GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

APPENDIX F:

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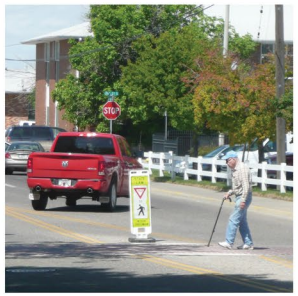
Prepared for:

Great Falls MPO

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

March 22, 2024



Existing and Projected Conditions

TECHNICAL MEMORANDUM

Prepared by:

RPA

CIVIL ENGINEERING / PLANNING / SURVEYING

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1.0 INTRODUCTION

As the Great Falls area continues to grow and evolve, it is important to understand the current transportation network and identify opportunities for improvement to properly accommodate and prepare for the area's future transportation needs. To better understand transportation conditions within Great Falls, existing and projected transportation conditions were evaluated to understand strengths, deficiencies, and any potential areas of concern. For this plan, existing traffic data from a variety of sources were used to establish the existing conditions on major road segments within the study area. The existing data were then projected out to the year 2045 using growth rates derived from analysis of historic and projected growth patterns as discussed in the *Socioeconomics and Land Use Technical Memorandum*. With this data, the operational characteristics and potential traffic issues over the 2040 planning horizon were identified. A variety of data were used to help evaluate the system, including transportation network configurations and classifications, traffic data, intersection turning movement counts, infrastructure condition and performance, and historic crash data.

The existing and projected transportation conditions in Great Falls were evaluated to identify and better understand system strengths, deficiencies, and potential areas of concern.

1.1. Study Area Boundary

The study area boundary for the 2024 *Great Falls Area Long Range Transportation Plan* (LRTP) coincides with the boundary used in preceding plan updates. The boundary includes all lands within the City of Great Falls, Malmstrom Air Force Base (AFB), the unincorporated communities of Black Eagle and Gibson Flats, and adjacent lands in Cascade County where suburban development has occurred or may occur in the future. The LRTP boundary is shown in **Figure 1.1** and will be used for all aspects of the LRTP planning process. The urban boundary shown in the figure is based on the 2020 census and review by the Great Falls Metropolitan Planning Organization (MPO) and Montana Department of Transportation (MDT). Field analysis of transportation system conditions will only occur within the defined study area. Areas adjacent to the study area still influence the transportation system within the study area and the planning process will still consider growth and land use changes in adjacent areas.

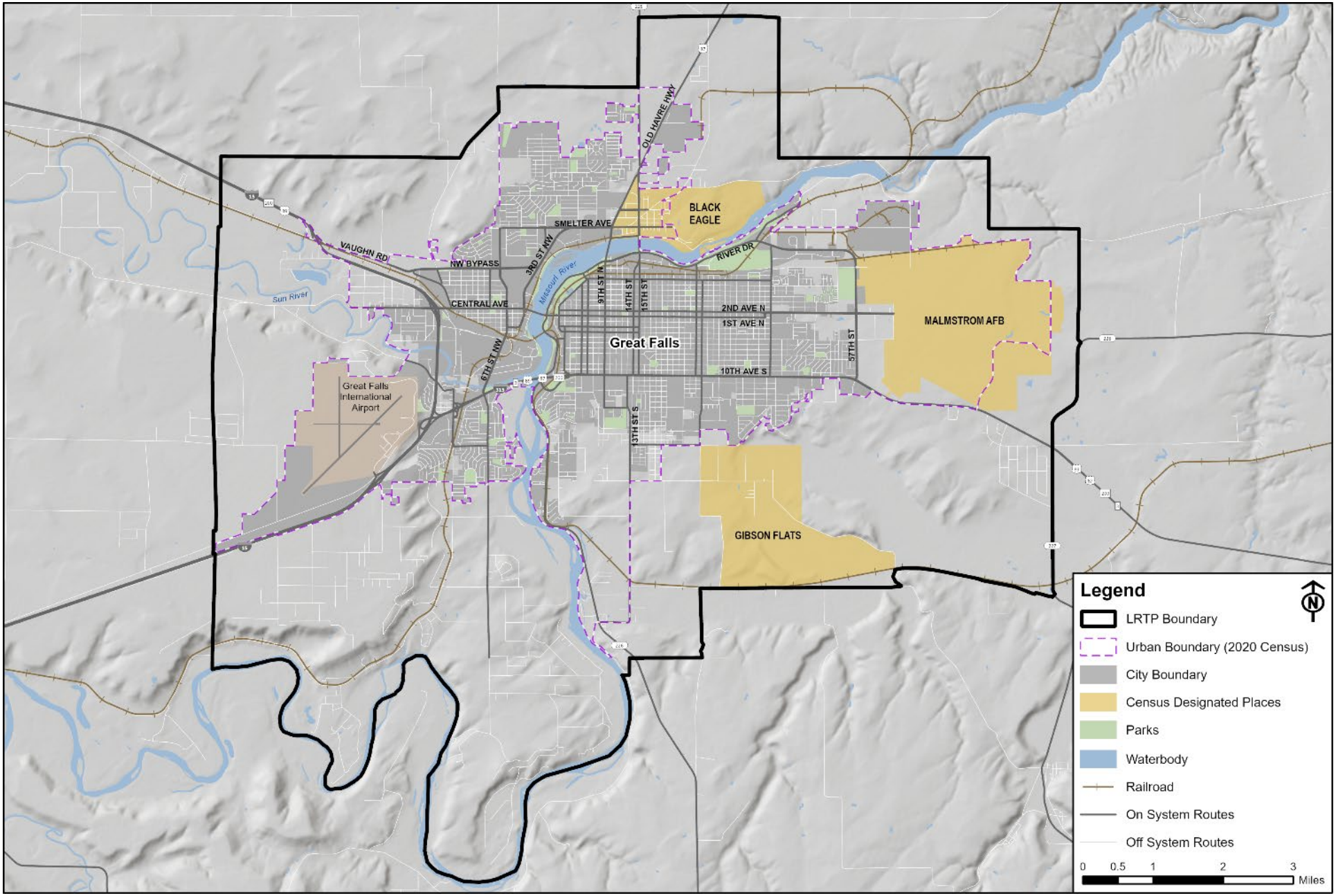


Figure 1.1: Study Area

1.2. Background

Federal regulations require MPOs to prepare a transportation plan that identifies how the area will manage and operate its multimodal transportation system to meet the region's economic, transportation, development, and sustainability goals over a 20-plus year planning horizon. An MPO is a policy-making body created to represent urban areas with populations over 50,000 residents. The Great Falls MPO was established in 1971 to help guide transportation planning and programming efforts in the area. The following sections summarize federal and local planning that will influence development of the Great Falls LRTP.

1.2.1. Federal Planning

On November 15, 2021, President Joe Biden signed the Infrastructure Investment and Jobs Act (IIJA)/Bipartisan Infrastructure Law (BIL) into law. IIJA authorizes federal highway funding programs for five years (fiscal years 2022 – 2026) with increased investment in highways in bridges. This legislation is important to the planning process as it outlines several new discretionary funding programs, expanded eligibility for apportioned highway programs, changes to the Metropolitan Planning Program, and new requirements for MPOs. Of particular interest to this planning effort, IIJA requires MPOs to consider projects and strategies that promote consistency between transportation improvements and state and local housing patterns, in addition to planned growth and economic development patterns. IIJA also introduces new plans that are required to be prepared by states in consultation with MPOs as well as recommended plans which are voluntary for MPOs.

FEDERAL PLANNING FACTORS

When developing LRTPs, there are 10 national planning factors, codified in 23 USC 134(h)(1), that states and MPOs must consider. These planning factors address transportation issues such as connectivity, economic vitality, quality of life, and resiliency.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility of people and for freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth, housing, and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
10. Enhance travel and tourism.

1.2.2. Local Planning

The last major transportation plan for Great Falls was completed in 2014 with a minor update in 2018. The 2024 LRTP is an opportunity to take a fresh look at changed transportation conditions, re-evaluate community priorities, and plan for a transportation system that reflects those changes. The LRTP is also intended to complement and integrate with past transportation plans, current growth policies, and other relevant planning documents completed by the city, MPO, and Cascade County in recent years. These documents include analysis and

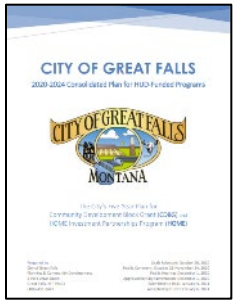
recommendations for facilities or future improvements within the study area. The following sections provide a summary of the plans and studies completed since the last LRTP update as they relate to this planning effort.

GREAT FALLS WAYFINDING PLAN (2020)

The *Great Falls Wayfinding Plan*[1] provides a vision and strategy for the community to implement a citywide sign program. The plan will help residents and visitors learn about the services, destinations, and points of interest that are available in Great Falls. Primary destinations include the Downtown, natural sites, sports and entertainment venues, educational institutions, transportation hubs, civic government services, and city parks and recreation. The plan identifies four transportation hubs including the airport, bus transit transfer station, and the north and south parking garages. Directional signs for both motorists and pedestrians are included.

HOUSING MARKET DEMAND ASSESSMENT (2021)

A housing market demand assessment[2] was completed for the Great Falls Metropolitan Statistical Area to understand key housing trends and demand drivers including employment and demographic trends. The study projects that there will be demand for about 450 new housing units per year in the Great Falls area over the next 10 years including approximately 190 rental units and 250 for sale/ownership units. This analysis is based on employment growth predictions, anticipation of increased in-migration to Great Falls, and an assessment of the age of housing stock. The study emphasizes the need for affordable housing. This information helped inform socioeconomic projections and land use forecasts. Understanding the quantity, type, and location of new developments will help inform the identification of transportation system needs to support new development.



CONSOLIDATED PLAN FOR HUD-FUNDED PROGRAMS (2021)

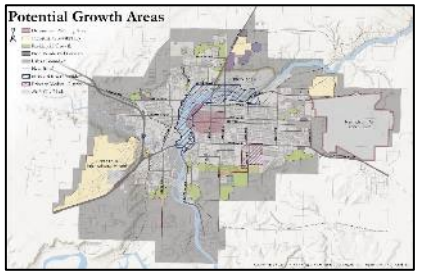
The *Great Falls 2020-2024 Consolidated Plan*[3] is required for participation in U.S. Department of Housing and Urban Development (HUD) funded programs including the Community Development Block Grant (CDBG) and Home Investment Partnerships Program (HOME). The Consolidated Plan identifies the housing and community development needs of low to moderate income residents of Great Falls and develops strategies for addressing those needs in a comprehensive, coordinated fashion using available federal and non-federal resources. The plan is accompanied by an *Annual Action Plan*[4] which details the city's recommended grant goals, priorities for the upcoming program year, and budget. Consideration of local housing patterns is important to ensure transportation improvements align with community development needs.

GREAT FALLS TRANSPORTATION IMPROVEMENT PROGRAM (2021 – 2025)

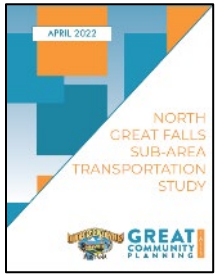
The *Transportation Improvement Program (TIP)*[5] is a staged, prioritized five-year capital improvement plan for implementation of the LRTP, expenditure of federal funds, and construction of other capital projects that occur on Great Falls' Federal-Aid roadways. Developed in cooperation with local, state, and federal agencies, the TIP includes transportation facilities and projects that are the responsibility of the state, county, and city. The most recent TIP was approved in 2021 and amended in 2023 with a summary of projects and programs to be

implemented in fiscal years 2021 through 2025. The TIP contains projects consistent with the LRTP and reflects the investment priorities established in the plan.

GREAT FALLS GROWTH POLICY UPDATE – INTERNAL DRAFT (2022)



In 2022, the City of Great Falls undertook a planning effort to perform a minor update to the 2013 Growth Policy. The update is in draft form and was shared internally with the LRTP planning team to inform the planning process. The policy has not been finalized or shared publicly due to the need for a more intensive update process including updated goals, objectives, and strategies. Still, the updated data and information about local growth is relevant to the transportation process and is quoted where applicable.



NORTH GREAT FALLS SUB-AREA TRANSPORTATION STUDY (2022)

The *North Great Falls Sub-Area Transportation Study*[6] was developed in response to the development occurring in the northwest portion of Great Falls and subsequent concerns about traffic impacts. The purpose of the study was to develop a vision for expansion of and improvements to the multimodal transportation network in the sub-area to maximize safety, accessibility, and efficiency for all users. The study identified nine short-term projects and six long-term projects for implementation in the sub-area based upon the future modeling and capacity analysis, safety analysis, and public input. These projects should be considered and incorporated into the LRTP recommendations as appropriate.

GREAT FALLS UNIFIED PLANNING WORK PROGRAM (2024)

The purpose of the *Unified Planning Work Program (UPWP)*[7] is to present a detailed explanation of the planning activities anticipated to be undertaken within the Great Falls area during the UPWP program year. The document identifies program objectives, past accomplishments, agency responsibilities, level and source of funding, and the interrelationship of upcoming planning activities. Priorities outlined in the current UPWP include identifying funding sources for priority projects, maintaining communication between implementation partners, continually monitoring projects to ensure timely implementation, constructing more pedestrian and bicycle facilities, and maintaining up-to-date planning documents. The UPWP provides an understanding of MPO functions and will help identify priorities for the LRTP.

2.0 EXISTING TRANSPORTATION SYSTEM

Current information about the transportation system was analyzed to establish the existing traffic conditions and to determine current problem areas. The following analysis of transportation conditions includes a planning level examination of the roadway network within the LRTP study area based on existing traffic data, crash history, field observations, infrastructure condition data, aerial imagery, and geographic information system (GIS) data. Existing data were provided by the City of Great Falls and MDT. Additional data were collected by RPA in Spring and Summer 2023 to supplement the available information. Using a combination of the supplied and collected data, the existing operational characteristics of the transportation network were established.

2.1. TRANSPORTATION NETWORK

A transportation network is made up of multiple connected road segments to facilitate vehicular movement, as well as public transportation, bicycles, pedestrians, freight, rail, and other modes of transportation. Gaining a thorough understanding of each component of the transportation network will help ensure that all modes of transportation are able to navigate the transportation network safely and efficiently.

2.1.1. Major Street Network

A transportation system is made up of a hierarchy of roadways classified according to certain parameters. The parameters include but are not limited to geometric configuration, traffic volumes, spacing in the community's transportation grid, speed, and adjacent land use. These characteristics help define the role that each segment of roadway plays within the overall network. The method by which these roles are defined is widely known as functional classification, which defines the nature of travel within the network in a logical and efficient manner by defining the objectives that any particular road or street should meet to effectively move trips through the entire network.

Included in the study area are roadways with the functional classifications of interstate, principal arterial, minor arterial, collector street, and local street. For this plan, these functional classifications are neither limited to, nor defined by, "urban" or "rural" settings, though some entities often make a distinction between urban and rural functional classes. Rural roadways in the study area generally carry a smaller volume than their urban counterparts. Although traffic volumes may differ between urban and rural sections of a roadway, it is important to still maintain coordinated right-of-way standards to allow for efficient operation and potential urban development in the future.

For this evaluation, emphasis was placed on roadways within the study area that are functionally classified as collectors, minor arterials, and principal arterials. Local streets, which are the lowest ranking roadways, were not examined in detail due to the assumption that if the major street network is functioning at an acceptable level, the local roadways should not be used beyond their intended function. However, if problems begin to occur on the major street network, then the resulting issues will begin to infiltrate the local road network. As such, the overall health of a community's transportation system can be characterized by the health of the major street network.

Figure 2.1 presents the existing major street network for the study area. The functional classifications shown in the figure were established based on a review of the federally approved functional classification system as well as the major street network presented in the previous LRTP. Efforts were made to maintain consistency with these networks, however, some parts of the network were updated to reflect changed conditions from previous planning efforts. The classifications are used for planning purposes and may not be fully representative of actual conditions. Rather, they are intended to reflect how the systems currently functions, as viewed by the responsible implementing agency. General descriptions of these functional classifications are described in the following sections.

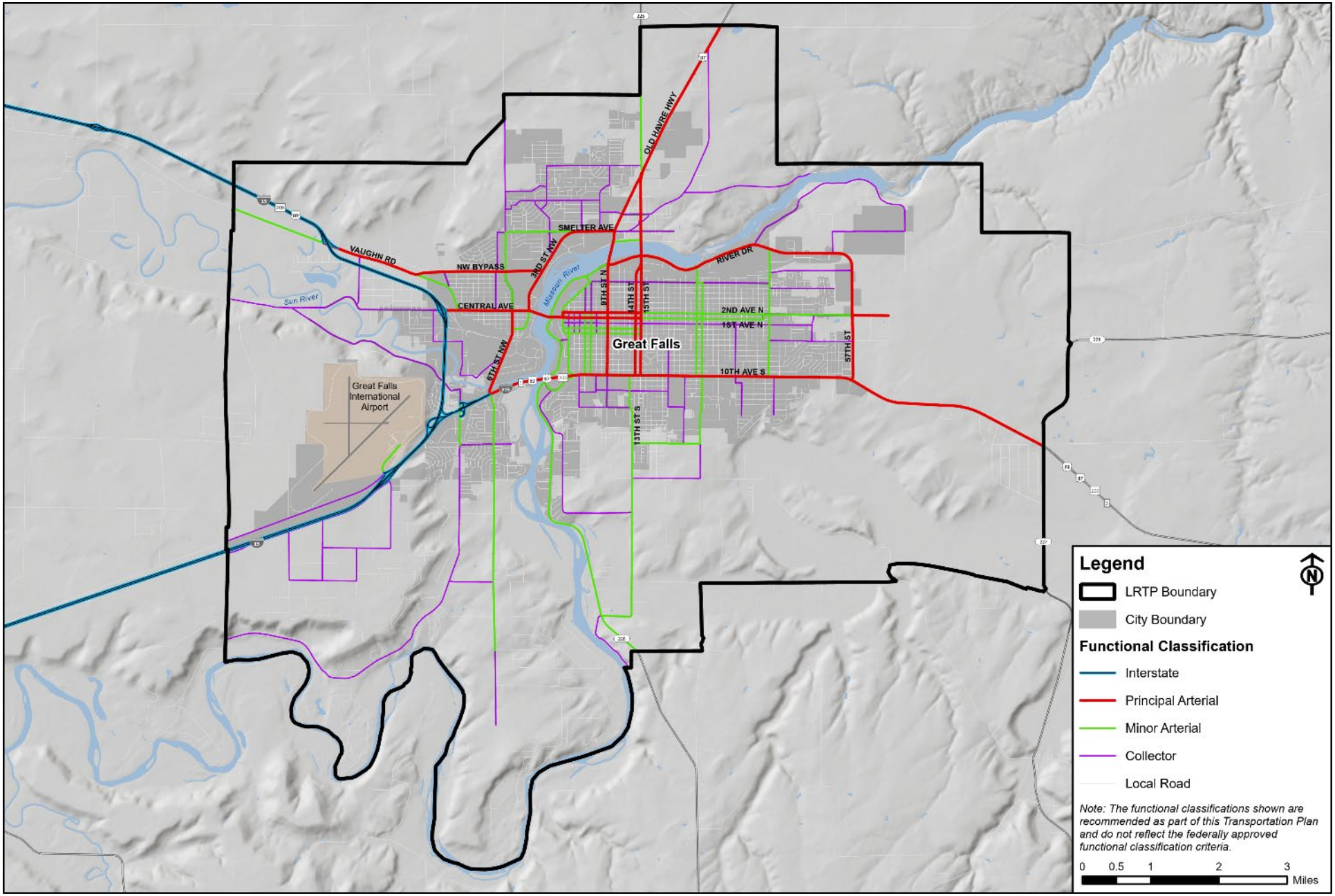


Figure 2.1: Major Street Network

INTERSTATE SYSTEM

The main purpose of the interstate system is to provide for both regional and interstate transportation of people and goods. Primary users range from residents and commuters to long-distance travelers and freight operators. Interstates characteristically have fully controlled access with a limited number of interchanges, high design speeds, and a high priority on driver comfort and safety. The interstate system has been designed as a high-speed facility with all road intersections being grade separated. Interstate 15 (I-15) traverses north-south across the study area as a four-lane divided highway.

I-15 passes through the study area and provides both regional and interstate transportation.

PRINCIPAL ARTERIAL SYSTEM

The purpose of a principal arterial is to serve the major centers of activity, the highest traffic volume corridors, and the longest trip distances in an area. This classification of roadway carries a high proportion of the total traffic. Most of the vehicles entering and leaving the area will use principal arterials. Significant intra-area travel, such as between central business districts, outlying residential areas, and major suburban centers, is also typically served by principal arterials. Principal arterials mainly connect to other principal arterials or to the interstate system.

10th Avenue South is an east-west principal arterial connecting I-15 and US 87.

MINOR ARTERIAL STREET SYSTEM

The minor arterial street system interconnects with and supplements the principal arterial system. Minor arterials accommodate trips of moderate length at a somewhat lower level of travel mobility, as compared to principal arterials. They distribute travel to smaller geographic areas in addition to providing some access to adjacent lands.

Outside of Downtown Great Falls, 1st and 2nd Avenues South comprise a one-way couplet of minor arterials.

COLLECTOR STREET SYSTEM

The collector street network provides links from residential, commercial, and industrial areas to the arterial street network. This type of roadway differs from those of the arterial system in that collector roadways may traverse residential neighborhoods. The collector system distributes trips from the arterials to the user's ultimate destinations while also collecting traffic from local streets in the residential neighborhoods and channeling the traffic to the arterial system.

36th Ave NE serves as a collector street for the North Great Falls neighborhoods.

LOCAL STREET SYSTEM

The local street network comprises all facilities not included in the higher functional classes. The primary purpose of local streets is to permit direct access to abutting lands and connections to higher systems. Most local streets also provide residential and commercial access. Usually, service to through-traffic movements is intentionally discouraged either through low speeds or other traffic calming measures.

Local streets primarily provide access to residential and commercial developments in Great Falls.

2.1.2. Bicycle and Pedestrian Facilities

The Great Falls Area is home to the River's Edge Trail (RET) which boasts an approximately 60-mile off-street bicycling and walking system along the banks of the Missouri River. In general, Great Falls' older core neighborhoods and grid street system with small blocks lend themselves to walking and non-motorized transportation. While pedestrians have ample access to sidewalks and trails in and around the city, there is a relative lack of designated bicycle infrastructure. The city's first bike lane was installed in Summer 2013 with relatively few additions since then. As such, there are many opportunities for improvement to the non-motorized transportation network, especially improvements to the bicycle network. The following list describes the existing bicycle and pedestrian facilities in the study area. A map of the existing bicycle and pedestrian facilities is presented in **Figure 2.2**.

BIKE LANES, BIKE BOULEVARDS, AND BIKE ROUTES

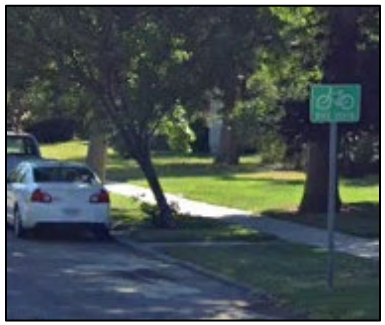
Bike lanes are a portion of a roadway which have been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes encourage predictable movement by both bicyclists and motorists. The Great Falls area currently has 4.1 miles of bike lanes, primarily on the east side of the city near Malmstrom Air Force Base (AFB).

Bike lanes are painted on 57th Street North, a relatively high-speed roadway. There is a gap between the 57th Street North and 18th Avenue North bike lanes.

Bike boulevards are streets that have been modified to accommodate bicycle traffic and minimize motor traffic. Bike boulevards are typically characterized as streets with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority through the use of signs, shared lane markings (sharrows), and speed and volume management measures to discourage through trips by motor vehicles and create safe, convenient bicycle crossings of busy arterial streets. In Great Falls, there are approximately 4.9 miles of roadways with painted sharrows, although they generally lack signage designating them as a bike boulevard. Additionally, some of the sharrows on these roadways have not been maintained since their installation and are sometimes difficult to discern.

Sharrows are painted on 5th Street North which is a one-way street. There is not a parallel street with sharrows provided in the opposite direction.

In Great Falls, several streets with lower traffic volumes and convenient connections to high-use destinations in the community are signed as **bike routes**. No other accommodations, such as striping or pavement markings, presently exist on these routes. Bike route signage is typically used to help bicyclists navigate the bicycle network and indicate roadways in which bicycle traffic is prioritized. Great Falls has two roadways, totaling approximately 6.6 miles, with bike route signage but no other bicycle accommodations.



4th and 8th Avenues North are signed as bike routes. Some of the signage is difficult to see through dense vegetation and old growth trees.

NATURAL SURFACE TRAILS

There are several natural surface trails in the study area. This type of facility can serve both transportation and recreational purposes. The RET is the most notable natural surface trail in the study area providing over 35 miles of gravel trails primarily used for single-track mountain bike riding and walking/hiking.

The RET provides a robust network of paths and trails along the banks of the Missouri River. The surface types vary along its length including asphalt, concrete, gravel, dirt, and composite surfaces.

SHARED USE PATHS

Shared use paths are off-street paved trails that are designated for the use of bicyclists, pedestrians, and other non-motorized users such as skateboarders and rollerbladers. The RET consists of over 20 miles of paved shared use path. A paved path was recently constructed adjacent to 24th Avenue South.

