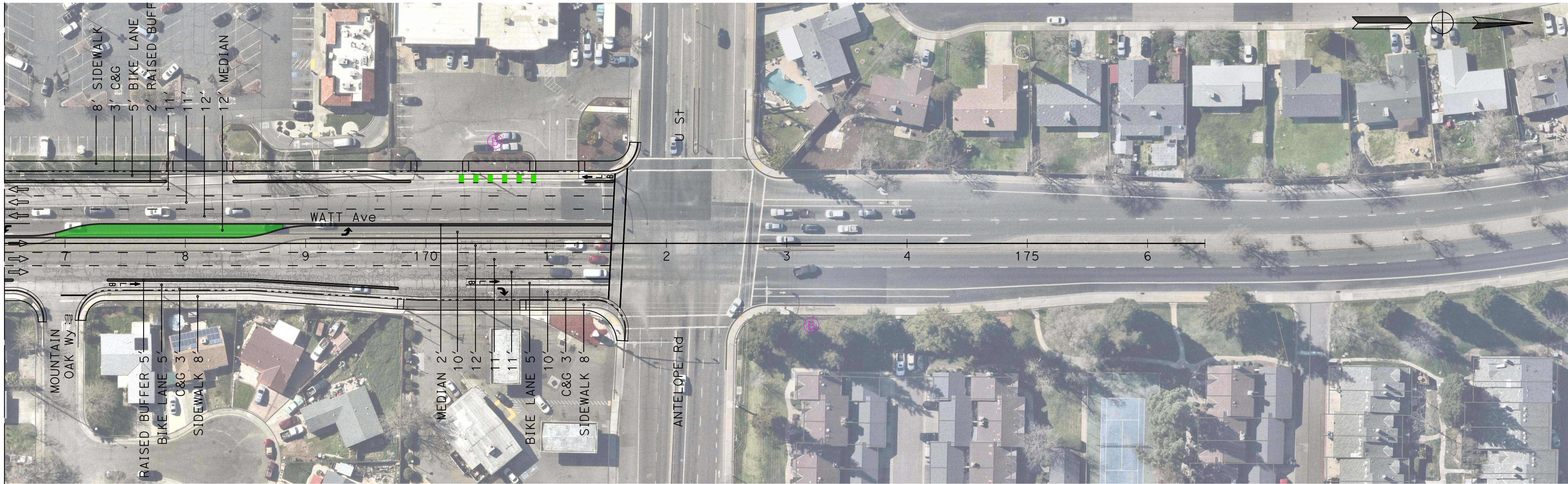
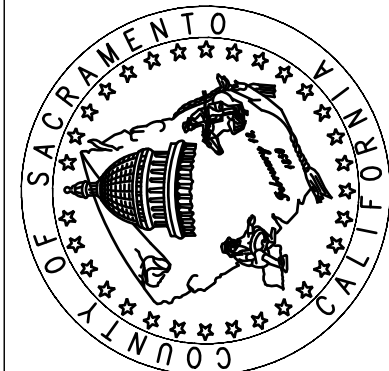
SHEET

6 OF **7**

**RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD**

[illegible]

MATCH LINE - SEE SHEET 6



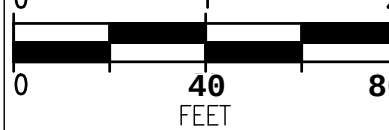
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SCALE

HORIZONTAL: 1"=40'

VERTICAL: 1"=40'



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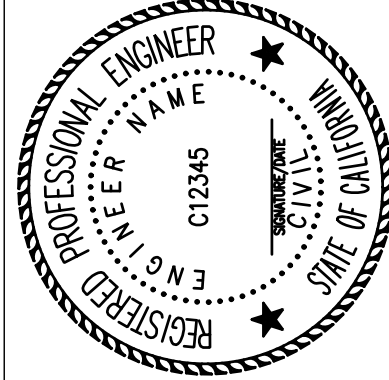
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7 OF 7

COUNTY OF SACRAMENTO COMMUNITY SERVICES AGENCY
DEPARTMENT OF TRANSPORTATION

RE-IMAGINE NORTH WATT CORRIDOR CONCEPT PLAN
PEACEKEEPER WAY TO ANTELOPE ROAD



APPR. _____

REVISIONS

DATE

POCKET NO.