WIDENED SIDEWALKS

In the 1980s, the Great Falls City Commission began installing widened sidewalks (8 to 10 feet in width) to separate vehicular traffic from bicycle and pedestrian traffic. These widened sidewalks have since functioned as shared use paths. In 2018, the City passed an ordinance updating the City Code to indicated that, "unless otherwise allowed by designated City approved signage, or conditions render bicycle travel on a street unsafe, bicycles may only be ridden on those portions of the sidewalk that are a portion of the River's Edge Trail System," (Official City Code of Great Falls, 12.11.020). There are approximately 4.2 miles of widened sidewalks supplementing the shared use path network, some of which are located in south Great Falls and are neither designated as part of the RET nor signed as bike routes.

Some roadways in Great Falls have widened sidewalks that are intended to function as shared use paths although the legality of riding bicycles on sidewalks is limited to those sidewalks identified as part of the RET.

SIDEWALKS

There are standard width sidewalks alongside some of the main streets and within some of the subdivisions in the study area, however there are still many locations where the existing pedestrian facilities lack connectivity. In June 2017, the Great Falls Public Works Department completed an inventory of city sidewalks as part of the *Americans with Disabilities Act* (*ADA) Transition Plan*.[8] Their inventory indicates that there are over 600 miles of sidewalk within the city with over 5,600 corners. Approximately 63% of the curb ramps on these corners are non-compliant with ADA.

Most of the established residential and commercial areas of Great Falls have a cohesive and continuous sidewalk network. However, there are areas, primarily in suburban areas, where connectivity is lacking. The areas where most of the sidewalk gaps occur were subdivided and constructed prior to being incorporated into the city. Developers in unincorporated areas of Cascade County are not required to build sidewalks.

There are several miles of sidewalk gaps throughout the study area, primarily in areas that are outside the city or were recently annexed into the city.

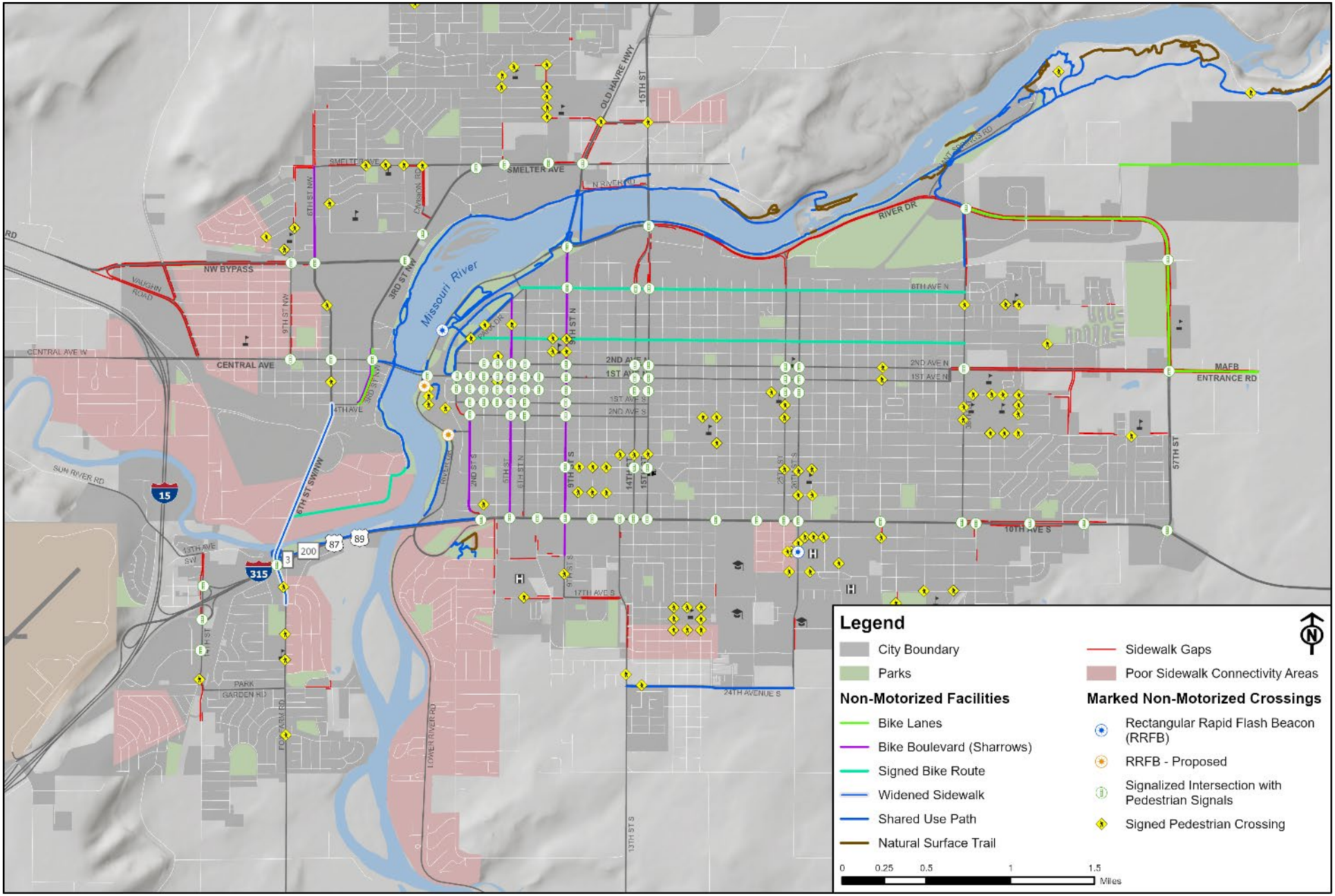


Figure 2.2: Non-Motorized Network

2.1.3. Local Transit Services

The Great Falls Transit District (GFTD) was established in 1978 to provide an alternative form of transportation for city and county residents in the Great Falls area. Funding for the district is provided through a combination of fare collections, property tax revenue, and federal funds. The latter is administered by MDT and goes towards operating and capital costs.

Since the creation of the GFTD, a variety of studies and plans have been created to assist the District with operations, improve financial sustainability, increase safety, and respond to customer needs. A comprehensive *Transit Development Plan (TDP)* was completed in 2010. The GFTD Board of Directors recently hired a consultant to update the TDP and the planning process kicked off in mid-September 2023.

SERVICE AREA

The GFTD covers a service area of 20 square miles primarily within the City of Great Falls. Many users have indicated that, as Great Falls continues to expand outward, transit services in their residential areas are limited, inconvenient, or unavailable. There are also many consumers located within a 100-mile radius of Great Falls who have problems accessing transportation from outlying areas to Great Falls, limiting access to jobs, education opportunities, medical facilities, shopping, recreation and special events in Great Falls. [9]

TRANSIT ROUTES

The GFTD currently operates seven regular fixed routes. The fixed routes operate from roughly 6:00 AM to 6:30 PM on weekdays and from 9:30 AM to 5:30 PM on Saturday. There is no transit service provided on Sundays or major holidays. Six of the seven routes, with the exception of Route 7-Southwest, operate on 30-minute headways during the morning and afternoon peaks (6:30 AM to 9:30 AM and 2:30 PM to 6:30 PM) to allow for increased coverage during school and commuter travel times. Saturday service is hourly on every line. The current operating hours may preclude people from job opportunities, with some users citing that the current hours allow them to get to work on time for their shift but they are unable to easily return home due to limited service hours and lack of affordable transportation opportunities.

The seven routes radiate from a timed-transfer point downtown at the Downtown Transfer Station located at 1st Avenue South and 4th Street. Routes 1 through 4 are scheduled to make a timed connection at 10th Avenue South and 57th Street South in the Walmart East parking lot, although Route 1 often arrives too late to make the timed connection. Routes 5 and 6 also make a timed connection at Division Road & 23rd Avenue NE. A map of the current routes is shown in **Figure 2.3**. The GFTD operates as a flag-down system and buses will stop at any street corner along the route that is deemed safe by the driver. Consideration of transitioning to a fixed stop system has been discussed internally at GFTD but has not been pursued yet.

PARATRANSIT OPERATIONS

All GFTD vehicles are mobility device accessible. The GFTD Paratransit Service also provides curb-to-curb transportation for individuals who are disabled and unable to use the fixed route system. Individuals must meet eligibility criteria, be within the service area, and carry a valid Medicare ID or Para ID issued by GFTD. Paratransit services are offered Monday through Friday from 6:00 AM to 6:30 PM and Saturdays from 9:30 AM to 5:30 PM. A single ride is $2.00 if booked in advance or $5.00 for same day service. Ride requests can be scheduled up to 14 days before the trip date. Pass booklets are available for $42.00 and contain 21 one-way passes. Many social service organizations purchase GFTD passes in order to meet the transportation needs of their clients.

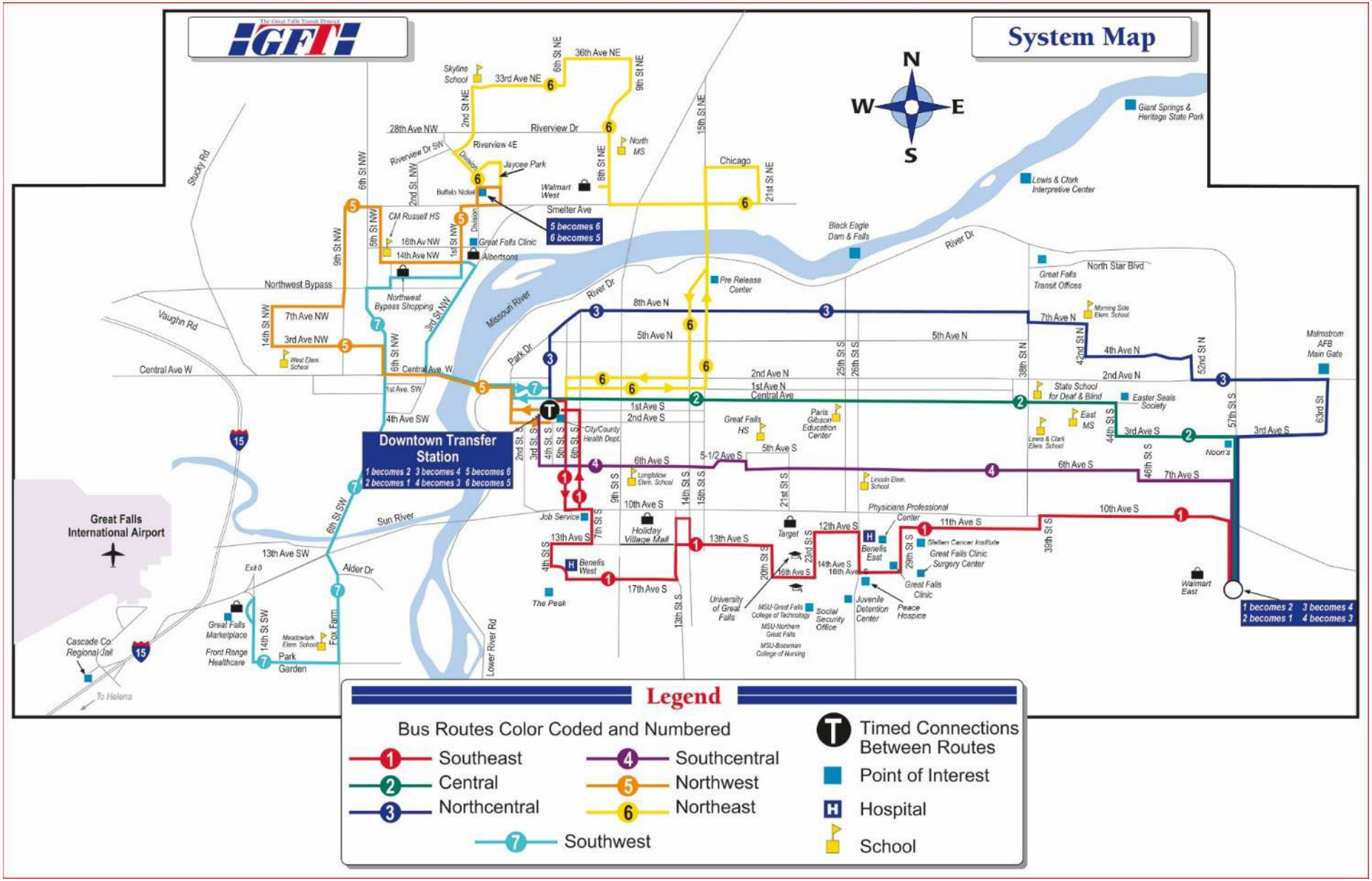


Figure 2.3: Existing Transit System Route Map

FARES

The transit services operate on a fixed fare basis. Passengers can either pay with exact change on the bus or obtain passes from the main transit office. All fares are for one-way trips. When a transfer between routes is required, a driver will issue a transfer slip to allow riders to complete their one-way trip from their initial fare. Transfers are valid for a limited time, approximately 5 minutes, and are free. The current transit rate schedule is shown in **Table 2.1**.

Table 2.1: Transit Rate Schedule (2023)

Fare / Pass	Single Ride	Day Pass	Punch Pass	Monthly Pass
Regular	$1.00	$4.00	$10.00 (11 Rides)	$30.00
Student (Full Time with ID)	$0.75	$4.00	$10.00 (15 Rides)	$25.00
Seniors (60+ yrs) / Disabled (with Valid ID)	$0.50	$4.00	$10.00 (21 Rides)	$21.00
Children (5 yrs & under)	FREE	N/A	N/A	N/A

Source: https://www.gftransit.com/fares-and-passes (accessed April 20, 2023)

CONNECTIVITY TO TRANSIT

Trips by transit often begin and end on foot or bicycle or both. When connectivity to transit is poor, ridership and ease of use of the system can be negatively affected. By improving sidewalks at and near bus stops, constructing bus shelters for waiting patrons, and planning routes near popular bicycling and walking routes, citizen connectivity to transit can improve. All GFTD buses now have bike racks mounted on the front of the bus as a convenience for bicyclists. The GFTD is also focusing on addressing connectivity to bus stops via sidewalks and other improvements to improve mobility for pedestrians using the transit system.

All GFTD buses are now equipped with bike racks to better serve riders.

RIDERSHIP

According to the National Transit Database, the GFTD provided 454,762 rides in 2019, approximately 10 percent of those rides were demand response trips from the paratransit offerings. In 2020, ridership decreased by nearly 50 percent, due to the COVID-19 pandemic.[10] MDT reports that ridership has rebounded slightly in recent years with 299,139 rides being provided by the GFTD in fiscal year 2022.[11]

2.1.4. Intercity Transit Services

There are several intercity transit providers that offer regional transit services to the Great Falls area. Intercity routes connect residents and visitors to destinations across Montana and more broadly to destinations across the US through these providers and others.

- **SALT LAKE EXPRESS**: In January of 2002, Great Falls began offering intercity bus service through Salt Lake Express. The Salt Lake Express intercity buses operate a daily fare-based route from Great Falls, south to Helena, then Butte, and continuing into Idaho.
- **NORTHERN TRANSIT INTERLOCAL**: In 2007, the Northern Transit Interlocal (NTI) was founded. NTI's Green Route operates a fare-free route between Cut Bank, Shelby, and Great Falls on Mondays and Thursdays.

- **NORTH CENTRAL MONTANA TRANSIT**: North Central Montana Transit (NCM) operates a free public transportation system serving the Hi-Line communities of Hill and Blaine counties as well as coordinated services with Fort Belknap and Rocky Boy's Transit systems. NCM Transit also offers a fare-based route between Havre and Great Falls on Mondays, Wednesdays, and Fridays.

2.1.5. Private Transportation Services

Great Falls also has several private transportation network companies and taxi services, including Uber, Lyft, BlackedOut 406 Taxi, Diamond Cab, and Godzilla406rides. These providers offer scheduled or on-demand door-to-door transportation services in the area.

2.1.6. Freight and Rail Network

Freight movement is critical to Montana's economy, providing access to important commodities, creating jobs, and encouraging investment and economic growth. Understanding how the freight and rail networks within the study area interact with the rest of the transportation network will help ensure that as the demand for goods and services fluctuates, other transportation modes can continue to move safely and efficiently through the transportation network. A detailed discussion about freight and rail systems in the Great Falls area is provided in the *Freight and Security Technical Memorandum* (**Appendix A**).

TRUCKS

Figure 2.4 illustrates the routes generally used by trucks in the Great Falls Area. Official truck routes to be used by through trucks (those that aren't providing local service) are identified in the City of Great Falls city code.[12] Typical truck routes include those that are outside the municipal boundary and connect to the official truck routes. The highest volumes of trucks traveling in the study area use I-15, presumably to access markets outside the region. Locally serving trucks appear to access the city via the NW Bypass or Central Avenue. From the southwest, trucks access the city on Country Club Boulevard and 10th Avenue South, which also provide access to commercial areas in the Downtown core. Trucks access the city via US 87 in the northeast, with connections to Smelter Avenue and River Drive. From the southeast, trucks enter along US 87 and 10th Avenue South.

RAIL

Great Falls is well-integrated into the Nation's freight rail system, with numerous facilities and services. Rail facilities carry freight on lines northeast of the city and along the east side of the Missouri River, crossing the river south of downtown. The rail lines connect to the BNSF rail yard just west of the river. Rail lines extend south and northwest from the rail yard. Great Falls is located on the 100-mile BNSF main line that links Shelby and Great Falls, known as "The Great Falls Subdivision". Shelby is also located along "The Hi-Line Subdivision", a BNSF main line that runs east-west. Shelby has advocated for a freight intermodal facility to support nearby goods movement routes. The rail facilities in Shelby also serve an Amtrak passenger rail station on the Empire Builder Route (Chicago to Portland/Seattle).[13]

Rail spurs connect the rail network to several industrial facilities in the Great Falls area, providing direct access to major goods movement facilities. **Figure 2.4** illustrates the rail lines serving the Great Falls Area. A circuitous railroad spur deviates from the area near the AgriTech Industrial Park, crosses the Missouri River just west of Rainbow Dam, and circles north and west to the Malteurop Malting Plant between US 87 and Black Eagle Road. This spur line is located outside the City of Great Falls but supports significant goods movement activity in and through the area. The city plans to continue constructing rail spurs to serve the AgriTech Industrial Park, generally located north of 18th

Avenue North and west of 57th Street North. In 2016, rail spurs were constructed as far east as Giant Springs Road/67th Street. Extensions east of 67th Street are anticipated to be designed and constructed as industrial development occurs in the area.

Based on geospatial data provided by MDT in 2021, there are currently 35 active, public, at-grade rail crossings within the Great Falls LRTP study area, as shown in **Figure 2.4**. These crossings primarily occur in the vicinity of the BNSF Rail Yard, the Agri-Tech Industrial Park, along the southern boundary of the study area, and in the northern core of Great Falls between 9th Avenue North, 25th Street North, River Drive, and 9th Street North. At-grade crossings can contribute to vehicle delay when trains are present and can contribute to safety concerns if proper warning devices and ample visibility are not provided.

Additionally, there are 10 grade-separated crossings within the study area including four overpasses and six underpasses. These crossings primarily occur along the major street network including 10th Avenue South, Central Avenue, 6th Street Southwest, and I-15. Grade-separated crossings can improve traffic conditions and safety by eliminating intermodal conflicts. In 2016, MDT conducted a study to assess highway-rail crossing needs across the state.[14] The evaluation process included a two-tiered screening and selection process to identify a list of at-grade and grade-separated crossings in need of improvements, including future grade separation. Two of Great Falls' grade-separated crossings, 1st Avenue North and 6th Street North, were identified as top priorities for improvements due to vertical clearance constraints, age, and changes in the number of railroad tracks. The River Drive South underpass was also included in the screening but dropped out during the first tier of screening due to the conclusion that it would be infeasible to make improvements to the crossing due to location and elevation of the roadway adjacent to the Missouri River. Although none of the at-grade crossings were advanced as statewide priorities, the need for continued evaluation of possible grade separation at locations such as River Drive at Giant Springs Road still exists.

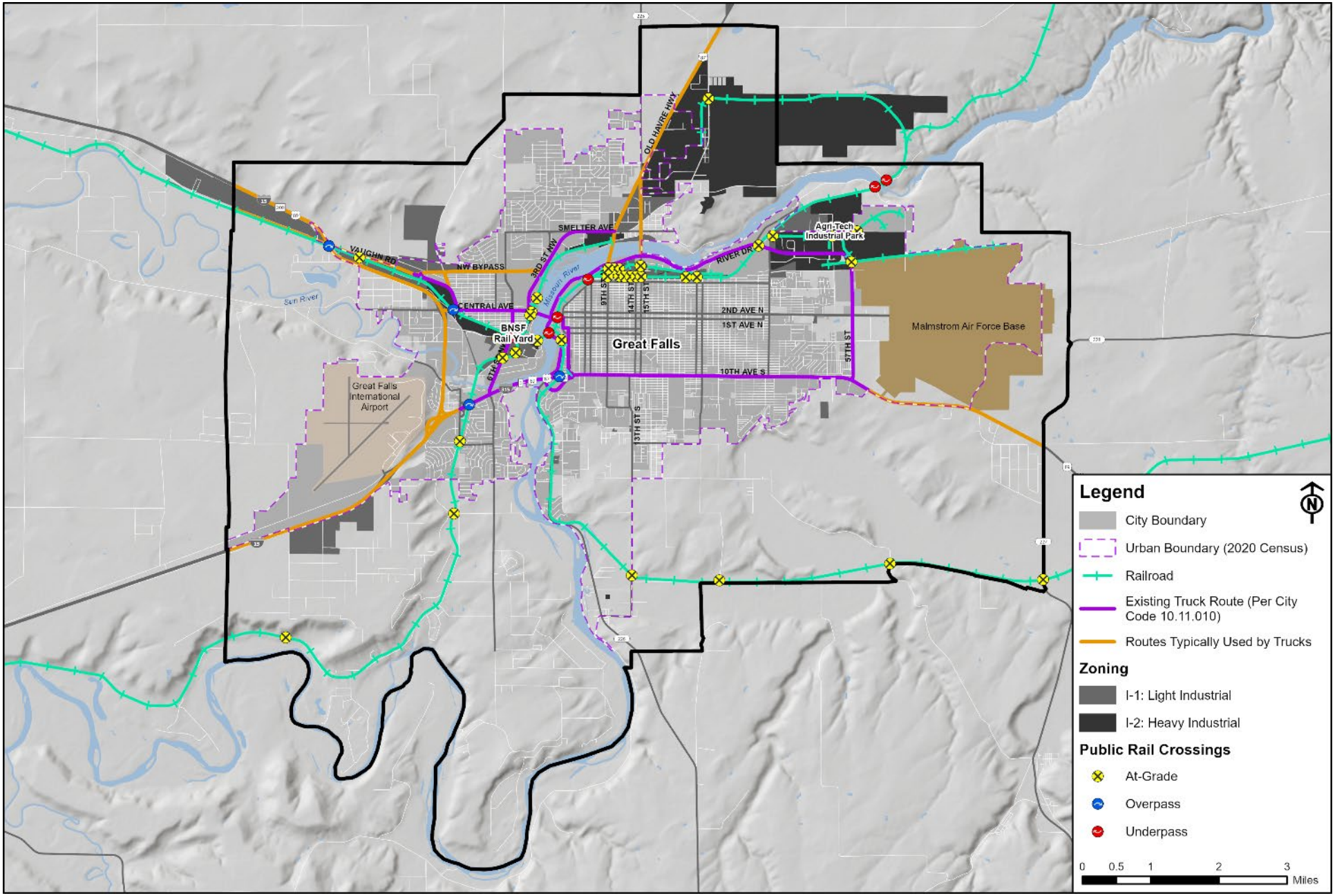


Figure 2.4: Freight and Rail Network

2.1.7. Electric Vehicle Network

Recent legislation has placed increased emphasis on alternative fuel vehicles, especially electric vehicles (EVs) and the role they will play in combatting transportation emissions. In Cascade County, there were 109 EVs on the road in 2022, which represents about 2.5 percent of the statewide total (4,555).[15]

Various infrastructure is required to support EVs on Montana roadways. Data available from the US Department of Energy Alternative Fuel Data Center indicates that Great Falls has 7 public electric vehicle charging stations, with 21 total ports. All existing charging infrastructure supports I-15, the only designated Alternate Fuel Corridor (AFC) in Great Falls. The AFC is pending completion of full buildout of EV charging infrastructure along the corridor. **Table 2.2** details the existing EV charging infrastructure in the Great Falls area identified by the Montana EV Infrastructure Deployment Plan[16] and the Alternative Fuels Data Center. The station data is gathered and verified through a variety of methods, and it is possible there are additional EV charging stations within the area not captured by this source.

FHWA has designated over 2,000 corridor miles as electric vehicle pending corridors in Montana. Montana's EV Plan prioritizes funding charging locations that meet the National Electric Vehicle Infrastructure Program (NEVI) requirements along each of these corridors.

Table 2.2: Existing Public EV Infrastructure in Great Falls

State ID	Charger Level	EV Corridor Supported	Address	Location	Charging Ports	EV Network
164271	L2	I-15	600 River Dr S	Best Western	2	ChargePoint
167373	L2	I-15	1000 3rd Street NW	North 40 Outfitters	2	ChargePoint
220467	L2	I-15	409 3rd Street NW	Citizens Alliance Bank	2	SemaCharge
231076	L2	I-15	800 Central Ave	Great Falls Subaru	1	Blink
302383	L2	I-15	3900 10th Ave S	City Motor Company	2	ChargePoint
163998	DC Fast	I-15	2301 14th St SW	Great Falls Hampton Inn	8	Tesla
114624	L2	I-15	421 3rd St NW	Spring Hill Suites	4	Tesla Destination

Source: Montana EV Infrastructure Deployment Plan Update, 2023; Alternative Fuels Data Center – Accessed November 15, 2023.

2.2. Transportation Conditions

An evaluation of traffic operations for the study area was completed using available data provided by the City of Great Falls, Cascade County, and MDT in addition to supplemental field-collected data. Turning-movement counts were conducted at 40 intersections within the study area during peak travel periods during the summer of 2023. Mainline traffic volume data for existing and historic conditions were available at several locations within the study area. Visual observations were also made for driver behavior, vehicle queuing, and general traffic characteristics during various field reviews. The following sections provide details about the existing traffic characteristics for the study area.

2.2.1. Existing Roadway Volumes and Capacity

Existing roadway traffic data were collected by MDT, the City of Great Falls, and Cascade County. The data were used to establish traffic conditions and to provide reliable data on historic traffic volumes. The existing facility size for the major street network is presented in **Figure 2.5**. Facility size is a qualitative observation of the number of travel lanes and physical divisions of the roadway. The existing Average Annual Daily Traffic (AADT) along the major street network is presented in **Figure 2.6.**

The capacity of the roadways is of critical importance when looking at the growth of the community. As traffic volumes increase, vehicle flow deteriorates. When traffic volumes approach and exceed the available capacity, users experience congestion and vehicle delay. As such, it is important to investigate the size and configuration of the existing roadways and compare their capacity to current demand. This helps determine if these roads need to be expanded to accommodate the existing or projected traffic demands, or if other parallel routes need to be improved to shift travel demand to currently underutilized facilities. The capacity of a roadway is based on various features including the number of lanes, intersection function, access and intersection spacing, vehicle fleet mix, roadway geometrics, and vehicle speeds. Individual roadway capacity varies greatly and should be calculated on an individual basis. However, for planning and comparison purposes, theoretical roadway capacities were developed based on the existing roadway configuration. **Table 2.3** presents the capacities, given in vehicles per day (vpd), that have been used for this work. The values given in the table are not intended to be used to set any thresholds for roadway performance, but rather provide general information to be used for comparison purposes.

Table 2.3: Theoretical Roadway Capacity

Road Configuration[a]	Capacity (vpd)[b]
2 Lane	12,000
2 Lane - Divided / TWLTL	18,000
3 Lane	18,000
3 Lane - Divided / TWLTL	24,000
4 Lane	24,000
4 Lane - Divided / TWLTL	32,000
6 Lane - Divided / TWLTL	48,000
Interstate	68,000

[a] *TWLTL = Two-Way Left-Turn Lane*
[b] *Values represent planning level daily capacities developed for this Transportation Plan and are intended for comparison purposes only. Actual physical roadway capacity can vary greatly depending on road design features and access control.*

A roadway's capacity, and associated volume-to-capacity (v/c) ratio, can be used as a comparison tool when looking at the transportation system. The v/c ratio of a roadway is defined as the traffic volume on the roadway divided by the capacity of the roadway. **Figure 2.7** presents the resultant v/c ratios for the existing major street network based on 2021 AADTs.

A v/c ratio that exceeds 1.00 is typically a sign that the volumes on the roadway are greater than the available capacity on the roadway. When this occurs, higher than normal vehicle delays are generally experienced. However, as mentioned previously, the theoretical roadway capacities are used for comparison purposes and actual physical roadway capacity can vary greatly. Consequently, the v/c ratios in **Figure 2.7** should be used to help identify potential capacity deficiencies in the transportation system.

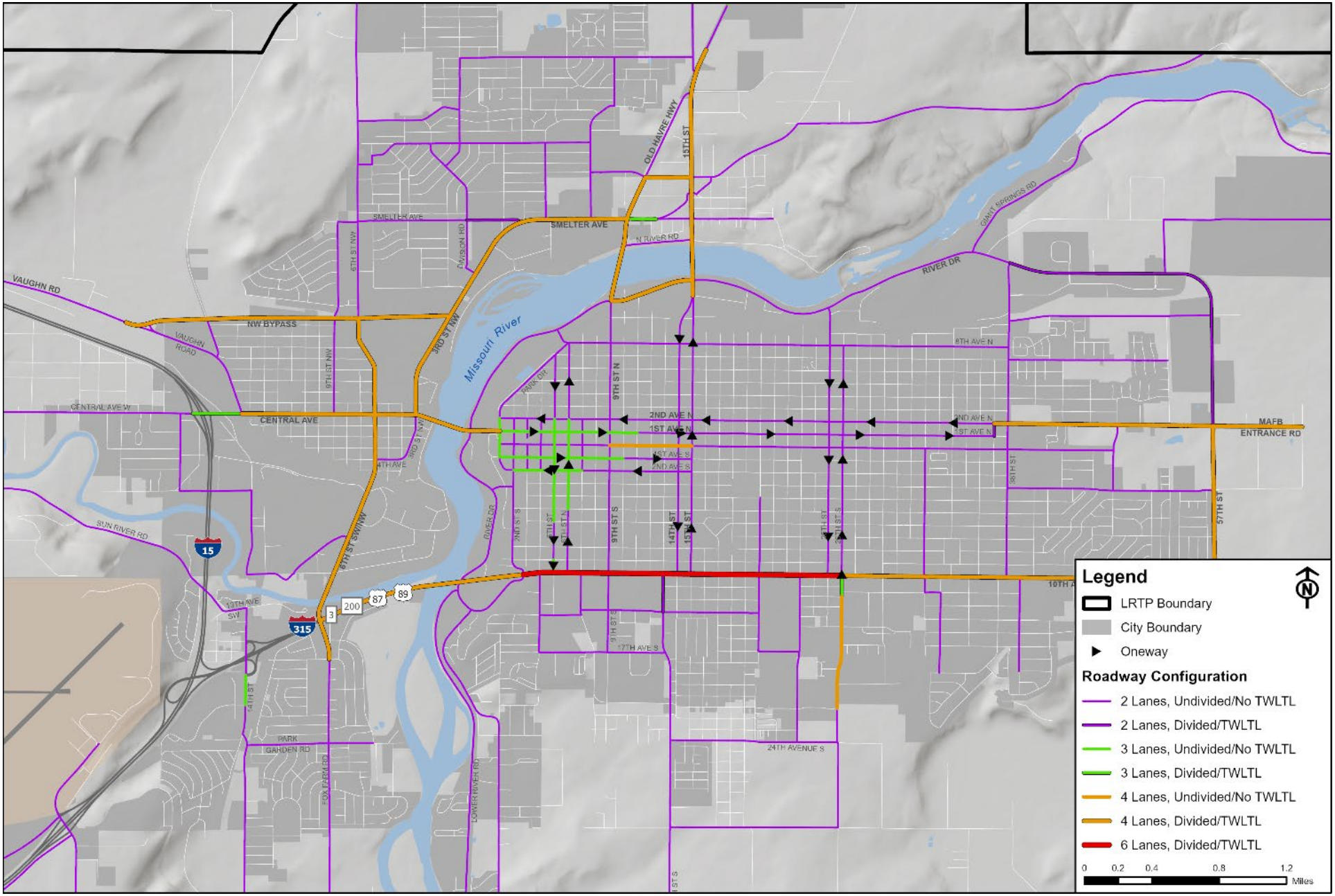


Figure 2.5: Existing Corridor Facility Size

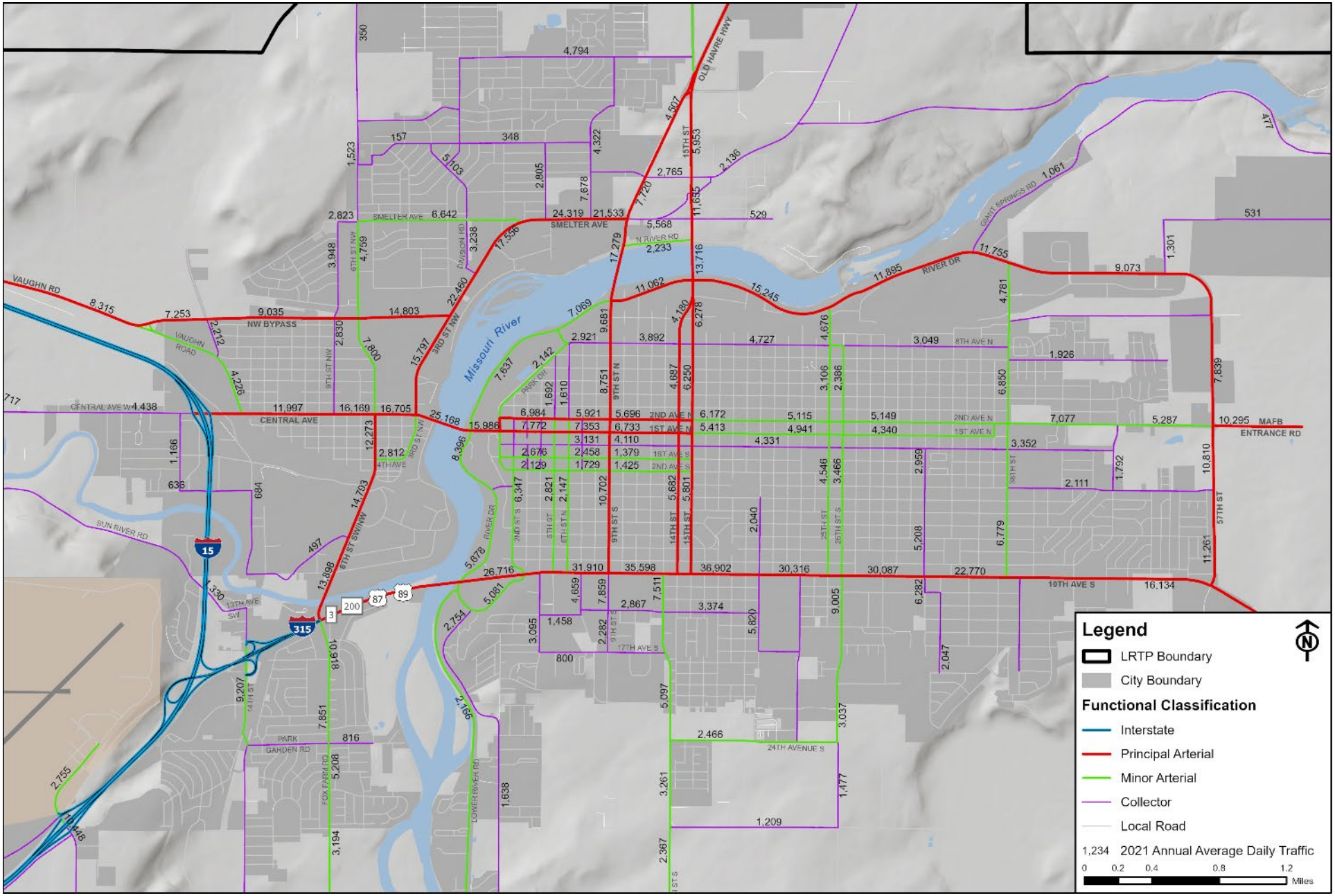


Figure 2.6: Existing AADT (2021)

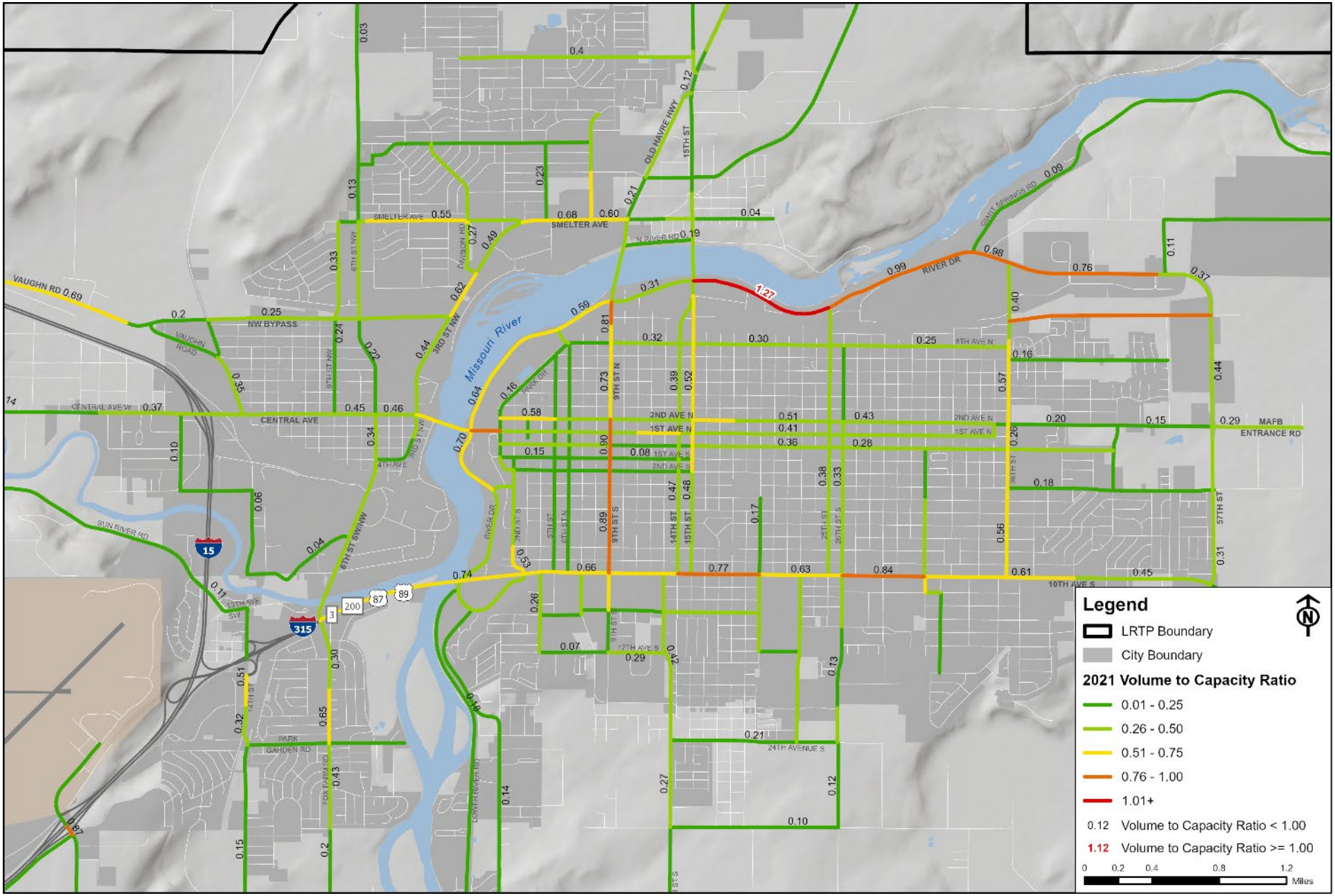
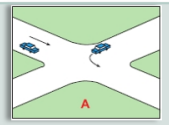
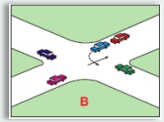
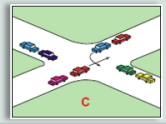
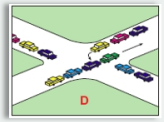
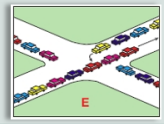
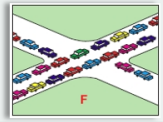


Figure 2.7: Existing Volume to Capacity Ratios (2021)

2.2.2. Intersection Operations

Intersection performance is evaluated in terms of vehicle delay. The amount of vehicle delay experienced at an intersection correlate to a measure called level of service (LOS). LOS is used as a means for identifying intersections that are experiencing operational difficulties, as well as a means for comparing multiple intersections. The LOS scale represents the full range of operating conditions. The scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using the intersection. The scale ranges from "A" which indicates little, if any, vehicle delay, to "F" which indicates significant vehicle delay and traffic congestion. **Table 2.4** shows the relationship between LOS and operating conditions.

Table 2.4: Intersection LOS Descriptions

LOS	Intersection	Signalized Delay (sec)	Unsignalized Delay (sec)	Description
A		<10	<10	• Free flow • Low Volumes • <1 vehicle in queue • **Signalized:** most vehicles do not stop • **Unsignalized:** Very easy to find acceptable gap
B		10-20	10-15	• Mostly free flow • Somewhat low Volumes • Occasionally 1+ vehicles in queue • **Signalized:** vehicles clear in one green phase • **Unsignalized:** Very easy to find acceptable gap
C		20-35	15-25	• Smooth flow • Moderate Volumes • Standing queue of at least 1 vehicle • **Signalized:** Individual cycle failures may occur • **Unsignalized:** Acceptable gaps found regularly
D		35-50	25-35	• Approaching unstable flow • High volume/capacity ratios • Standing queue of vehicles upon arrival • **Signalized:** Individual cycle failures are noticeable • **Unsignalized:** Hard to find acceptable gap
E		50-80	35-50	• Unstable flow • Volumes at or near capacity • Standing queue of vehicles upon arrival • **Signalized:** Individual cycle failures are frequent • **Unsignalized:** Hard to find acceptable gap
F		>80	>50	• Saturation condition • Volumes over capacity • Standing queue of vehicles upon arrival • **Signalized:** Many individual cycle failures • **Unsignalized:** Very hard to find acceptable gap

The Transportation Research Board's *Highway Capacity Manual* (HCM) is the most widely used reference in determining the performance of existing roads and intersections, and for providing input into estimating future performance.[17] As such, the HCM methods are implemented in the LRTP intersection LOS analysis. Key inputs for the analysis include intersection layout, traffic volumes, traffic control, and signal timings. The observed volumes are adjusted by peak hour and seasonal adjustment factors and are used to calculate the ideal flow rate through the intersection. This flow rate helps calculate the true capacity of the intersection. With this information, total vehicle delay and LOS can be calculated for the intersection.

Data from various sources were compiled to display LOS for intersections in the study area. Intersections having poor operations or safety concerns were identified by the City as needing analysis and were therefore included herein. Data from recent traffic studies conducted by the City of Great Falls and MDT were also used to supplement the analysis. In total, 63 intersections have been included in the LOS analysis including 40 intersections with updated turning movement counts collected in Summer 2023 and 23 intersections with turning movement counts collected by other agencies between 2020 and 2023. Of these 63 intersections considered, 29 were signalized and 34 were unsignalized. Each intersection was analyzed for the morning and evening peak hours, defined as 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. **Figure 2.8** shows the intersections where peak hour turning movement counts are available.

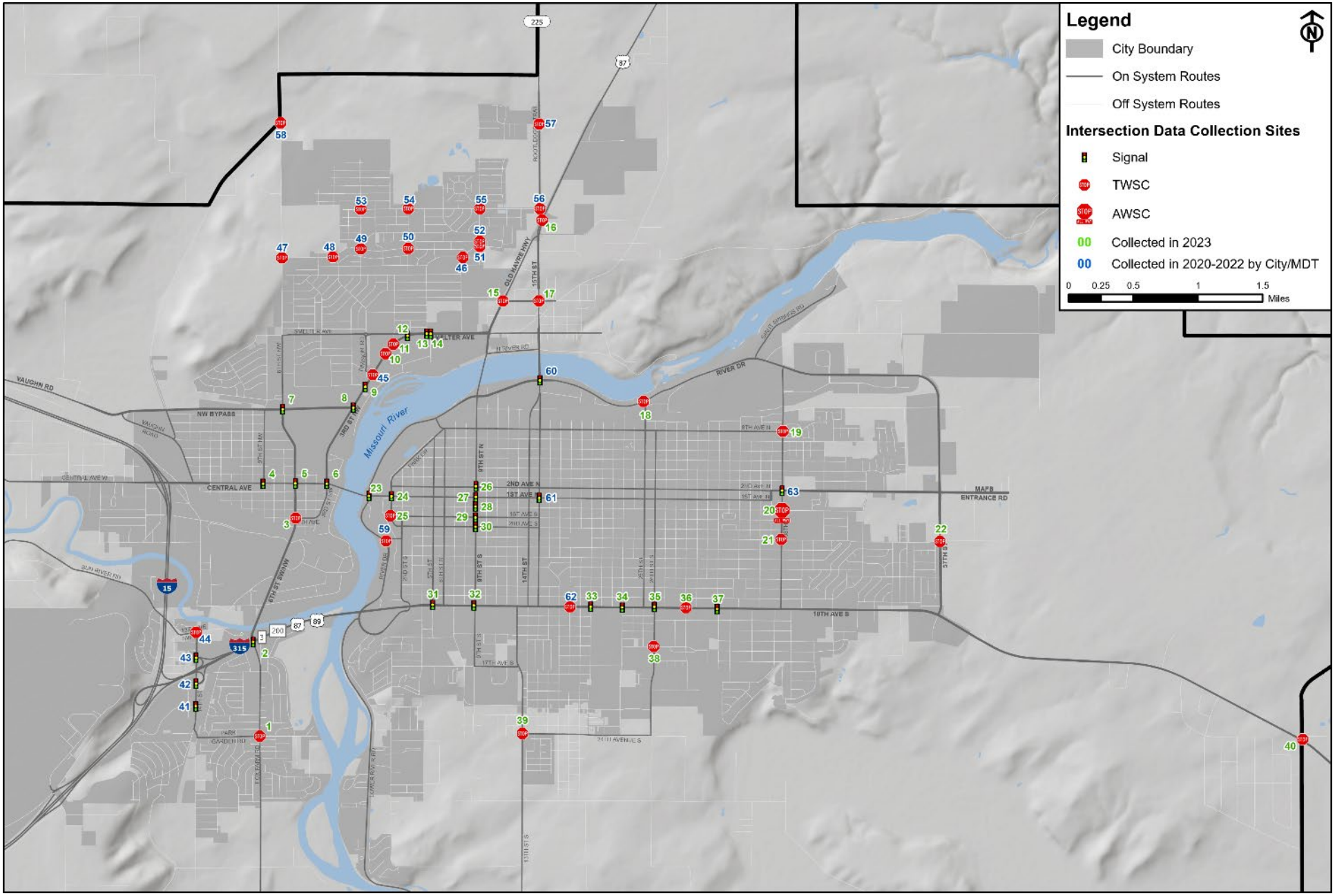


Figure 2.8: Intersection Data Collection Sites

Signalized Intersections

For signalized intersections, the LOS is based on the average stopped delay per vehicle; this relationship was shown previously in **Table 2.4**. The procedures used to evaluate signalized study intersections use detailed information on geometry, lane use, signal timing, peak hour volumes, arrival types, and other parameters. An intersection is typically considered to be functioning adequately if it is operating at LOS C or better during peak travel times.

Unsignalized Intersections

LOS for two-way stop (TWS) controlled intersections are based on the delay experienced by each individual movement within the intersections, rather than on the average stopped delay per vehicle at the intersection. This difference from the method used for signalized intersections is necessary since the operating characteristics and driver expectations at a stop-controlled intersection are substantially different. For TWS controlled intersections, the through traffic on the major (uncontrolled) street experiences little to no delay while vehicles on the minor streets typically experience longer delays. Vehicles on the minor street which are turning right or traveling across the major street generally experience less delay than those turning left from the same approach. Accordingly, the intersection delay and LOS are based on the average delay incurred at the worst performing movement.

For all-way stop (AWS) controlled intersections, LOS is based on average vehicle delay experienced at the intersection since all approaches are given similar opportunity to move through the intersection. This methodology is similar to that of signalized intersections.

Intersection Level of Service

For this analysis, intersections were analyzed on an individual basis. This means that LOS was determined based on the total number of vehicles traveling through the intersection during the peak hour. Consequently, intersection queues that form as a result of delay at nearby intersections may not be accounted for in this analysis.

The intersection of River Drive and 38th Street North is signalized.

The intersection of 10th Avenue South and 29th Street South is two-way stop-controlled.

Table 2.5 presents the LOS and average vehicle delay for the study intersections during the AM, noon, and PM peak hours. The existing intersection LOS is shown in **Figure 2.9**. Detailed results are provided in **Appendix B**. The data indicates that a handful of intersections are operating at or beyond their available capacity during peak hours under existing traffic conditions (LOS E and F). All of these intersections are unsignalized and may be candidates for a higher form of intersection control. Several other intersections experience LOS C or D during peak hours and may experience worsening conditions as growth occurs. These conditions primarily occur on major arterials such as 10th Avenue South, Fox Farm Road, 6th Street Northwest, 3rd Street Northwest, 38th Street North, Central Avenue, and 1st Avenue North.