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PLANFILE NO.

Appendix O: Planning Level Cost Estimates

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Re-Imagine North Watt Corridor

Minimum Impact Alternative (Feasibility Opinion of Probable Cost)



SUMMARY OF PROJECT COST ESTIMATE

		Current Year Cost	Escalated Cost (2028)*
TOTAL CONSTRUCTION COST		\$ 51,369,000	\$ 64,191,000
TOTAL RIGHT OF WAY COST		\$ 1,392,000	\$ 1,693,000
TOTAL CAPITAL OUTLAY COSTS		\$ 52,761,000	\$ 65,884,000
DESIGN	PA/ED (10%)	\$ 5,280,000	\$ 6,430,000
	PS&E (15%)	\$ 7,920,000	\$ 9,640,000
	RIGHT OF WAY (2%)	\$ 1,060,000	\$ 1,290,000
CM	CONSTRUCTION (12%)	\$ 6,340,000	\$ 7,720,000
TOTAL DELIVERY COST		\$ 20,600,000	\$ 25,080,000
TOTAL PROJECT COST		\$ 73,400,000	\$ 91,000,000

* Assumes escalation of 4% per year. No adjustments in escalation for time between design and construction were made.

Re-Imagine North Watt Corridor

Minimum Impact Alternative

(Corridor Improvements including: Roadway Widening, Sidewalk Widening, Class II Bike Lanes, and Frontage Road enhancements)



ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY					
1	Install Concrete - Curb Ramp	EA	80	\$ 10,000	\$800,000
2	Install Concrete - Curb and Gutter	LF	29,820	\$ 45	\$1,341,900
3	Install Concrete - Curb	LF	19,620	\$ 40	\$784,800
4	Install Concrete - Sidewalk	SF	183,620	\$ 15	\$2,754,300
5	Install Concrete - Driveway	SF	28,280	\$ 40	\$1,131,200
6	Install Concrete - Texture Pavement	SF	8,500	\$ 20	\$170,000
7	Roadway Excavation	CY	35,900	\$ 80	\$2,872,000
8	Hot Mix Asphalt	TON	19,500	\$ 185	\$3,607,500
9	Cold Plane	SQYD	592,900	\$ 4	\$2,134,440
10	Slurry Seal	TON	820	\$ 280	\$229,600
11	Base Repair (HMA) *	TON	11,380	\$ 185	\$2,105,300
12	CL2 Aggregate Base	CY	23,190	\$ 150	\$3,478,500
13	Signing and Striping	LS	1	\$ 294,500	\$294,500
14	Landscape	SF	85,860	\$ 12	\$1,030,320
15	Bus Stop Amenities	EA	28	\$ 30,000	\$840,000
DRAINAGE					
16	Minor Drainage (8% of Items 1-15)	LS	1	\$1,886,000	\$1,886,000
ELECTRICAL					
17	Traffic Signal Modification	EA	13	\$600,000	\$7,800,000
SUBTOTAL					\$33,260,360
18	Minor Items (8% of Items 1-17) **	LS	1	\$2,661,000	\$2,661,000
SUBTOTAL					\$35,921,360
19	Mobilization (10% of Items 1-18)	LS	1	\$3,593,000	\$3,593,000
SUBTOTAL					\$39,514,360
CONTINGENCY (30%) ***					\$11,854,400
CONSTRUCTION SUBTOTAL					\$51,368,760
GRAND TOTAL					
CONSTRUCTION SUBTOTAL=					\$51,368,760
Right of Way/Temporary Construction Easement****=					\$1,391,170
GRAND TOTAL=					\$52,759,930

* 8% of cold plane area is assumed to require Base Repair

** Minor items (for example, fencing, signage, sidewalk repair, utility adjustments, etc.) have been estimated by using a percentage.

*** This feasibility level estimate includes a 30% contingency intended to compensate for the use of preliminary and limited information.

**** Right of way/TCE's for driveway closures, curb ramps, new signal equipment, conforms, etc. have been estimated at \$10/SF.

General Note: Where applicable, only minor drainage improvements for Drainage Inlet relocations are included. Utility improvements such as water, communication, gas, etc. are not included in these estimates.