Table 2.5: Existing Intersection Level of Service

ID	Intersection	Control*	AM Peak		PM Peak	
			Delay (sec)	LOS	Delay (sec)	LOS
01	Park Garden Rd/Fox Farm Rd	TWS	22.5	C	25.1	D
02	6th St SW/Fox Farm Rd/Country Club Blvd	Signal	54.1	D	41.2	D
03	6th St SW/4th Ave SW	TWS	28.7	D	35.3	E
04	9th St NW/Central Ave W	Signal	6.4	A	6.5	A
05	6th St SW/Central Ave W	Signal	21.1	C	21.7	C
06	3rd St NW/Central Ave W	Signal	33.9	C	50.4	D
07	6th St NW/Northwest Bypass	Signal	15.2	B	14.4	B
08	3rd St NW/Northwest Bypass	Signal	19.0	B	17.6	B
09	3rd St NW/14th Ave NW	Signal	12.5	B	12.4	B
10	3rd St NW/17th Ave NE	TWS	39.9	E	51.0	F
11	3rd St NW/4th St NE	TWS	13.2	B	13.7	B
12	3rd St NW/Smelter Ave NE	Signal	11.7	B	9.0	A
13	Smelter Ave NE/6th St NE (1)	Signal	11.7	B	9.5	A
14	Smelter Ave NE/6th St NE (2)	Signal	3.0	A	8.0	A
15	Old Havre Hwy/25th Ave NE	TWS	15.5	C	23.1	C
16	Bootlegger Trail/US 87	TWS	16.4	C	67.8	F
17	15th St NE/25th Ave NE	TWS	31.4	D	135.5	F
18	River Dr N/25th St N	TWS	30.3	D	87.7	F
19	8th Ave N/38th St N/Highwood Dr	TWS	15.3	C	25.2	D
20	Central Ave/38th St N	AWS	15.6	C	16.8	C
21	3rd Ave S/38th St S	TWS	30.2	D	20.8	C
22	3rd Ave S/57th St S	TWS	16.0	C	21.0	C
23	Central Ave/River Dr S/1st Ave N	Signal	25.0	C	50.7	D
24	1st Ave N/Park Dr	Signal	14.6	B	22.0	C
25	1st Ave S/Park Dr	TWS	9.8	A	10.2	B
26	9th St N/2nd Ave N	Signal	18.5	B	18.0	B
27	9th St N/1st Ave N	Signal	22.3	C	27.6	C
28	9th St N/Central Ave	Signal	15.3	B	30.3	C
29	9th St N/1st Ave S	Signal	8.5	A	8.8	A
30	9th St N/2nd Ave S	Signal	5.4	A	8.2	A
31	10th Ave S/5th St S	Signal	12.0	B	17.3	B
32	10th Ave S/9th St S	Signal	19.3	B	26.6	C
33	10th Ave S/20th St S	Signal	7.8	A	10.9	B
34	10th Ave S/23rd St S	Signal	6.5	A	29.4	C
35	10th Ave S/26th St S	Signal	14.0	B	20.9	C
36	10th Ave S/29th St S	TWS	28.7	D	26.9	D
37	10th Ave S/32nd St S	Signal	19.3	B	24.3	C
38	15th Ave S/26th St S	TWS	21.6	C	19.3	C
39	13th St S/24th Ave S	TWS	10.0	A	10.3	B
40	US 89/Highwood Rd/Stockett Rd	TWS	13.8	B	15.7	C
41	14th St SW/Market Place Dr	Signal	6.9	A	11.2	B
42	14th St SW/EB Ramps	Signal	9.4	A	10.3	B
43	14th St SW/WB Ramps/16th Ave SW	Signal	11.9	B	12.5	B
44	14th St SW/13th Ave SW	TWS	10.1	B	10.2	B
45	3rd St NW/16th Ave NW	TWS	14.9	B	18.8	C
46	8th St NE/Sacajawea Dr	TWS	11.8	B	11.9	B
47	6th St NW/Skyline Dr NW	TWS	9.2	A	9.4	A
48	Division Rd/Skyline Dr NW	TWS	8.8	A	9.4	A
49	2nd St NE/Skyline Dr NE	TWS	11.3	B	11.9	B
50	5th St NE/Skyline Dr NE	TWS	9.2	A	9.3	A
51	9th St NE/Skyline Dr NE	TWS	9.1	A	8.8	A
52	9th St NE/32nd Ave NE	TWS	9.9	A	8.7	A
53	2nd St NE/36th Ave NE	TWS	9.9	A	11.1	B
54	5th St NE/36th Ave NE	TWS	9.5	A	9.4	A
55	9th St NE/36th Ave NE	TWS	13.7	B	13.0	B
56	Bootlegger Tr/36th Ave NE	TWS	12.6	B	12.0	B
57	Bootlegger Tr/46th AVE NE	TWS	9.2	A	8.6	A
58	Vinyard Rd/6th St NW	TWS	8.6	A	8.4	A
59	River Dr S/3rd Ave S	TWS	9.1	A	10.3	B
60	River Dr N/15th St NE	Signal	35.7	D	39.9	D
61	1st Ave N/15th St N	Signal	8.6	A	15.0	B
62	10th Ave S/18th St S	TWS	915.0	F	1130.5	F
63	38th St N/2nd Ave N	Signal	9.0	A	9.4	A

**TWS = Two-Way Stop, AWS = All-way Stop*

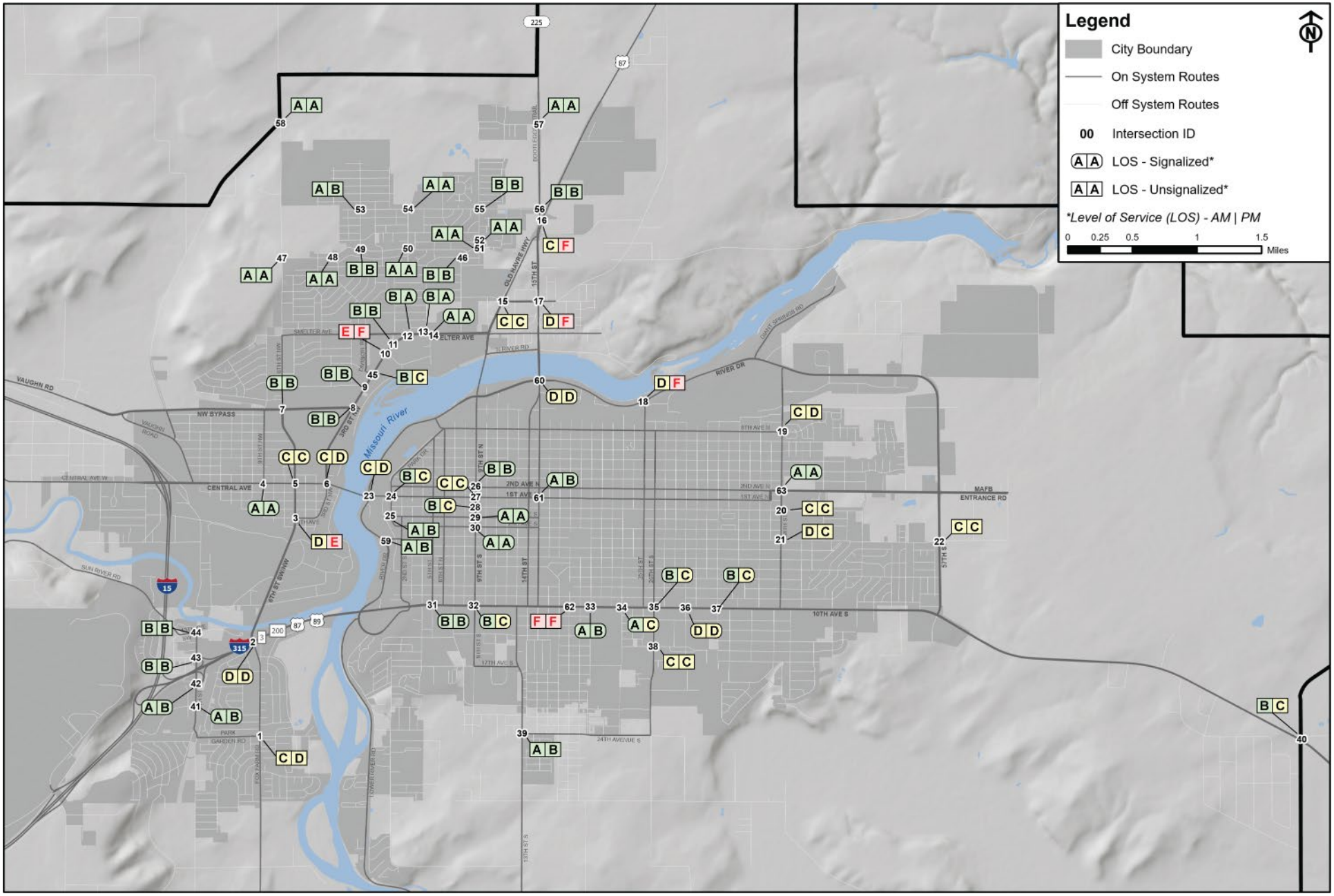


Figure 2.9: Existing Intersection Level of Service

2.2.3. Non-Motorized Transportation Conditions

Providing an accurate picture of pedestrian and bicycle activity within any community is difficult. Typically, data is not available or not comprehensive enough to form a complete picture of active transportation behavior. Data for vehicles is, by comparison, much more readily available. The following subsections summarize available data pertaining to active transportation.

JOURNEY TO WORK/COMMUTING (ACS) 2017-2021 DATA

The US Census has long been one of the only readily available sources of data to measure general levels of transportation choices. The data are limited to commute-based trips and do not reflect the spectrum of potential trip types available. The American Community Survey (ACS) has supplemented the 10-year cycle of the US Census to provide additional annual data. For smaller geographic areas with smaller sample sizes, annual data are not statistically valid, therefore five-year averages are used. This method provides some insight, however, it is slow to note changes over time. For walking and bicycling, the margins of error are relatively high. Estimates of the total share of workers who commute or work at home, the transportation modes used by commuters, and the mean travel times to work for commuters are presented in **Table 2.6** for workers in Cascade County, Great Falls, and the smaller study area communities.

Table 2.6: Commute Mode Share and Travel Time

Mode Share	Cascade County	City of Great Falls	Malmstrom AFB	Black Eagle
Walking	2.7%	1.8%	11.0%	8.9%
Biking	0.6%	0.7%	0.5%	-
Driving	89.3%	90.2%	84.1%	91.1%
Drove Alone	*79.8%*	*81.1%*	*67.6%*	*81.8%*
Public Transportation	0.8%	0.9%	0.6%	-
Worked from Home	5.7%	5.4%	3.9%	-
Mean Travel Time to Work (minutes)	**16.8**	**15.1**	**13.0**	**13.3**

Data: ACS Report, 2017-2021 (5-year estimates)

Commuting patterns have changed slightly when compared with those of the 2000 and 2010 Census. While the margin for error inherent in the ACS is significant, the inconsistency in the data makes it difficult to make any concrete conclusions about travel patterns. In 2000, the Census reported that 3.1 percent of Great Falls residents walked to work, 0.5 percent biked, and 1.0 percent used public transportation. In 2010, walking decreased to 2.7 percent while biking and public transportation increased to 0.8 and 1.7 percent, respectively. Trends in walking, biking, and public transportation have all seemingly decreased in the last decade (2010 to 2020; 1.8 percent walking, 0.7 percent biking, and 0.9 percent public transportation). Although the margin of error in this dataset is high, it is important to note this trend, especially considering that the city has seen a decrease in personal vehicle ownership over the last two decades (97.7 percent in 2010, 97.0 percent in 2000, and 96.3 percent in 2020). However, the city has seen an increase in workers who work from home (2.5 percent in 2000, 3.0 percent in 2010, and 4.7 percent in 2020) which decreases the number of commuters. The downward trend of non-motorized transportation users could be due to a larger number of households being constructed at a greater distance from destinations.

NATIONAL HOUSEHOLD TRAVEL SURVEY

Data from the 2017 National Household Travel Survey (NHTS) inventory provides information about personal travel behavior in the US, including mode choice and trip purpose. NHTS indicates that about 10.5 percent of person trips nationwide are made by walking while about 1.0 percent of person trips are made by bike and 1.5 percent of person trips are made by public bus services. NHTS indicates that for every one bike to work trip, there are another 1.5 utilitarian bike trips (shopping/errands, transporting others, medical or dental visits, meals, or other reasons), 0.5 bike to school trips, and 1.7 social or recreational trips. Overall, bike to work trips represent only approximately 12.5 percent of all bike trips nationally. It should be noted that approximately 42 percent of bike trips counted by NHTS are return home trips, indicating many bicyclists perform the initial part of their round trip by other means. While it is likely that travel patterns in the study area, particularly recreational based travel, do not match the national averages, it is very likely that the ACS commute mode share noted previously in **Table 2.6** underrepresents overall mode share in the study area.

The recently launched Next-Generation National Household Travel Survey (NextGen NHTS) provides a more continuous travel monitoring program with local data products including multimodal passenger and truck origin-destination information. Data for the Great Falls area indicates that about 84.9 percent of passenger trips are made via vehicle while about 14.8 percent are made via active transportation modes on a yearly basis. Of those trips made by vehicle, approximately 91.8 percent are less than 10 miles long. Of those trips made by active transportation modes, 99.9 percent are inter-zonal trips that start and end within the Great Falls area. Overall, work trips make up about 3.4 percent of all trips made within the Great Falls area. For truck trips, about 85.3 percent are inter-zonal trips. About 74.5 percent of truck trips are less than 10 miles long. Overall, there are approximately 46 passenger trips for every one truck trip within the Great Falls area.

WALK SCORE

Walkscore.com measures how “walkable” or “bikeable” a community is by measuring the availability of non-motorized facilities and connectivity to nearby amenities. The site indicates that Great Falls is a car-dependent city with most errands requiring a car. The site gives the city a walk score of 44 and a bike score of 43 (out of 100). The downtown area generally scores the highest in terms of walkability with scores decreasing in further parts of the city, as shown in **Figure 2.10**. By comparison, Bozeman has a walk/bike score of 47/62; Helena scores 49/45; Missoula scores 45/60; and Billings scores 35/47.

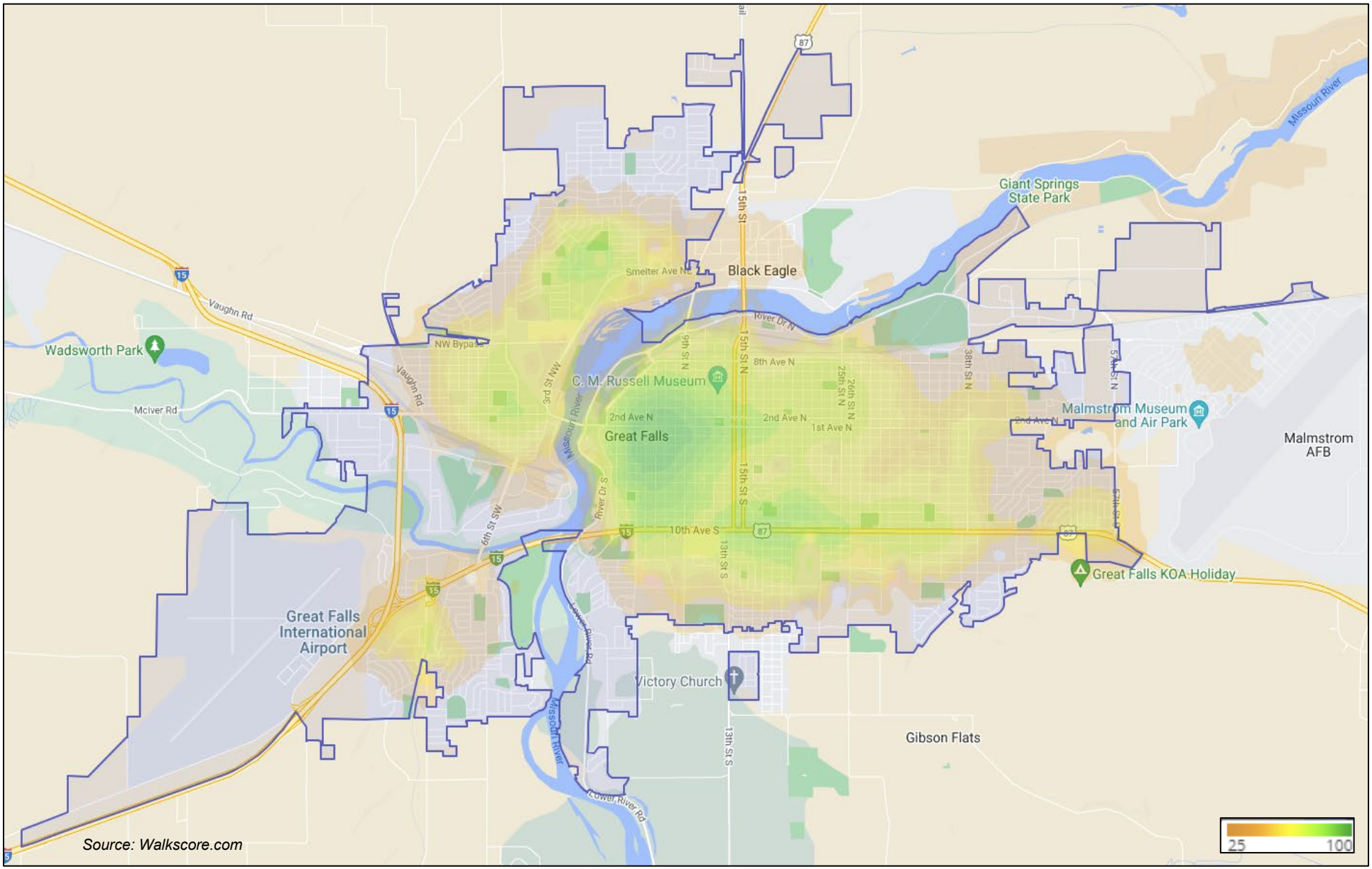


Figure 2.10: Great Falls Walk Score

2.2.4. Regional Travel Patterns and Trends

To understand travel patterns throughout the Great Falls area, field-collected data was supplemented with traffic data from StreetLight, an on-demand provider of traffic data collected from smart phones and navigation devices. StreetLight uses anonymized location records from these devices to infer individual trips that took place within a given geographic boundary and during a given time period. To ensure the data is accurate, Streetlight validates their data against census population estimates and traffic counts from permanent loop counters across the country. For this analysis, StreetLight data representing the 2022 calendar year was analyzed and trends for both passenger vehicles and commercial trucks were examined.

TEMPORAL TRAVEL TRENDS

Figure 2.11 illustrates the average number of trips taken by all vehicles (solid lines) and trucks (dotted lines) during each hour of the day categorized by weekdays (Monday – Thursday), weekends (Saturday & Sunday), and all days (Saturday – Sunday). The data includes all trips that either start or end in the Great Falls LRTP boundary, regardless of their destination or origin, respectively. It is important to note that the 'all vehicles' volume displayed in the figure also includes truck volumes. As shown in the figure, weekday traffic experiences distinct peaks during the morning (7:00 AM – 8:00 AM), midday (11:00 AM – 1:00 PM), and evening (4:00 PM – 6:00 PM) timeframes which align with typical commuting patterns. On weekends, traffic volumes are approximately 34 percent less than on weekdays with traffic increasing throughout the late morning, peaking around 12:00 PM, then decreasing throughout the remainder of the afternoon and evening. Truck volumes, on the other hand, peak around 8:00 AM on weekdays then decrease throughout the day with drops in traffic volumes during the evening commuting hours (5:00 PM). On weekends, truck traffic volumes are approximately 53 percent less than on weekdays with volumes increasing until approximately 11:00 AM then decreasing throughout the remainder of the day.

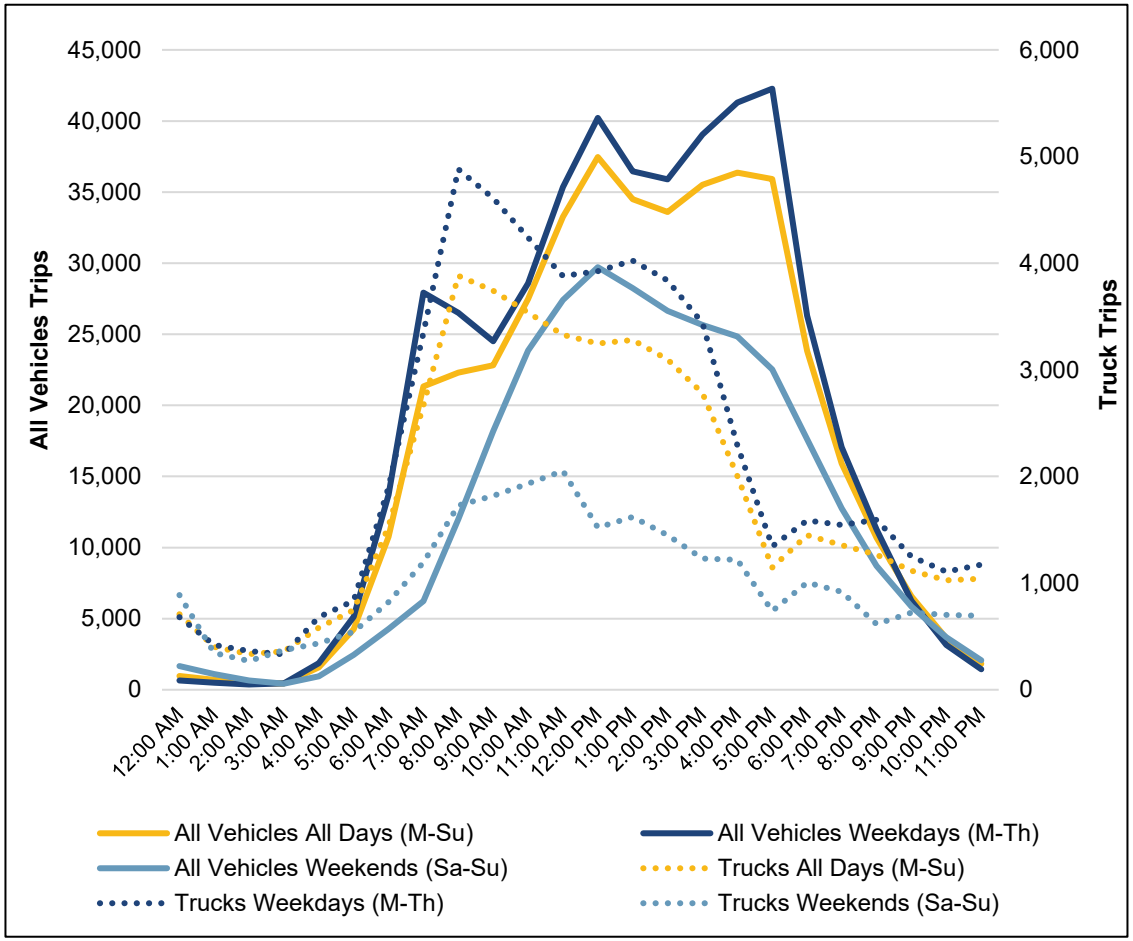


Figure 2.11: Hourly Traffic Patterns

Figure 2.12 summarizes the average number of daily trips for all vehicles and trucks during each month of the year. The figure indicates that more trips are taken in the Great Falls area during the late summer/early fall months (August and September) but otherwise experience little variation throughout the year. Trucks are also shown to peak in the late summer/early fall months as well as in February. Due to the agricultural nature of the majority of Cascade County, and its proximity to regional trade centers, it is possible that the increased number of trips during this time period could be related to fall harvests. For both all vehicles and trucks, there is little variation throughout the year on trips taken on weekends.

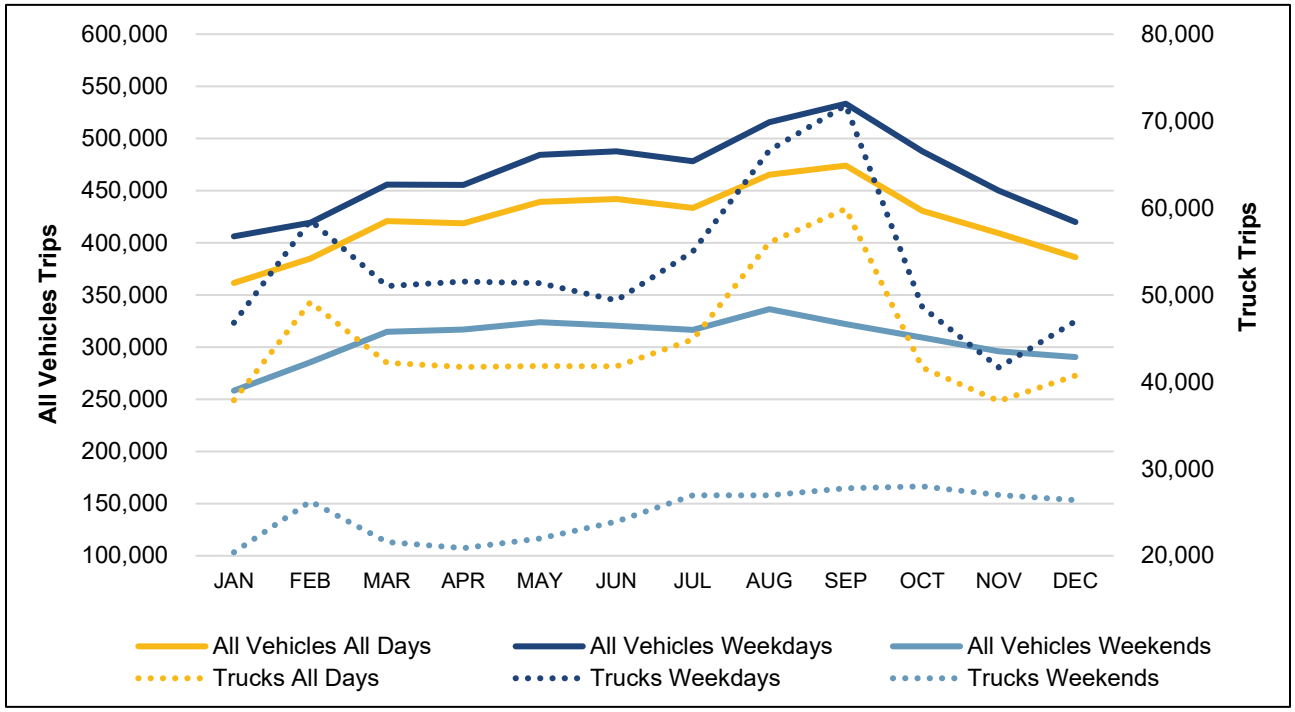


Figure 2.12: Monthly Traffic Patterns

TRIP CHARACTERISTICS

StreetLight also gathers information about trip characteristics including travel times, trips lengths, trip speeds, and trip circuity. **Figure 2.13** illustrates average trip lengths for all vehicles and trucks on an hourly basis while **Figure 2.14** illustrates trip lengths on a percentile basis. The travel time and travel speed results are highly correlated with trip length and are therefore not shown. As shown in **Figure 2.13**, average trip lengths for all vehicles range from approximately 12 miles to 23 miles long with the longest trips being observed in the early morning hours. Truck results also demonstrate a large increase in the trip lengths in the early morning hours, perhaps due to an increased frequency of long-distance regional trips during these hours.

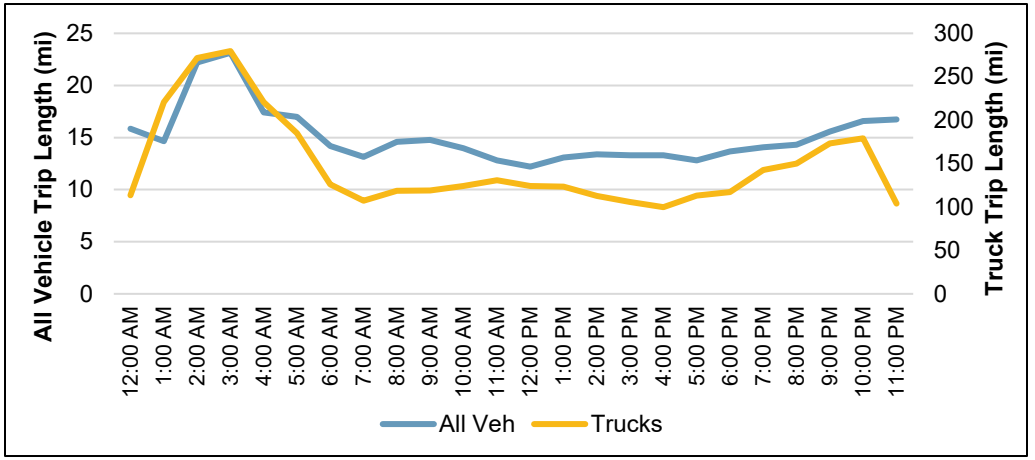


Figure 2.13: Trip Lengths by Hour

Figure 2.14 indicates that approximately 50 percent of truck trips are less than 10 miles long, presumably serving local needs, while about 50 percent of truck trips are longer than 10 miles presumably serving regional freight needs. When averaged with all vehicles, approximately 75 percent of all trips in the Great Falls area are less than 5 miles long, with over 30 percent being less than two miles long and nearly 10 percent being less than 1 mile long. Note, StreetLight's analysis methodology ends a 'trip' after a user's location doesn't move 5 meters in 5 minutes, so it does not necessarily account for trip chaining, or completing several shorter distance, nearby trips in one outing. It is, however, possible that increased investment in non-motorized infrastructure could shift some of these shorter vehicle trips to walking or biking trips in the future.

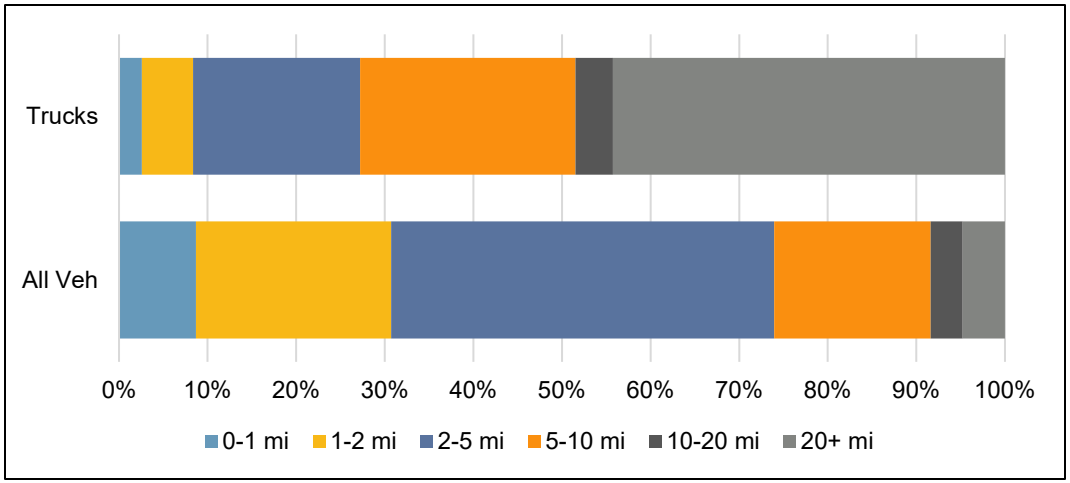


Figure 2.14: Trip Length Percentiles

Figure 2.15 illustrates trip circuity in the Great Falls area. Trip circuity is the ratio of vehicle distance traveled to direct travel distance. As shown in the figure, 100% of truck trips have a circuity ratio of 5 or less, with about 97 percent having a circuity ratio of 3 or less. When averaged across all vehicles, the frequency of trips with greater trip circuity ratios increases slightly. Still, about 87 percent of all vehicle trips have a circuity ratio of 2 or less, meaning 87 percent of trips are direct. Typically, in urban areas, trip circuity decreases as travel distance or travel time increases. For short, local trips, it is not uncommon to have larger circuity ratios as vehicles take out-of-direction trips to avoid bottlenecks and related congestion.

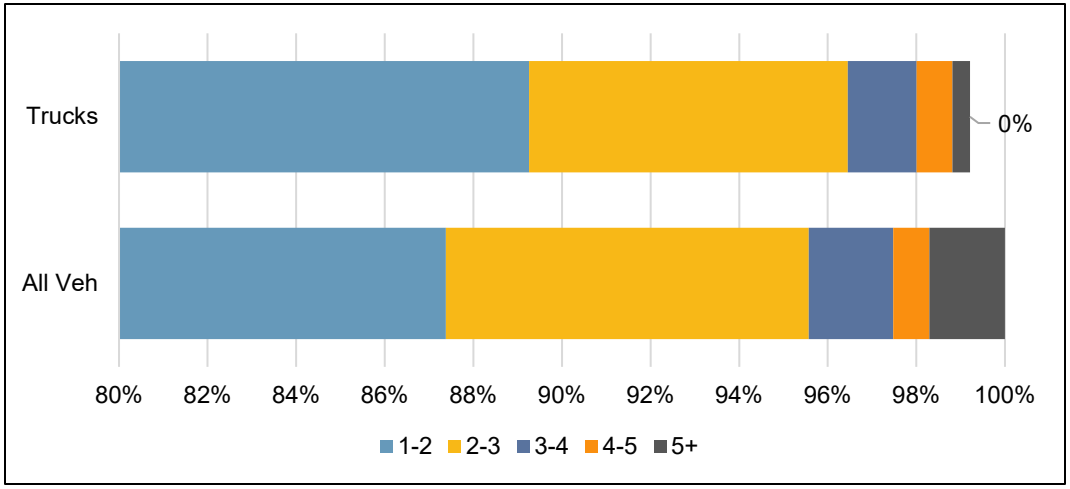


Figure 2.15: Trip Circuity

ORIGIN-DESTINATION

By tracking the start and end points of trips in the Great Falls area, StreetLight can provide valuable origin-destination data to help understand where trips are originating, where they are ending, and which pairs of origins and destinations are most popular. This can help identify travel routes between popular origin-destination pairs which may need additional investment as development occurs and traffic volumes increase. The origins and destinations used for this analysis are called traffic analysis zones (TAZs) and they are based on census tracts, aggregated to form larger areas with common land use patterns, as illustrated in **Figure 2.16**. An origin-destination matrix is provided in **Table 2.7** showing

the number of trips between each of the 11 origins-destination pairs. Trips that start in a TAZ outside the Great Falls area but end their trip inside one of the Great Falls TAZs, or vice versa, are tabulated in the "somewhere else" column/row. The results represent the average number of trips taken on the average day by all vehicle types.

Table 2.7: Great Falls Origin-Destination Trips (Daily Average)

Destination ▶ Origin ▼	Downtown	Midtown	Eastside Industrial	Malmstrom	Black Eagle - North	North Great Falls	Westside	Sun River	Airport - West	Fox Farm	Southside	Somewhere Else	Total Origin Trips
Downtown	**5,362**	4,590	789	491	905	2,290	4,607	347	674	3,197	6,564	2,406	**32,222**
Midtown	4,993	**7,237**	1,739	924	782	1,531	2,652	222	488	1,997	8,906	2,063	**33,534**
Eastside Industrial	869	1,693	**514**	370	253	392	676	56	67	326	1,570	689	**7,475**
Malmstrom	544	969	364	**4,489**	63	252	345	8	61	248	1,339	202	**8,884**
Black Eagle - North	881	697	253	71	**998**	1,005	1,809	137	345	631	989	594	**8,410**
North Great Falls	2,292	1,509	404	272	979	**2,566**	4,711	142	420	1,075	2,186	150	**16,706**
Westside	3,906	2,487	604	346	1,853	4,780	**8,819**	697	1,143	3,572	4,283	1,729	**34,219**
Sun River	348	224	60	9	132	150	687	**96**	89	424	413	132	**2,764**
Airport - West	677	475	79	78	358	351	987	79	**2,020**	968	975	1,518	**8,565**
Fox Farm	2,992	1,982	357	266	656	1,067	3,420	414	1,050	**7,002**	5,000	634	**24,840**
Southside	6,827	9,398	1,515	1,350	949	2,146	4,259	389	866	4,704	**17,376**	2,535	**52,314**
Somewhere Else	2,380	2,216	771	212	507	185	1,316	168	1,400	672	2,828	--	**12,655**
Total Destination Trips	**32,071**	**33,477**	**7,449**	**8,878**	**8,435**	**16,715**	**34,288**	**2,755**	**8,623**	**24,816**	**52,429**	**12,652**	**242,588**

As shown in **Table 2.7**, the Southside area has the most origin and destination trips while the Sun River area has the least. Approximately 6 percent of trips originating in the Great Falls area end in a destination outside the Great Falls area, similarly, about 6 percent of trips that end in end in the Great Falls area originated outside of Great Falls. A large percentage of trips travel between the Downtown, Midtown, and Southside areas on a daily basis. The Westside area accounts for the second highest number of trips with most trips traveling between the North Great Falls, Downtown, Southside, and Fox Farm areas.

The number of "internal capture" trips, or those that start and end within the same zone, are shown in **Table 2.7** in bold. For about half of all zones (excluding Midtown, Eastside Industrial, Black Eagle-North, North Great Falls, and Sun River), internal capture trips make up the majority of all trips originating in that zone. Malmstrom AFB has the largest percentage of internal capture trips, totaling about 51 percent.

The same origin-destination analysis was conducted for truck trips only. It was found that about 96 percent of all truck trips originating in the Great Falls Area ended outside the Great Falls area. Similarly, about 96 percent of truck trips that ended in the Great Falls area originated outside of Great Falls. This trend indicates that most truck traffic in the Great Falls area is regional freight traffic shipping goods either into or out of the Great Falls area. The greatest activity (about 15 percent) occurs in the Fox Farm area, which also covers the industrial areas on the south side of I-15, followed by the Airport (9 percent), Westside area (7 percent), and the Eastside Industrial Area (6 percent), all of which provide access to the air and rail components of the goods movement network.

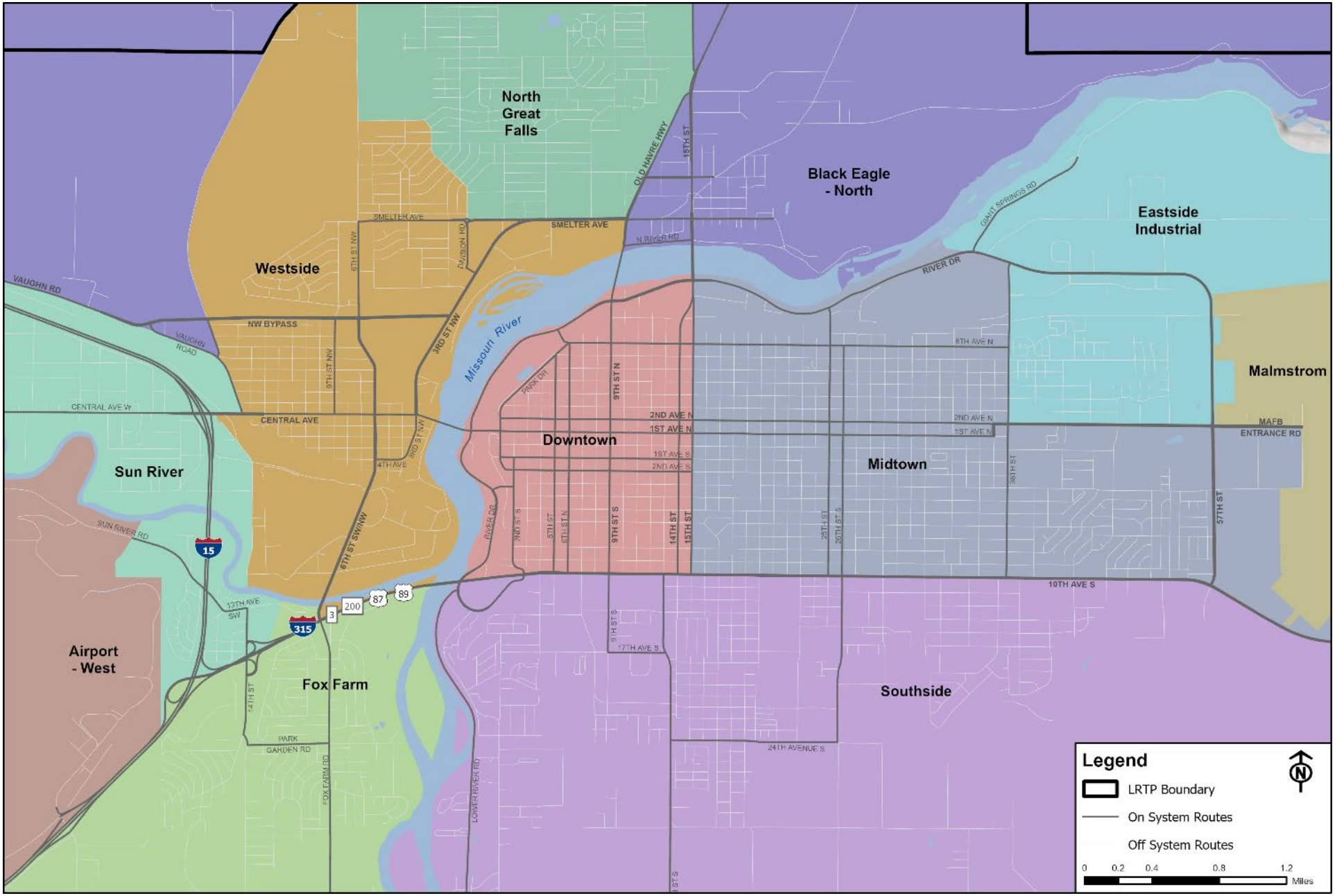


Figure 2.16: StreetLight Traffic Analysis Zones

TOP ROUTES FOR TRUCKS

To visualize and understand which routes are most used by trucks as they travel across Great Falls, a Top Routes analysis was performed. For this analysis, all the Great Falls TAZs (shown in **Figure 2.16**) were selected as inputs. The StreetLight system then scans the surrounding roadways for segments with the most heavy-duty truck traffic traveling between the TAZs. The results are shown in **Figure 2.17**.

The truck volumes in **Figure 2.17** are expressed in terms of the StreetLight Trip Index for heavy-duty vehicles, or trucks with four or more axles, weighing more than 26,000 pounds, and/or classified by FHWA as Class 7 or above. The StreetLight Trip Index is a metric used by StreetLight to represent a relative volume of trip activity but does not represent an estimated count of trips or vehicles. For truck data, the index is normalized by adjusting the number of trips in the data sample to the actual number of trips in a region around Sacramento, California, as derived from measurements published by the state of California. For all vehicle data, StreetLight performs a population-level normalization to adjust the data sample to more accurately portray actual conditions in the analysis region. Due to the differing methodologies for normalizing the indices, different modes are not comparable to one another. That said, it is difficult to deduce actual truck traffic volumes on the routes shown in **Figure 2.17**, especially not in comparison to passenger car volumes. **Figure 2.17** can, however, help visual which routes are most used by trucks and to what scale in comparison to other routes.

The Top Routes analysis indicates that the routes most heavily used by trucks within the study area include I-15, 10th Avenue South, Central Avenue, River Drive North, and 3rd Street Northwest, all of which are established truck routes as shown in **Figure 2.4**. Interestingly, River Drive South, Overlook Drive and 2nd Street South are also part of the existing truck routes, although they appear to carry much less truck traffic compared to other routes not on the established truck network. Smaller amounts of truck traffic are observed on east-west Downtown and Midtown routes including 1st and 2nd Avenues North, and 9th Avenue North, as well as north-south routes including 5th and 6th Streets North, 25th and 26th Streets North, and 38th Street North. The 14th and 15th Street corridors appear to be more heavily used than other north-south routes in this area. None of these east-west or north-south connections are known to be primary routes for trucks (such as Northwest Bypass, Vaughn Road, or 10th Street North as shown in **Figure 2.4**), though it is likely that majority of the truck traffic on these Downtown and Midtown routes serves local needs rather than regional needs.

This analysis can also be useful when identifying routes which may be less suited to accommodate bicycles or pedestrians due to the volume of heavy-duty trucks, or routes that may need geometric improvements to better accommodate the trucks that use them.

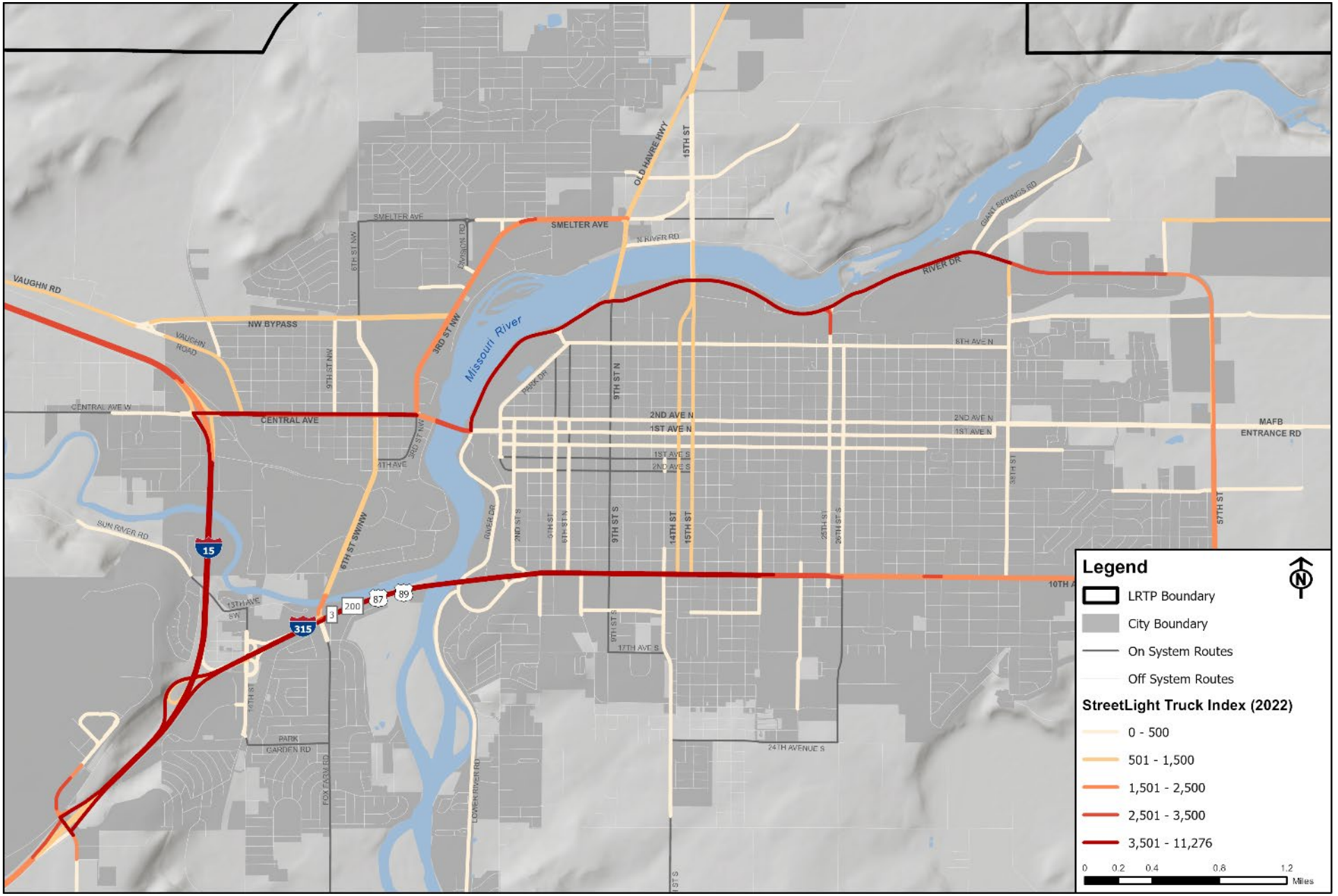


Figure 2.17: Top Routes for Heavy Trucks

2.3. TRANSPORTATION EQUITY

To address underinvestment in disadvantaged communities, the US Department of Transportation (USDOT) developed the Justice40 Initiative (J40). The initiative helps transportation agencies identify and prioritize projects that benefit communities facing barriers to affordable, equitable, reliable, and safe transportation. In accordance with J40, the USDOT developed the Equitable Transportation Community (ETC) Explorer which provides data that allows agencies to understand how a community is experiencing transportation disadvantage based on five components of disadvantage including:

- **Transportation Insecurity** occurs when people are unable to get to where they need to go to meet the needs of daily life regularly, reliably, and safely. A growing body of research indicates that transportation insecurity is a significant factor in persistent poverty.
- **Environmental Burden** measures factors such as pollution, hazardous facility exposure, water pollution, and the built environment. These environmental burdens can have far-reaching consequences such as health disparities, negative educational outcomes, and economic hardship.
- **Social Vulnerability** is a measure of socioeconomic conditions that have a direct impact on quality of life including lack of employment, educational attainment, poverty, housing tenure, access to broadband, and housing cost burden as well as identifying household characteristics such as age, disability status and English proficiency.
- **Health Vulnerability** assesses the increased frequency of health conditions that may result from exposure to air, noise, and water pollution, as well as lifestyle factors such as poor walkability, car dependency, and long commute times.
- **Climate and Disaster Risk Burden** reflects sea level rise, changes in precipitation, extreme weather, and heat which pose risks to the transportation system. These hazards may affect system performance, safety, and reliability. As a result, people may have trouble getting to their homes, schools, stores, and medical appointments.

The ETC Explorer calculates the cumulative impacts of each disadvantage component across each census tract and uses percentile rankings to determine each census tracts component score against all other census tracts both nationally and on a statewide basis. USDOT considers a census tract to be experiencing transportation disadvantage if the overall index score places it in the top 65 percent of all US census tracts.

When comparing to the Nation as a whole, approximately 68 percent of Cascade County is considered disadvantaged, with the majority of disadvantaged census tracts being located within the Great Falls LRTP planning area. On a statewide basis, approximately 19 percent of the Great Falls MPO is considered disadvantaged. Overall, the Great Falls MPO ranks relatively high in the Environmental Burden (82%), Climate and Disaster Risk Burden (66%), and Health Vulnerability (66%) components but ranks the lowest in the Transportation Insecurity component (29%) when compared to the rest of Montana. When compared to the rest of the nation, however, Cascade County ranks the highest in Transportation Insecurity (81%) and lowest in Climate & Disaster Risk Burden (35%).

Figure 2.18 illustrates the ETC Explorer results for the Great Falls area identifying disadvantaged census tracts, based on both national and statewide comparisons, as well as the Transportation Insecurity percentile ranking on a statewide basis. As shown in the figure, the area generally bounded by 10th Avenue South, River Drive, and 38th Street North is ranked relatively low in terms of Transportation Insecurity with Transportation Insecurity increasing in further reaches of the city and in the county. Areas with higher Transportation Insecurity scores are characterized by longer commute times and limited access to personal vehicles or transit, spend a greater percentage of household income on transportation, and experience higher rates of fatal crashes.

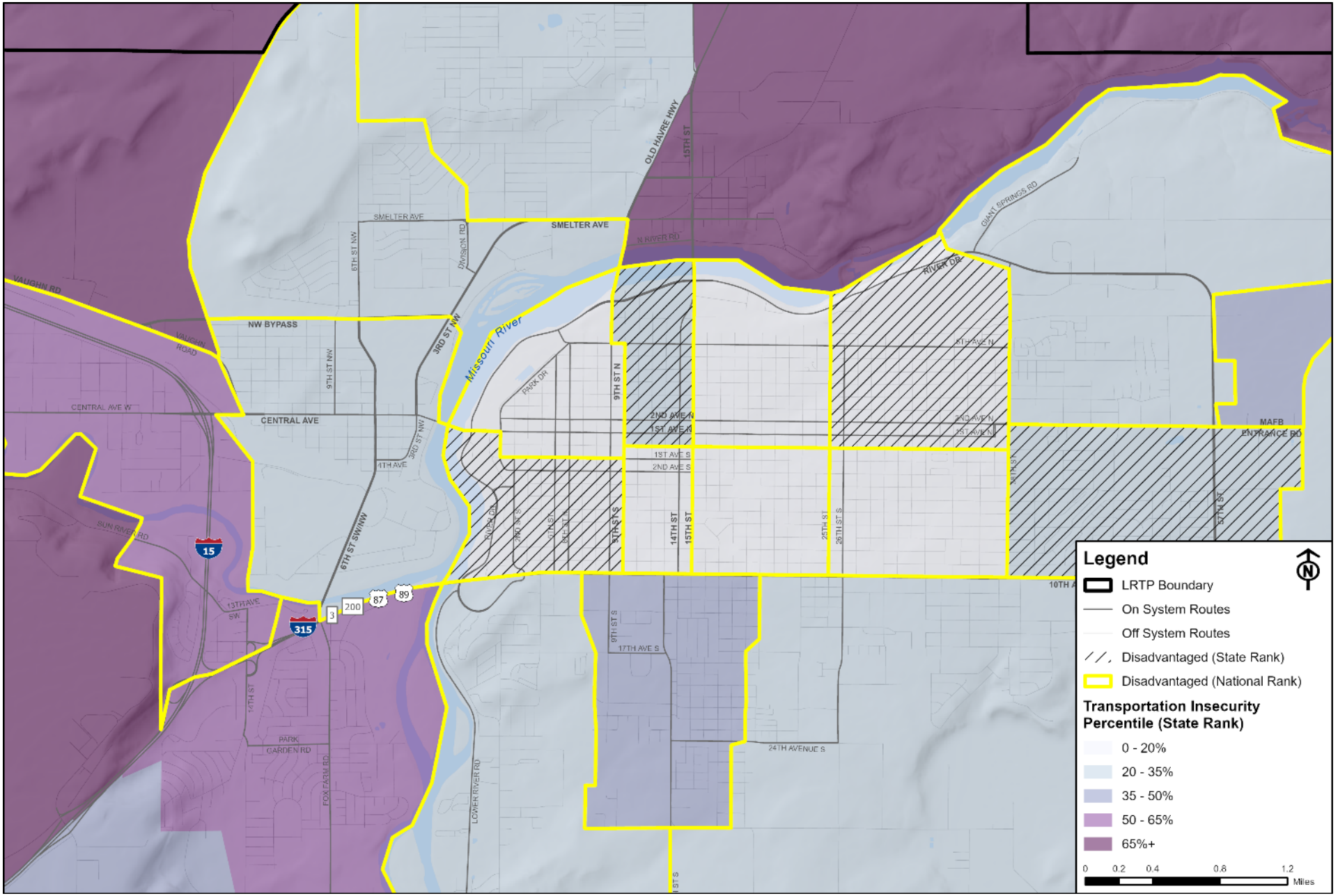


Figure 2.18: Transportation Equity

2.4. Asset Condition

Effectively managing transportation assets is a vital part of ensuring good condition and performance for all transportation users. Two assets that are often monitored by transportation agencies include structures (bridges, culverts, stock passes, tunnels, etc.) and pavement. Condition and performance ratings for these assets are important to consider when planning preservation, rehabilitation, and reconstruction projects. The following sections summarize the existing conditions of the structures and pavement within the study area.