Re-Imagine North Watt Corridor

Preferred Alternative

(Feasability Opinion of Probable Cost)



MARK THOMAS

SUMMARY OF PROJECT COST ESTIMATE

		Current Year Cost	Escalated Cost (2028)*
TOTAL CONSTRUCTION COST		\$ 68,278,400	\$ 87,208,000
TOTAL RIGHT OF WAY COST		\$ 3,400,000	\$ 4,137,000
TOTAL CAPITAL OUTLAY COSTS		\$ 71,679,000	\$ 91,345,000
DESIGN	PA/ED (10%)	\$ 7,170,000	\$ 8,730,000
	PS&E (15%)	\$ 10,760,000	\$ 13,100,000
	RIGHT OF WAY (2%)	\$ 1,440,000	\$ 1,760,000
CM	CONSTRUCTION (12%)	\$ 8,610,000	\$ 10,480,000
TOTAL DELIVERY COST		\$ 27,980,000	\$ 34,070,000
TOTAL PROJECT COST		\$ 99,700,000	\$ 126,000,000

* Assumes escalation of 4% per year. No adjustments in escalation for time between design and construction were made.

Re-Imagine North Watt Corridor

Preferred Alternative



(Corridor Improvements including: Roadway Widening, Sidewalk Widening, Class IV Bike Lanes, and Frontage Road enhancements)

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY					
1	Install Concrete - Curb Ramp	EA	80	\$ 10,000	\$800,000
2	Install Concrete - Curb and Gutter	LF	32,600	\$ 45	\$1,467,000
3	Install Concrete - Curb	LF	23,800	\$ 40	\$952,000
4	Install Concrete - Bike Lane Curb	LF	34,350	\$ 40	\$1,374,000
5	Install Concrete - Sidewalk	SF	214,460	\$ 15	\$3,216,900
6	Install Concrete - Driveway	SF	41,560	\$ 40	\$1,662,400
7	Install Concrete - Texture Pavement	SF	4,440	\$ 20	\$88,800
8	Roadway Excavation	CY	62,800	\$ 80	\$5,024,000
9	Hot Mix Asphalt	TON	28,840	\$ 185	\$5,335,400
10	Cold Plane	SQYD	587,500	\$ 4	\$2,115,000
11	Slurry Seal	TON	795	\$ 280	\$222,600
12	Base Repair (HMA) *	TON	11,140	\$ 185	\$2,060,900
13	CL2 Aggregate Base	CY	40,620	\$ 150	\$6,093,000
14	Signing and Striping	LS	1	\$ 229,600	\$229,600
15	Landscape	SF	155,900	\$ 12	\$1,870,800
16	Sound Wall (10')	SF	4,800	\$ 75	\$360,000
17	Bus Stop Amenities	EA	28	\$ 30,000	\$840,000
DRAINAGE					
18	Minor Drainage (8% of Items 1-17)	LS	1	\$2,697,000	\$2,697,000
ELECTRICAL					
19	Traffic Signal Modification	EA	13	\$600,000	\$7,800,000
SUBTOTAL					\$44,209,400
20	Minor Items (8% of Items 1-19) **	LS	1	\$3,537,000	\$3,537,000
SUBTOTAL					\$47,746,400
21	Mobilization (10% of Items 1-20)	LS	1	\$4,775,000	\$4,775,000
SUBTOTAL					\$52,521,400
CONTINGENCY (30%) ***					\$15,757,000
CONSTRUCTION SUBTOTAL					\$68,278,400
GRAND TOTAL					
CONSTRUCTION SUBTOTAL=					\$68,278,400
Right of Way/Temporary Construction Easement****=					\$3,400,000
GRAND TOTAL=					\$71,678,400

* 8% of cold plane area is assumed to require Base Repair

** Minor items (for example, fencing, signage, sidewalk repair, utility adjustments, etc.) have been estimated by using a percentage.

*** This feasibility level estimate includes a 30% contingency intended to compensate for the use of preliminary and limited information.

**** Right of way/TCE's for driveway closures, curb ramps, new signal equipment, conforms, etc. have been estimated at \$10/SF.

General Note: Where applicable, only minor drainage improvements for Drainage Inlet relocations are included. Utility improvements such as water, communication, gas, etc. are not included in these estimates.