STRUCTURE CONDITION

MDT performs regular condition inspections of all in-service publicly owned structures in accordance with the National Bridge Inspection (NBI) Standards. However, inspection and condition data are not always available for pedestrian or railroad bridges that are owned by other entities such as cities, counties, or railroads. All inspections are entered into Montana's Structure Management System database. This information is used to identify structures needing repair and inform funding decisions.

NBI item ratings are determined based on MDT inspections, and vary on a scale from 0-9, with 0 depicting an element that is out of service and beyond corrective action (repair) and 9 depicting an item that is new or in excellent condition. An overall structure rating is given based on the lowest substructure or superstructure rating for the structure. **Table 2.8** tabulates the structural ratings for the bridges in the study area based on the structure owner. **Figure 2.19** shows the structures within the study area color-coded based on their overall structural rating.

As shown in **Table 2.7**, there are 43 structures within the study area, of which 31 are owned and maintained by MDT. The remaining 12 bridges are owned and maintained by the City of Great Falls (5), Cascade County (2), and the BNSF Railroad (5). Five of the structures are culverts and are therefore not rates. All of the bridges received an element rating of fair or good and none of the bridge were rated poor.

The westbound section of the Warden Bridge, on 10th Avenue South spanning the Missouri River, is in poor condition while the eastbound section is in fair condition and has been noted as needing repair or replacement.

Table 2.8: Great Falls Study Area Structure Ratings

Structure Owner	Total Structures	Overall Structural Rating				
		New (9)	Good (7-8)	Fair (5-6)	Poor (4 or Less)	Not Available
City of Great Falls	5	--	2	1	--	2
Cascade County	2	--	1	1	--	--
MDT	31	--	14	14	--	3
Railroad	5	--	3	2	--	--
Total	**43**	**--**	**20**	**18**	**--**	**5**

PAVEMENT CONDITION

The pavement condition index (PCI) is a numerical index between 0 and 100, which is used to indicate the general condition of a pavement section. The PCI is widely used by municipalities to measure the performance of their road infrastructure. The PCI rating assessment is based on visual surveys performed by county staff. Each segment of road is evaluated based on the number, type, and severity of distresses in the pavement. Pavement distress types for asphalt pavements include cracking, bleeding, swelling, raveling, rutting, potholes, patching, and ride quality, among others. A PCI score of 86-100 is rated as "good," 71-85 as "satisfactory", 56-70 as "fair", 41-55 as "poor", and 25-40 as "very poor". Any PCI rating below 25 is considered failing.

The PCI history of a pavement section can help establish its rate of deterioration and identify future major rehabilitation needs. PCI values are also typically used in prioritizing, funding and executing maintenance and repair efforts. **Figure 2.19** shows the PCI values reported by the City of Great Falls Public Works Department in 2019 and updated sporadically in the past 3 years. Approximately 11.3 miles of roadways are classified as failing, about 10.5 miles are reported as very poor, and about 13.8 miles are in poor condition. These segments are candidates for major rehabilitation or reconstruction. The majority of the network, about 343 miles, is reported as being in fair condition. These segments are candidates for pavement preservation efforts. About 60.7 miles of roadway within the study area is considered to be in satisfactory or good condition. The city is planning to conduct a full pavement inventory in 2024 to re-establish baseline conditions and help inform future investment decisions.

The city routinely evaluates the condition of city streets to determine what, if any, maintenance must be performed. The Public Works Department finds that periodic maintenance is more efficient and cost-effective than full reconstruction.

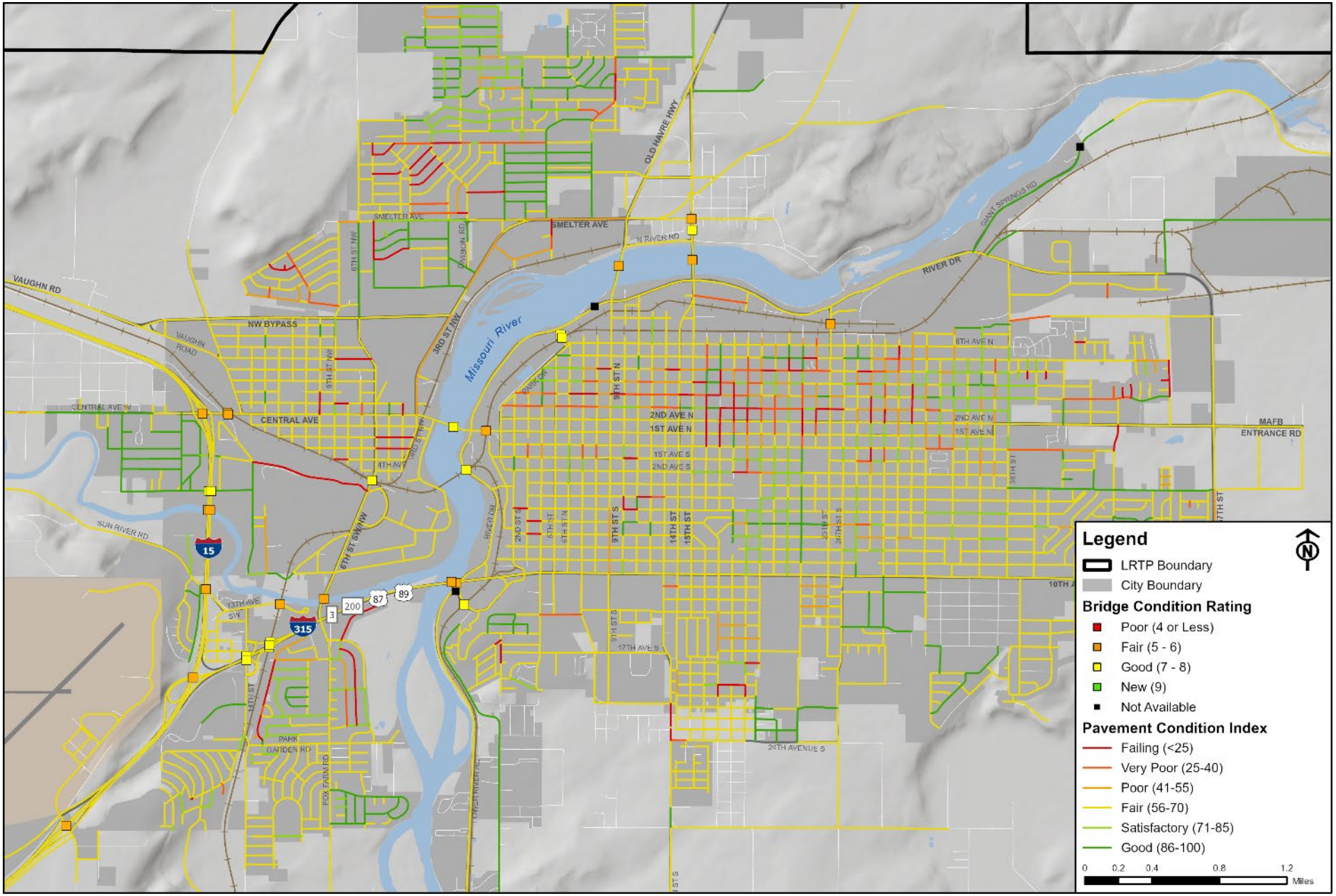


Figure 2.19: Existing Asset Condition

3.0 SAFETY CONDITIONS

Crash data were provided by the MDT Traffic and Safety Bureau for the five-year period between January 1st, 2017, and December 31st, 2021. The crash reports are a summation of information from the scene of the crash provided by the responding officer. As such, some of the information contained in the crash reports may be subjective.

According to the MDT crash database, there were 8,567 crashes reported within the LRTP study area during the five-year analysis period. The number of crashes per year decreased from 1,834 crashes in 2017 to 1,472 crashes in 2020. In 2021, the number of yearly crashes increased to 1,768 crashes. The number of suspected serious injury crashes increased consistently from 9 in 2017 to 16 in 2021. Fatal crashes generally trended upwards from 2017 to 2020 then decreased in 2021. **Figure 3.1** presents the total, injury, and non-injury crashes per year for the five-year analysis period.

The spatial distribution of all crashes was plotted based on the reported crash locations. The density of crashes within the study area is displayed in **Figure 3.2**. The locations of fatal and serious injury crashes are also shown in the figure. The majority of crashes within the LRTP study area occurred within city limits with a larger concentration of crashes in Downtown Great Falls and along 10th Avenue South. Locations with higher traffic volumes appear to have a higher number of crashes.

As shown in **Figures 3.2** and **3.3**, the majority of crashes occurred on the major street network where traffic volumes are higher. A concentration of crashes can be seen along 10th Avenue South and 1st and 2nd Avenues North. Concentrations of injury crashes also occurred on Central Avenue, 3rd Street Northwest, and Smelter Avenue. The intersection of 6th Street Southwest/Fox Farm Road/and Country Club Boulevard also experienced several injury crashes over the five-year analysis period. Most of these concentrations of injury crashes occurred along roadways with higher traffic exposure, however, concentrations of crashes occurring along the 25th and 26th Street corridors may warrant further consideration as these locations have comparatively lower volumes.

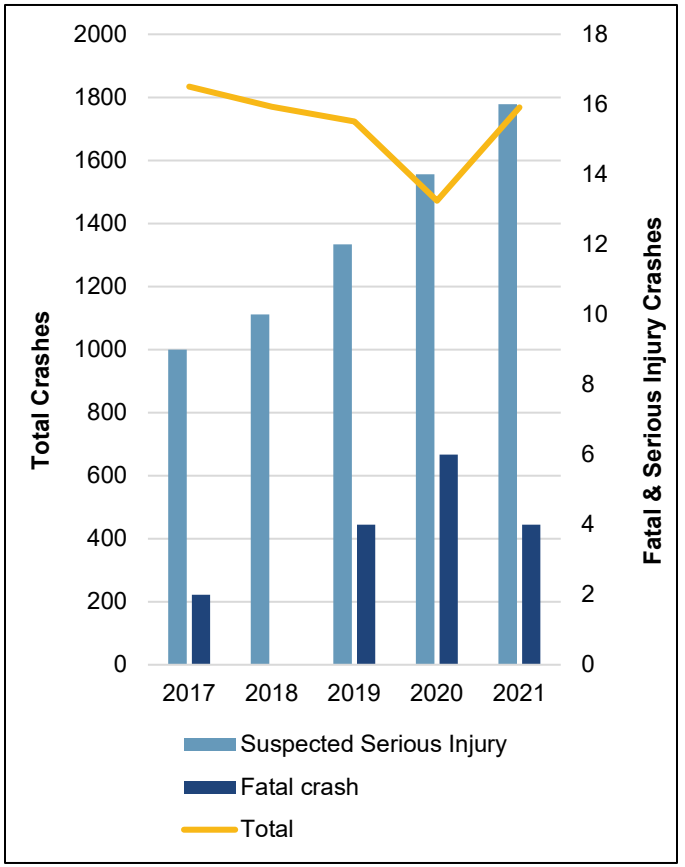


Figure 3.1: Number of Crashes per Year

3.1. SEVERITY

When crashes occur, officers indicate the severity of the resulting injuries for each person involved in the crash. Severity types include property damage only (PDO), possible injury, suspected minor injury, suspected serious injury, and fatality. The overall crash severity is categorized based on the most severe injury resulting from the crash. The locations of the severe (suspected serious and fatal injury) crashes are shown in **Figure 3.2**. A suspected serious injury is defined as an injury, other than a fatality, which prevents the injured individual from walking, driving, or normally continuing the activities they were capable of performing before the injury.

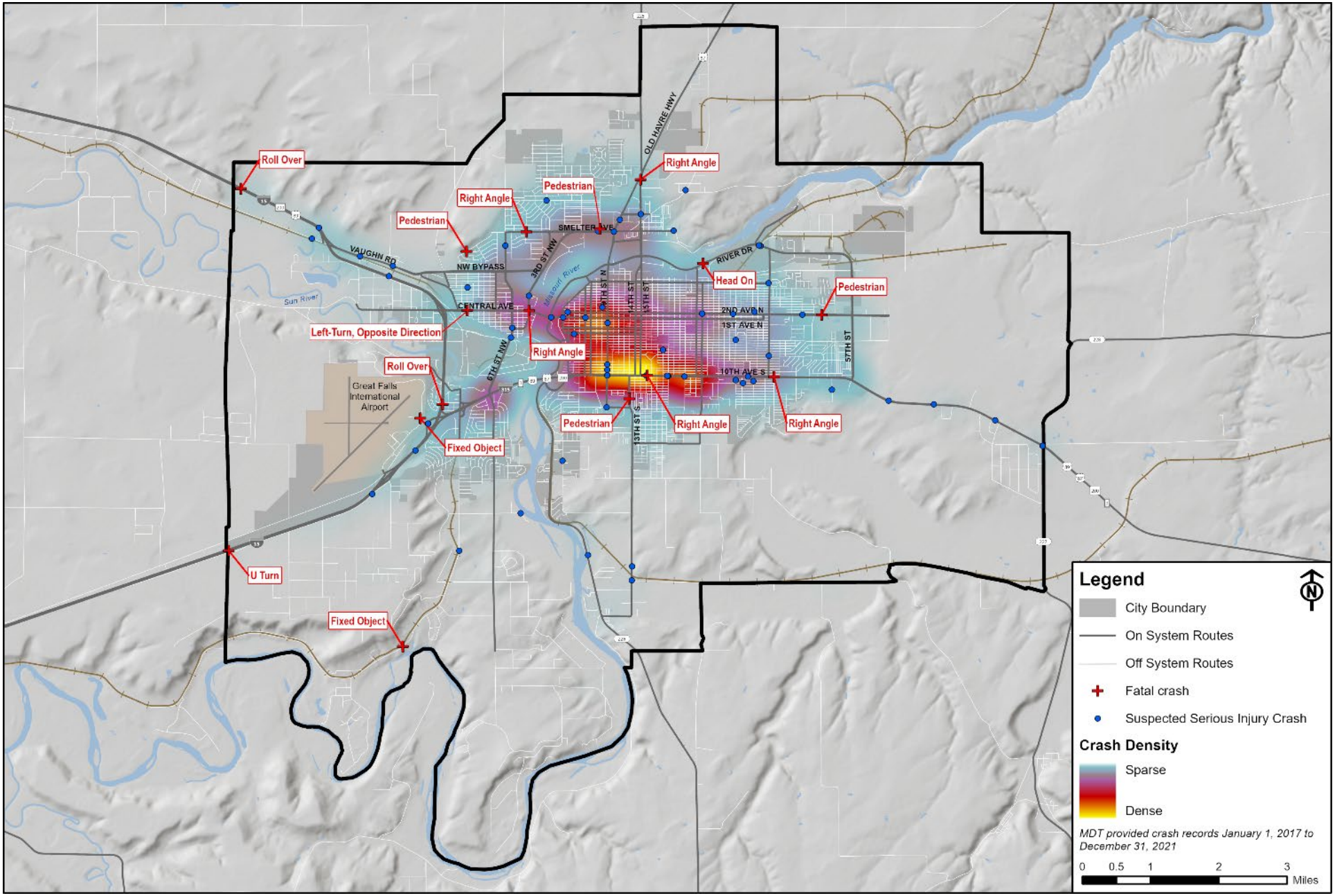


Figure 3.2: Crash Density

The distribution of reported crash severity is presented in **Figure 3.3**. During the five-year analysis period, about 20 percent of the crashes resulted in some level of injury (1,674 crashes), and of which about 4.6 percent were severe (77 crashes). There were 16 fatal crashes and 61 suspected serious injury crashes. During the five-year analysis period a total of 2,312 people were injured in crashes, equating to about 12 percent of all people involved in crashes during the analysis period. A total of 16 fatalities and 80 suspected serious injuries were reported, equating to about 4 percent of all crash-related injuries. Of the severe injuries, about 8.5 percent were vulnerable road users (bicyclists or pedestrians).

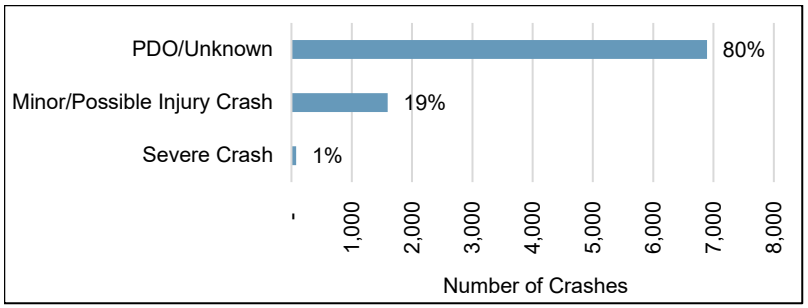


Figure 3.3: Crash Severity

3.2. Crash Period

Crash data for the study area were evaluated based on the period of time when the crash occurred. With regards to the time of day, three prominent peaks can be seen: one between 7:00 and 8:00 AM (10 percent of crashes), one from 11:00 AM to 1:00 PM (21 percent of crashes), and the other between 3:00 and 6:00 PM (31 percent of crashes). Approximately 82 percent of the reported crashes occurred between the hours of 7:00 AM and 7:00 PM. The distribution of severe crashes generally follows the same pattern as total crashes except with a greater percentage of crashes occurring in the evening and early morning hours. About 31 percent of severe crashes occurred between 8:00 PM and 2:00 AM. The time-of-day distribution is presented in **Figure 3.4**.

Figure 3.5 shows the distribution of reported crashes based on the month of the year in which the crash occurred. The month of February represents the month with the highest reported number of crashes but the month with the lowest number of severe crashes. August had the highest number of severe crashes. Approximately 48 percent of all crashes occurred during winter months (November to March). In Montana, inclement weather conditions often exist during these months which can contribute to an increase in the number of crashes. A larger number of severe crashes occurred during the summer months (June to September) when traffic volumes are higher due to increased travel and tourism.

With respect to the day of the week in which crashes occurred, weekdays had a higher number of crashes than weekends. Friday had the highest number of reported crashes, accounting for about 18 percent of all crashes, while Monday had the highest number of severe crashes (22 percent). Weekend crashes (Saturday and Sunday) accounted for approximately 19 percent of all crashes and 27 percent of severe crashes. The distribution of crashes based on day of the week in which the crash occurred is presented in **Figure 3.5**.

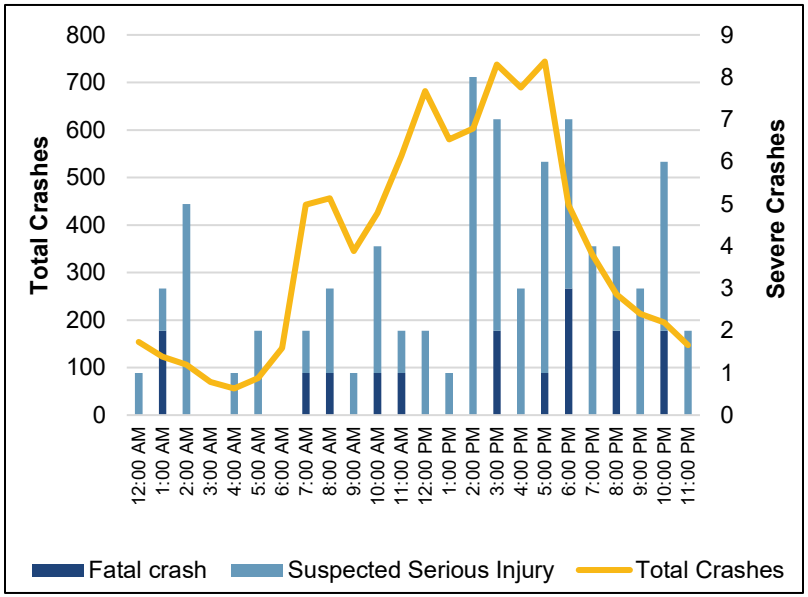


Figure 3.4: Crash Time-of-Day Distribution

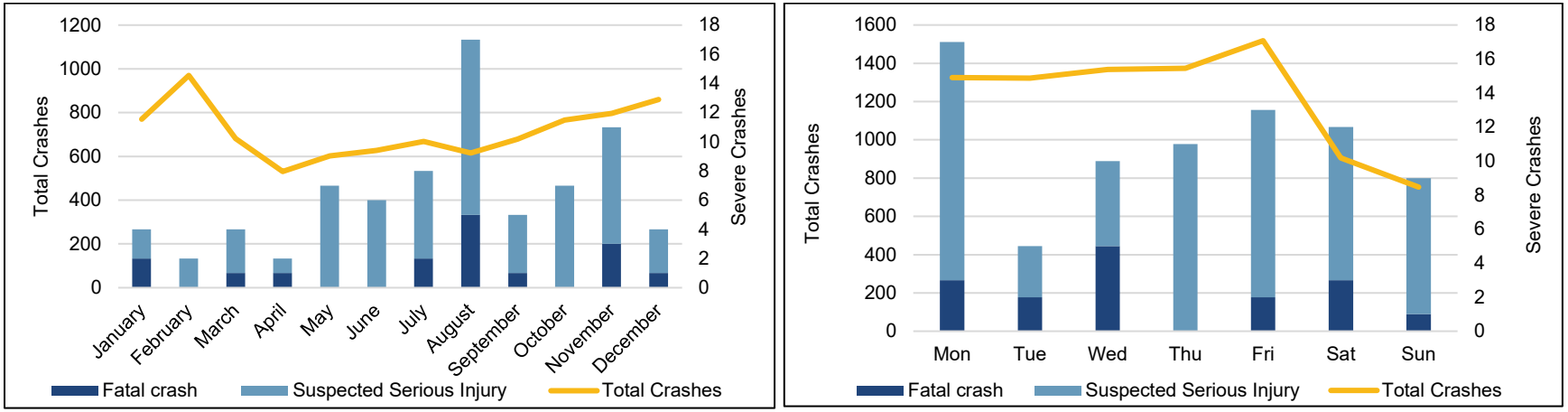


Figure 3.5: Monthly and Weekly Crash Distributions

3.3. Crash Type

Crashes can be categorized as either single vehicle or multi-vehicle crashes. Multi-vehicle crashes accounted for 83 percent of all reported crashes with a total of 7,132 crashes. The most common multi-vehicle crashes were rear-end (33 percent), right angle (30 percent), and sideswipe, same direction crashes (17 percent). Single vehicle crashes represented 17 percent of crashes with 1,435 total crashes. Fixed object crashes were the most commonly reported single-vehicle crash type accounting for 63 percent of those crashes. The most common fixed objects were utility poles/sign supports (33 percent), fences (13 percent), guardrail and other traffic barriers (11 percent), trees (9 percent), and curbs (6 percent). Wild animal and roll over crashes were the next two most common crashes accounting for 12 and 8 percent of single vehicle crashes, respectively. **Figure 3.6** presents the distribution of both multiple and single vehicle crashes within the study area.

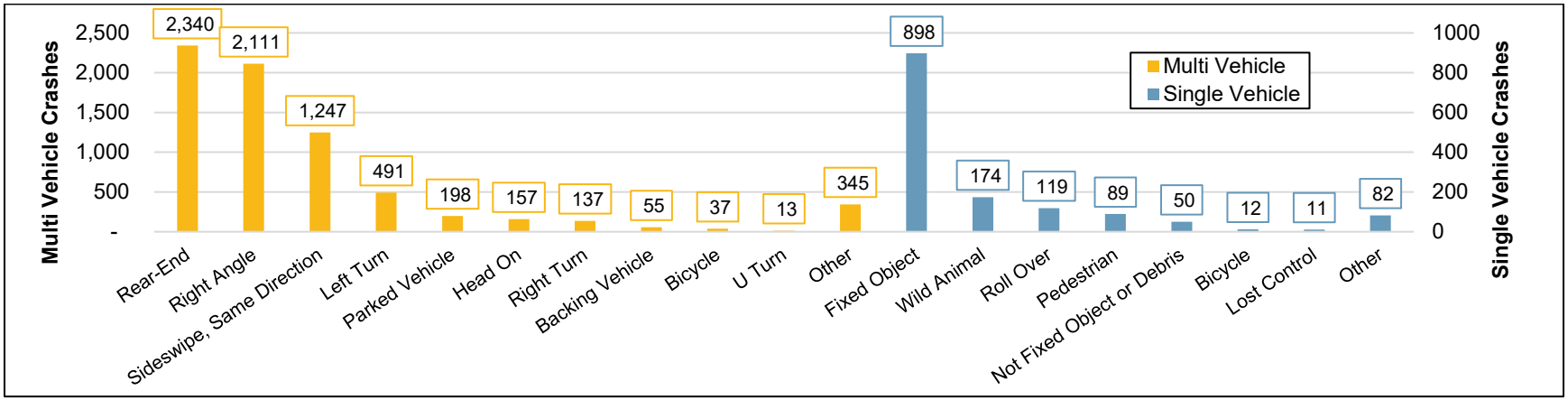


Figure 3.6: Collision Type by Number of Vehicles Involved

3.4. Crash Location

Figure 3.7 shows the distribution of crashes and their respective relationship to junctions. Approximately 45 percent of crashes were reported to have occurred at non-junction locations while about 50 percent were reported to have occurred at an intersection or were intersection-related. Approximately 53 percent of severe crashes occurred at non-junction locations while about 42 percent of severe crashes occurred at intersections or were intersection-related.

The majority of intersection related crashes were right angle (40 percent), rear-end crashes (28 percent), and left or right turns (12 percent). These crash types are common at intersections within urban areas with increased traffic volumes. Of the crashes that occurred at non-junction locations, the most common crash types were rear-end (28 percent), sideswipe, same direction (23 percent), and fixed object (16 percent).

Figure 3.8 shows the distribution of crashes based on the functional class of the roadway on which the crash occurred. The reported functional classification is based on the federally approved designations. The greatest number of crashes most often occurred on non-interstate principal arterials (39 percent) where 32 percent of severe crashes occurred. Local roads had the second highest number of crashes (38 percent) where 29 percent of severe crashes occurred. As seen in **Figure 3.2**, many of the crashes occurred on principal arterials including 10th Avenue South, Central Avenue, 6th Street Northwest, and 3rd Street Northwest where traffic volumes are highest.

3.5. Environmental Factors

Crash data were reviewed to determine if any trends exist in relation to environmental factors such as weather, roadway surface, and lighting conditions. The weather condition was reported as clear or cloudy in 85 percent of all crashes and 86 percent of severe crashes. Adverse weather conditions, including snow and rain, were reported in approximately 13 percent of crashes. **Figure 3.9** presents the distribution of crashes based on weather conditions. The "other" category includes fog, smog, or smoke; severe crosswinds, blowing sand, soil, and dirt; and unknown.

The reported road surface condition for crashes within the study area is presented in **Figure 3.10**. Approximately 65 percent of all crashes were reported as having occurred on dry roads, while 27 percent of crashes were reported as having occurred on snowy, icy, or frost covered roads. Severe crashes occurred primarily on dry roads (82 percent) with about 13 percent occurring on snowy, icy, or frost covered roads.

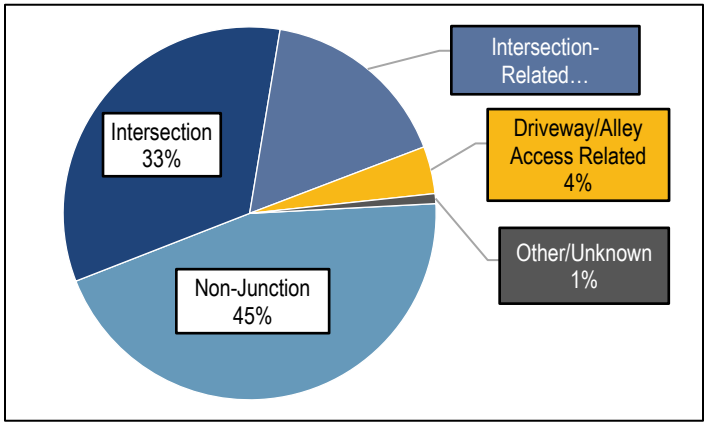


Figure 3.9: Junction Relation

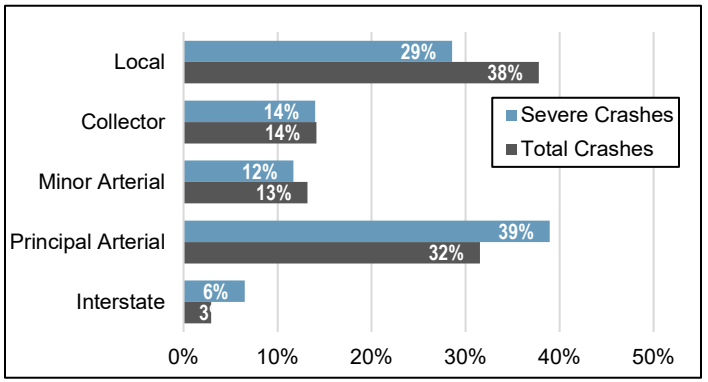


Figure 3.9: Crashes by Roadway Functional Class

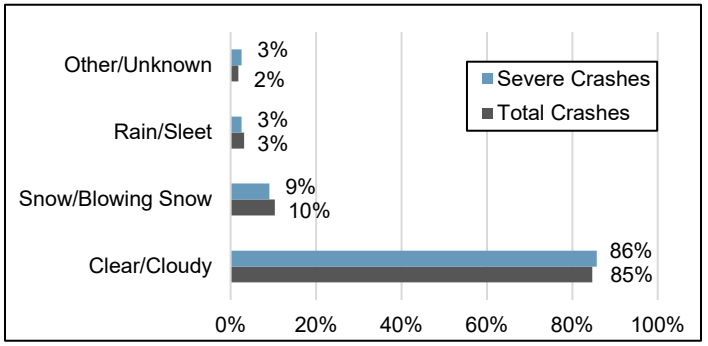


Figure 3.9: Weather Conditions

About 73 percent of all crashes were reported as having occurred under daylight conditions. An additional 17 percent were reported as occurring at dark with street lighting. Severe crashes, however, occurred during daylight hours approximately 57 percent of the time, and at dark without street lighting approximately 23 percent of the time. The distribution of crashes occurring under the different lighting conditions is presented in **Figure 3.10**. The "other" category includes dusk, dawn, and unknown.

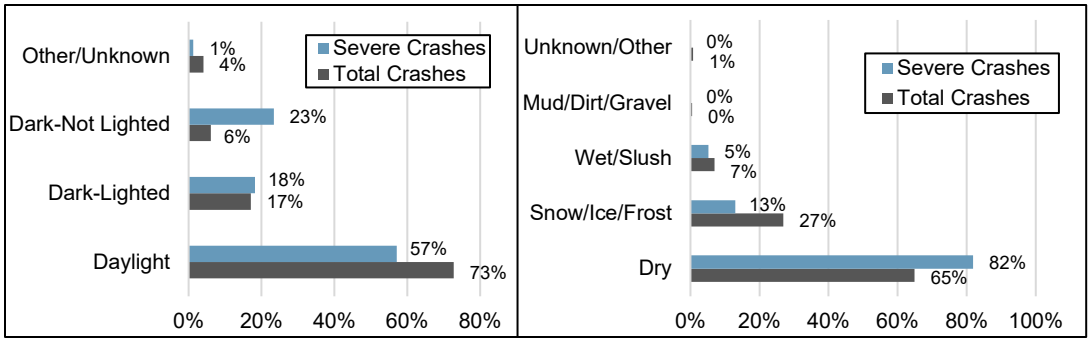


Figure 3.10: Road Surface and Lighting Conditions

3.6. Driver Condition

Driver conditions at the time of the crash can point to driver behavior issues that may need to be addressed. The crash records indicate whether each crash involved fatigued, distracted, and/or impaired drivers. These behaviors are determined and reported based upon the reporting officer's assessment or driver admission. The crash records indicate that 0.4 percent of drivers were fatigued at the time of the crash and approximately 1 percent of drivers were distracted at the time of the crash.

Impaired driving is defined as operating a vehicle while under the influence of drugs or alcohol. In Montana, driving under the influence is when the driver's blood alcohol content is 0.08 or higher. Impairment of marijuana in Montana is defined as exceeding a 5ng/ml per se threshold for THC in blood for anyone operating a motor vehicle. Within the study area, approximately 6 percent of crashes (494 crashes) were determined to have involved an impaired driver. Approximately 26 percent of severe crashes (20 crashes) involved an impaired driver. Overall, of the 14,471 drivers involved in all crashes over the five-year period, 692 (5 percent) were suspected and/or determined to be under the influence of drugs or alcohol at the time of the crash.

3.7. Vehicle Type

Over the five-year analysis period, 16,276 vehicles were involved in crashes within the study area. Of these vehicles, 43 percent were passenger cars/vans, 26 percent were pickups, and 23 percent were sport utility vehicles. Large trucks or buses were involved in about two percent of crashes while motorcycles were involved in approximately one percent of crashes. A total of 582 vehicles, approximately 4 percent, were classified as "other (e.g., farm equipment and heavy machinery)." Approximately 16 percent of severe crashes involved motorcycles and about 4 percent of severe crashes involved heavy trucks, buses, or other large equipment and machinery.

3.8. Person Type

A total of 20,044 people were involved in the 8,567 crashes in the Great Falls area over the five-year period. Approximately 72 percent of the people involved in crashes were drivers and 22 percent were passengers. About 55 percent of drivers involved in crashes were male and 45 percent were female. With respect to age, about 12 percent of drivers were over the age of 65 and about 2 percent of drivers were under the age of 15. In Montana, minors that are at least 15 years old may apply for a learner's permit. Applicants who are 14 ½ years old and have completed driver's education may also be eligible to apply for their learner's permit.

3.9. Vulnerable Road Users

Of the 8,567 crashes that occurred during the five-year analysis period, just under two percent involved vulnerable road users. There were a total of 49 bicycle- and 94 pedestrian-related crashes that occurred within the analysis period. None of the bicycle-related crashes resulted in severe injuries and 11 pedestrian-related crashes resulted in severe injuries. Of all the people involved in crashes, about 1 percent were vulnerable road users.

3.10. High Injury Network

A high injury network (HIN) is a screening methodology that identifies areas within the transportation system with the greatest safety concerns. Jurisdictions across the country use various methodologies to develop local HINs depending on the availability of data in their jurisdiction. A HIN was created for the Great Falls area by calculating a safety score weighing the frequency of crashes, rate of crashes in comparison to traffic volumes, and severity of injuries resulting from crashes as shown in **Figure 3.11**. This method helps identify and prioritize locations with unusually high crash occurrences or especially severe crashes.

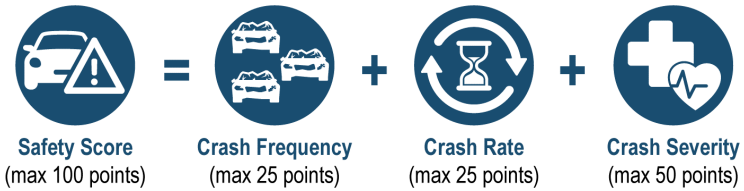


Figure 3.11: Safety Score Calculation

To calculate the severity of crashes occurring within a given area, a severity index was calculated by assigning weighting factors to the number of injuries resulting from crashes within the analysis area. The weighting factors used for this calculation were derived by MDT's Traffic and Safety Engineering Bureau in 2023 from typical crash costs in Montana. The crash rate was calculated using volumes from the base-year travel demand model (discussed in **Section 4.1**) and is expressed in terms of million entering vehicles. The location with the highest crash frequency, crash rate, or severity index, respectively, were assigned the maximum score in each category then all other locations were assigned a proportion of the score based on a logarithmic relationship. This methodology is intended to provide a fair comparison between locations with differing traffic volumes or roadway characteristics by filtering out outliers that would be identified if considering one measure alone (i.e., crash rates are high when volumes are low; crash frequencies are higher on higher volume roads; and a crash involving a vehicle with several occupants may skew priorities). The HIN was evaluated on both an intersection and roadway segment-basis as described in the following sections.

3.10.1. Intersections

The intersection HIN analysis calculated the safety score at each intersection by selecting crashes within 150 feet of each intersection. **Figure 3.12** illustrates the intersections with the highest safety scores and **Table 3.1** tabulates the characteristics of the intersections with the highest scores. The top five highest scoring intersections in each of the three score components are highlighted in red. Notably, three of the top five intersections with the highest crash rates occurred on 4th Avenue South, although most intersections with high crash rates were not in the top 2.5 percent of overall safety scores. All of the intersections with the highest crash frequency scores occurred on 10th Avenue South, and many of those intersections also had the highest severity and overall safety scores. Of the 31 highest scoring intersections, 18 are signalized, 7 are two-way stop-controlled (TWS), 4 are uncontrolled, 1 is all-way stop-controlled (AWS), and 1 is yield controlled. Thirteen of the intersections are on 10th Avenue South and four are on Central Avenue. All of the highest scoring intersections are within Great Falls city limits. Two intersections have recently been reconstructed to address historic safety concerns.

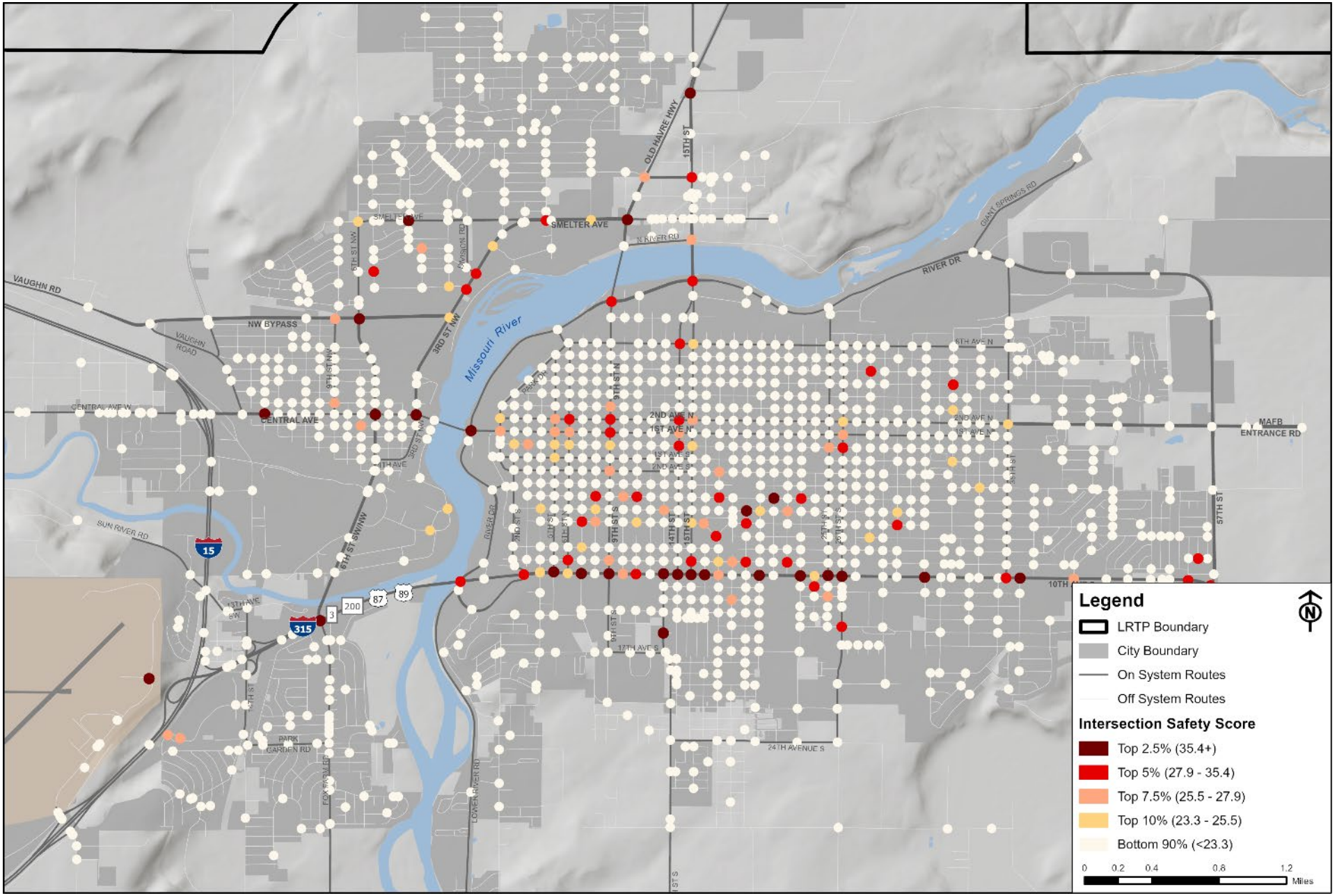


Figure 3.12: Intersection HIN

Table 3.1: Top Intersection Safety Scores

Rank	Intersection	Control Type	Volume (vpd)	# of Crashes	# of Severe Injuries	Rate Score	Frequency Score	Severity Score	Safety Score
Top 2.5%									
1	10th Ave S / 9th St S	Signal	45,950	152	2	6.2	25.0	47.6	78.8
2	Central Ave / 3rd St NW	Signal	43,750	67	1	3.4	21.0	50.0	74.4
3	10th Ave S / Fox Farm Rd / 6th St NW	Signal	37,550	141	0	6.8	24.6	35.2	66.6
4	10th Ave S / 16th St S[1]	TWS	36,250	31	2	2.0	17.2	44.9	64.2
5	10th Ave S / 39th St S	Signal	24,050	26	2	2.5	16.4	44.3	63.2
6	Old Havre Hwy / 15th St	TWS	15,700	17	1	2.5	14.4	43.1	60.0
7	10th Ave S / 25th St S	Signal	39,650	85	0	4.5	22.1	32.8	59.4
8	10th Ave S / 15th St S	Signal	39,550	108	0	5.4	23.3	30.2	58.9
9	10th Ave S / 20th St S	Signal	40,300	81	2	4.2	21.9	29.6	55.7
10	Smelter Ave / 2nd St NW / Riverview Blvd[1]	TWS	6,300	9	2	3.2	11.4	37.9	52.5
11	10th Ave S / 23rd St S	Signal	38,850	81	1	4.4	21.9	26.2	52.5
12	10th Ave S / 13th St S	Signal	38,650	83	0	4.5	22.0	22.7	49.1
13	10th Ave S / 14th St S	Signal	38,700	82	0	4.4	21.9	21.7	48.1
14	Airport Dr / Airport Ct[1] [2]	Uncontrolled	1,000	3	1	5.8	6.9	35.2	47.9
15	Central Ave / 1st Ave N / River Dr	Signal	28,850	71	1	5.0	21.3	18.8	45.0
16	Central Ave / 14th St NW[1]	TWS	11,500	4	1	0.9	8.0	34.8	43.6
17	10th Ave S / 26th St S	Signal	43,550	80	0	3.9	21.8	17.6	43.4
18	6th St NW / NW Bypass	Signal	29,450	52	0	3.8	19.7	17.4	41.0
19	13th St S / 14th Ave S[1]	TWS	7,350	2	1	0.7	5.5	33.8	39.9
20	10th Ave S / 7th St S	Signal	35,350	59	0	3.6	20.3	15.0	39.0
21	Central Ave / 6th St NW	Signal	36,050	51	0	3.2	19.6	15.8	38.6
22	Smelter Ave / Old Havre Hwy	Signal	35,000	50	3	3.2	19.5	15.9	38.6
23	10th Ave S / 5th St S	Signal	34,950	54	0	3.4	19.9	14.5	37.8
24	10th Ave S / 32nd St S	Signal	32,850	61	0	4.0	20.5	13.2	37.7
25	5th Ave S / 19th St S[1]	TWS	500	13	1	20.2	13.1	4.1	37.5
26	4th Ave S / 21st St S[1]	TWS	200	9	0	25.0	11.4	1.0	37.4
High Rate/Frequency/Severity Scores (not Top 2.5%)									
29	4th Ave S / 17th St S[1]	Yield	300	9	0	21.4	11.4	1.6	34.5
33	6th Ave S / 30th St S[1]	Uncontrolled	200	6	0	21.4	9.7	1.6	32.7
35	4th Ave S / 11th St S[1]	Uncontrolled	300	8	0	20.4	10.9	0.7	32.1
50	8th Ave S / 55th St S[1]	Uncontrolled	50	2	0	23.9	5.5	0.2	29.7
55	6th Ave S / Chowen Springs Loop[1] [2]	AWS	150	4	0	20.4	7.9	0.4	28.9

[1] Volumes shown are derived from the base condition (2019) travel demand model. The model is calibrated to volumes on the major street network, and therefore volumes associated with minor collectors and local roadways may have a significantly higher error acceptability and may not accurately reflect actual conditions. The use of model traffic volumes for safety analysis may unintentionally skew the crash rate scores.

[2] Improvements have recently been made to the intersection to address historic safety concerns.

3.10.2. Roadway Segments

The roadway segment HIN analysis evaluated the roadway network using a "sliding window" method, as recommended by the *Highway Safety Manual*, to effectively compare roadway segments of equal length. The sliding window method calculates crash scores by evaluating crashes and injuries occurring in 0.5-mile segments (i.e., "windows"), and then sliding the window along the roadway 0.1-miles at a time, as demonstrated in **Figure 3.13**. Crashes occurring within 150 feet of an intersection were excluded from the roadway segment analysis to place focus on non-junction crashes. This method helps identify locations with the highest concentrations of crashes and/or severe injuries and reduces the possibility of splitting locations with high concentrations of crashes into separate segments, which would reduce the safety score for segments that start and end in high-crash spots.

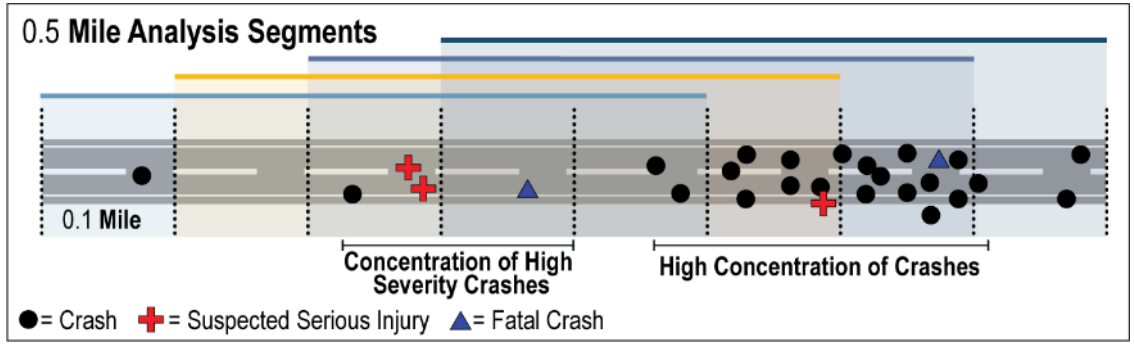


Figure 3.13: Sliding Window Method

Figure 3.14 depicts roadway segments with the highest safety scores and **Table 3.2** tabulates the characteristics of the segments with the highest scores. Where several consecutive segments were identified as having high scores, an average of the corresponding volume, rate, frequency, severity, and overall safety scores is listed. The top five highest scoring segments in each of the three score components are highlighted in red. When intersection crashes are excluded, the frequency of crashes and severe injuries on each segment is much lower, with no more than one fatal or serious injury crash having occurred on any of the top scoring segments. Accordingly, the segments where a severe injury crash occurred are likely to score high due to the higher weighting of severity in the safety score. For this reason, it is important to take into consideration the safety scores in comparison to the number of total crashes and severe injuries to better understand potential crash trends and safety concerns. Furthermore, each segment should be examined in detail to understand the circumstances around the crashes that occurred to understand whether crashes occurred due to problematic infrastructure conditions, repeated improper driver behaviors, or chance occurrences that could not have been otherwise prevented.

As shown in **Table 3.2**, three of the highest scoring segments were on I-15, primarily due to a fatal crash occurring on each. The segments with the highest crash rates are primarily on the local roadway network. Due to the focus on the major street network in the travel demand model, volume information associated with minor collectors and local roadways may have a significantly higher error acceptability compared to higher order roadways within a regional model and may not accurately reflect actual conditions. The use of model traffic volumes for safety analysis may unintentionally skew the crash rate scores. Any recommendations/conclusions related to minor collectors and local roadways should be critically reviewed to ensure reasonableness relative to existing verifiable data.

Three of the top five highest frequency segments are streets with over 20,000 vpd; which consequently resulted in lower crash rate scores. However, River Drive and 9th Street South are also in the top five scoring segments for crash frequency and have about half as many vpd as the other top scoring segments and comparatively low crash rate scores. Overall, the roadway segment safety score analysis revealed a mix of urban and rural locations with 6 of the 18 top scoring segments being outside city limits.

Table 3.2: Top Roadway Segment Safety Scores

Rank	Roadway	Extent	Volume (vpd)	Length (mi)	# of Crashes	# of Severe Injuries	Avg. Rate Score	Avg. Frequency Score	Avg. Severity Score	Avg. Safety Score
Top 2.5%										
1	**I-15**	West of Vaughn Road	10,400	0.6	18	1	12.2	14.8	43.4	70.4
2	**River Drive**	19th St N to Black Eagle Viewpoint	11,700	0.8	27	1	4.4	18.7	48.6	71.6
3	**8th Street NE**	Smelter Ave to 29th Ave NE	7,200	0.5	7	1	2.9	12.9	44.3	60.1
4	**Flood Road(1)**	Red Barn Rd to River Bend Dr	800	0.9	4	1	6.1	7.1	40.9	54.1
5	**I-15**	Southwest of Gore Hill	7,400	0.5	2	1	11.0	6.8	41.2	59.0
6	**I-15 / I-315**	Interchange	11,000	0.9	12	1	2.4	11.0	41.6	55.0
7	**Valley View Drive(1)**	15th St NW to Smelter Ave	600	0.5	2	1	7.4	6.8	41.0	55.2
8	**2nd Ave North**	42nd St N to 57th St	6,500	0.9	6	1	2.4	10.9	41.5	54.8
9	**10th Avenue South**	Fox Farm Rd to Overlook Dr	22,300	1.1	66	0	5.2	24.1	12.5	41.9
10	**Central Avenue**	4th St NW to 4th St N	23,500	0.8	49	0	4.2	22.5	14.3	41.0
11	**Fields Road(1)**	Goon Hill Rd	100	0.5	6	0	25.0	12.1	2.7	39.8
12	**9th Street South**	5th Ave S to 13th Ave S	10,800	0.6	34	0	6.7	22.0	9.9	38.6
13	**7th Street South(1)**	10th Ave S to 2nd Ave S	800	0.6	13	0	15.7	16.4	5.2	37.2
High Rate/Frequency/Severity Scores (not Top 2.5%)										
14	**3rd St NW/Smelter Ave**	Private Driveway to Old Havre Hwy	20,500	1.6	65	1	3.5	20.4	9.0	32.9
18	**Sun River Rd(1)**	Sun View Lane to Private Driveway	150	0.9	6	0	20.5	11.6	0.6	32.6
21	**18th Avenue North(1)**	River Dr N to 52nd St N	50	1.1	4	0	21.7	7.3	0.3	29.2
26	**Elk Drive(1)**	Dick Rd to Terminus	50	0.5	2	0	21.0	6.8	1.0	28.8
27	**12th Street NE(1)**	34th Ave NE to Skyline Dr NE	50	0.1	2	0	21.0	6.8	0.2	28.0

(1) Volumes shown are derived from the base condition (2019) travel demand model. The model is calibrated to volumes on the major street network, and therefore volumes associated with minor collectors and local roadways may have a significantly higher error acceptability and may not accurately reflect actual conditions. The use of model traffic volumes for safety analysis may unintentionally skew the crash rate scores.

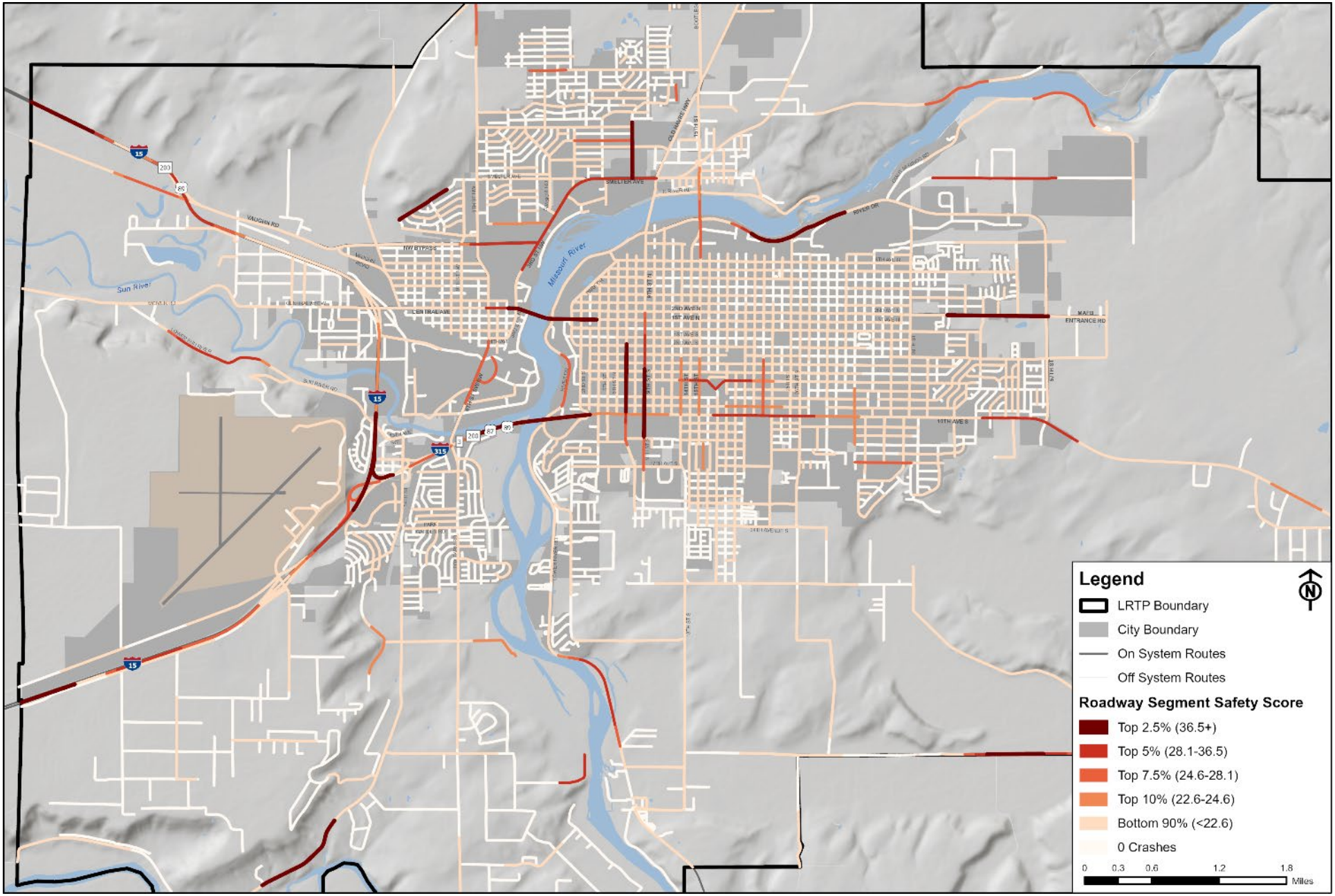


Figure 3.14: Roadway Segment HIN

3.11. Crash Summary

The following summarizes key characteristics of crashes occurring within the Great Falls area during the five-year analysis period.

- Severe crashes increased over the 2017 to 2021 period while the overall number of crashes experienced a mild decline.
- Most crashes occurred along roadways with higher traffic exposure.
- Crash occurrences increased during peak travel hours including commute times, school pick-up/drop off times, and lunch time.
- Weekend crashes (Saturday and Sunday) accounted for approximately 19 percent of all crashes and 27 percent of severe crashes.
- Multi-vehicle crashes accounted for 83 percent of all reported crashes with the most common crash types being rear-end, right angle, and sideswipe, same direction crashes.
- Adverse weather conditions, including snow and rain, were reported in approximately 13 percent of crashes.
- About 23 percent of severe crashes occurred at dark without street lighting.
- Approximately 6 percent of all crashes and 26 percent of severe crashes involved an impaired driver.
- Approximately 16 percent of severe crashes involved a motorcycle.
- There were 49 bicycle and 94 pedestrian-related crashes that occurred within the analysis period. About 8.5 percent of the severe injuries were non-motorists.
- About 12 percent of drivers were over the age of 65.
- All the intersections with the highest crash frequency scores occurred on 10th Avenue South, and many of those intersections also had the highest severity and overall safety scores. Of the 31 highest scoring intersections, 18 are signalized, 7 are two-way stop-controlled, 4 are uncontrolled, 1 is all-way stop-controlled, and 1 is yield controlled. All but 8 of the highest scoring intersections are on the major street network.
- The roadway segment safety score analysis revealed a mix of urban and rural locations with 6 of the 18 top scoring segments being outside city limits.

4.0 PROJECTED TRANSPORTATION CONDITIONS

An analysis of the projected transportation system was performed to estimate how existing traffic patterns and characteristics may change over the next 20 plus years. The inputs for this analysis include known existing conditions and anticipated land development expected to occur out to the year 2045. A description of the traffic modeling effort that was conducted to forecast future travel conditions is described in this section. The results of the model were used to identify areas of the transportation system where traffic growth and congestion may occur due to forecasted development.

4.1. TRAVEL DEMAND MODEL DEVELOPMENT

A travel demand model was developed by the MDT Multimodal Planning Bureau for Cascade County using *TransCAD* software. The model used industry-accepted methodologies and data from the MDT Geospatial Information Section, Census Bureau, and Montana Department of Labor and Industry to represent 2019 baseline traffic conditions. A comparison of the model to known 2019 traffic data was performed to calibrate and validate the model to best represent 2019 conditions.

After developing the baseline 2019 model, future conditions were developed to evaluate the planning year 2045. As detailed in the *Socioeconomics and Land Use Memorandum,* housing units and jobs were allocated to census blocks to distribute growth that has occurred since 2019 or is projected to occur by the year 2045. Known roadway infrastructure projects which will change the capacity or function of the roadway and are expected to be constructed within the next five years ("committed" projects) were also included in the 2045 future model.

The model assumes that traffic characteristics will remain similar to those that are seen today. Many factors can influence this assumption, including fluctuations in fuel prices, shifts in mode choice, technological advances, and other unknown circumstances. The model also assumes that the socioeconomic projections will be realized by the year 2045. Although projections are based upon local knowledge and past growth trends, development can change over time and projections may not accurately represent reality. Ultimately, the projected conditions model is a valuable planning tool that can help predict how traffic patterns might be affected by anticipated future development.

4.2. PROJECTED ROADWAY VOLUMES AND CAPACITY

Projected traffic volumes were estimated using the travel demand model. A comparison of the existing and projected conditions models was performed to determine the percent change in traffic volume. The percentage changes were then applied to known existing AADT count sites to estimate future AADTs. **Figures 4.1** and **4.2** show the projected AADT volumes and v/c ratios along the major street network, respectively. Note that the values shown in the figures assume that no changes to the transportation system will be made other than those which already have committed funding.

A map of the projected traffic volume growth on the major street network was prepared to help visualize where growth is expected to occur given future land use assumptions. **Figure 4.3** shows the difference between the traffic volumes in the 2019 and 2045 travel demand models. This visualization helps identify which roads may need additional investment to accommodate future growth. While some roads currently have little traffic volume and may not have capacity issues, future growth could shift or greatly increase traffic volumes, causing capacity issues if improvements are not made.

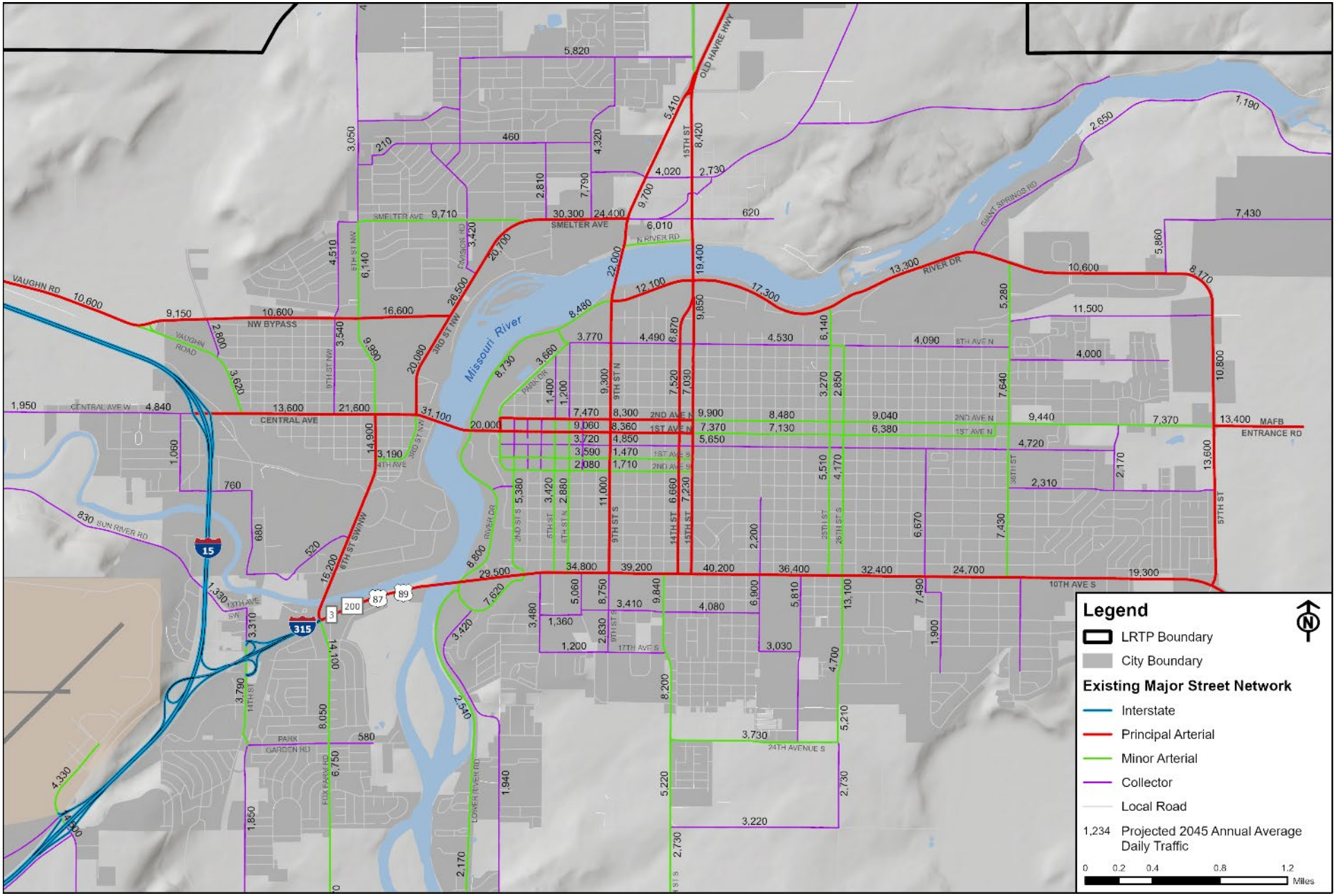


Figure 4.1: Projected Traffic Volumes (2045)

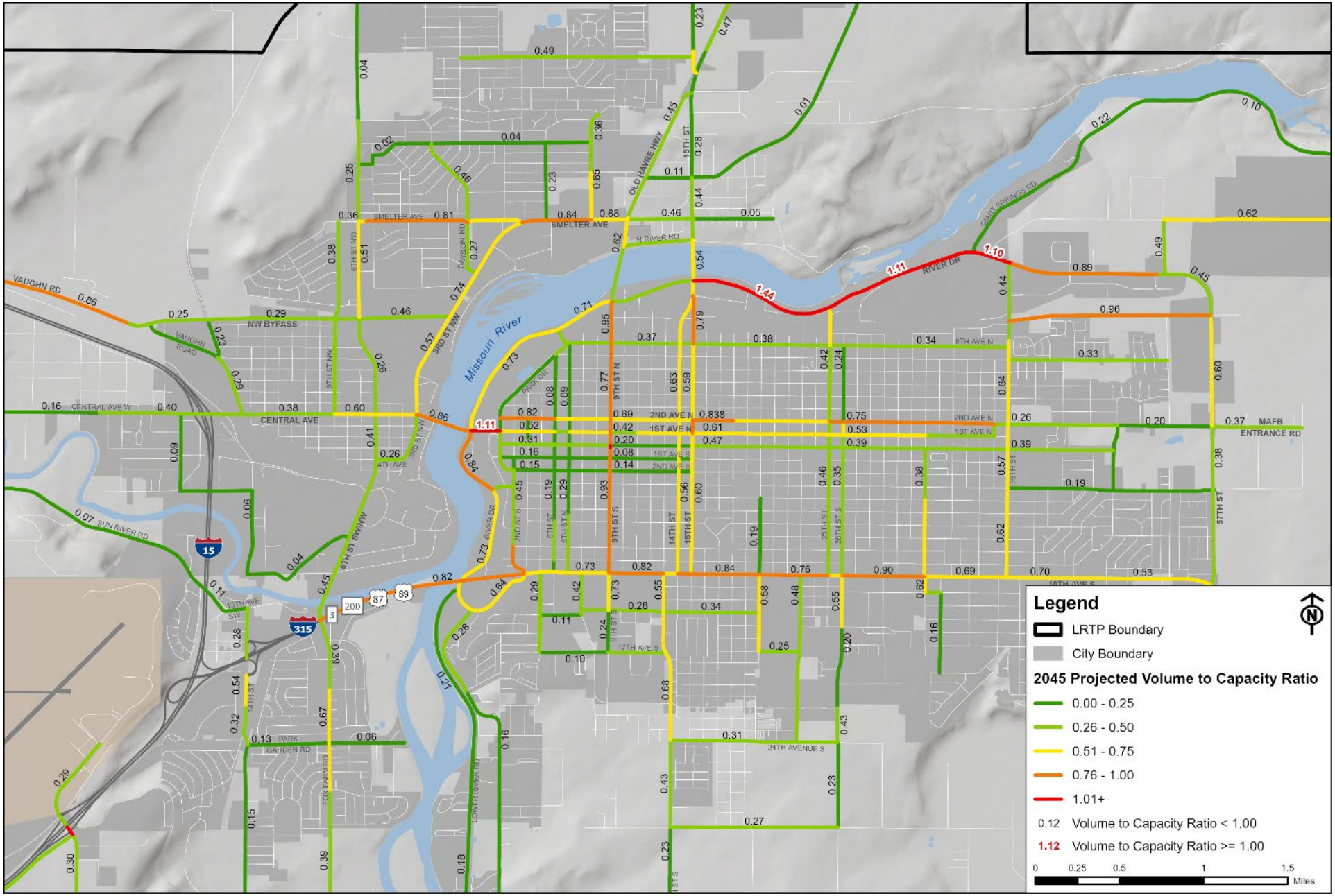


Figure 4.2: Projected Volume to Capacity Ratios (2045)

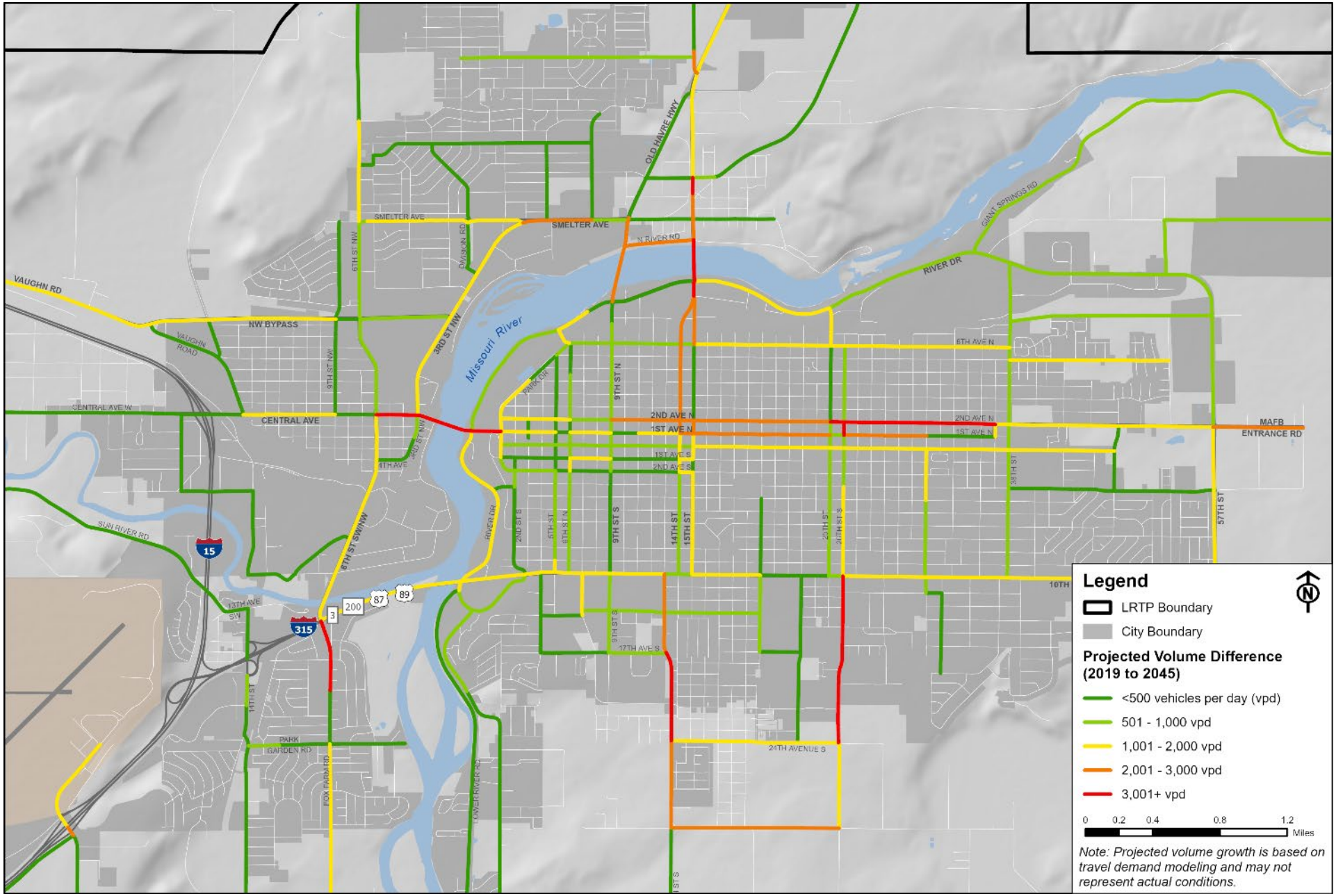


Figure 4.3: Projected Volume Difference (2019 to 2045)

4.3. Projected Intersection Level of Service

Projections for intersection traffic volumes were made for the 63 intersections analyzed previously in **Section 2.2.2**. These projections were based on percent growth rates calculated from the travel demand model for the year 2045. An average growth rate for the intersection was determined and applied to individual turning movements to represent projected conditions. The intersection LOS was calculated using the existing street layouts, lane-use configurations, and traffic control devices. The results of the analysis are shown in **Table 4.1** and **Figure 4.4**. More detailed information is provided in **Appendix C**.

The operational analysis indicates that with continued growth, intersection operations on major arterials will experience deteriorated conditions and high amounts of delay, especially during the PM peak hour. Several intersections are shown to operate at LOS E or F during one or more peak hours. The majority of the intersections that are projected to experience failing conditions are unsignalized. However, there are also several signalized intersections which are projected to reach or exceed their available capacity if traffic growth occurs in the manner predicted. Intersections along 10th Avenue South, 3rd Street Northwest, River Drive, 6th Street Southwest, 15th Street and 38th Street experience the highest amounts of delay.

4.4. Projected Conditions Summary

The projected conditions analysis is based on a travel demand model developed for Cascade County to represent predicted 2045 conditions. The model relies on forecasted population and employment growth and anticipated development patterns. The analysis assumes that all roadway and intersection configurations, aside from projects that are already committed, will remain the same over the next 20 years. Therefore, changes in travel patterns resulting from new road connections, revised intersection configurations, and development could impact the projected traffic volumes and intersection operations initially predicted by the model. The projected v/c ratios and intersection operations presented in previous sections are intended to provide an estimate for planning purposes. Traffic conditions should be continually evaluated as development occurs and as improvements are needed.

Based on the anticipated traffic growth presented in **Figures 4.1**, **4.2**, and **4.3**, River Drive, Central Avenue, 10th Avenue South, and Smelter Avenue are likely to approach or exceed available roadway capacity by 2045 if traffic continues to grow as anticipated. As a result, traffic is anticipated to shift to other arterials in the roadway network, such as the 1st Avenue North / 2nd Avenue North and 14th Street / 15th Street couplets and Park Drive, to avoid congestion on parallel routes. Considerable growth is also anticipated to occur in the southern part of the city near the universities and hospitals, in the Fox Farm area, and in the North Great Falls area contributing to increasing traffic volumes on adjacent roadways such as Bootlegger Trail, 6th Street Northwest, Fox Farm Road, 13th Street South, 26th Street South, 24th Avenue South, and 33rd Avenue South. However, projected traffic volumes on these roadways are not expected to exceed the available capacity of the existing roadways within the planning horizon.

As shown in **Table 4.1** and **Figure 4.4**, the same arterials are also expected to experience worsening intersection operations during peak hours. Projected shifts in traffic to parallel, less congested routes help alleviate some demand at major intersections without causing operational failures at intersections along those routes.

Table 4.1: Projected Intersection Level of Service

ID	Intersection	Control*	AM Peak		PM Peak	
			Delay (sec)	LOS	Delay (sec)	LOS
01	Park Garden Rd/Fox Farm Rd	TWS	25.3	D	29.2	D
02	6th St SW/Fox Farm Rd/Country Club Blvd	Signal	77.6	E	63.0	E
03	6th St SW/4th Ave SW	TWS	42.8	E	61.8	F
04	9th St NW/Central Ave W	Signal	6.8	A	6.6	A
05	6th St SW/Central Ave W	Signal	26.9	C	31.9	C
06	3rd St NW/Central Ave W	Signal	44.1	D	73.5	E
07	6th St NW/Northwest Bypass	Signal	18.6	B	17.0	B
08	3rd St NW/Northwest Bypass	Signal	21.3	C	20.9	C
09	3rd St NW/14th Ave NW	Signal	13.3	B	13.8	B
10	3rd St NW/17th Ave NE	TWS	68.4	F	132.1	F
11	3rd St NW/4th St NE	TWS	15.1	C	15.7	C
12	3rd St NW/Smelter Ave NE	Signal	14.6	B	10.7	B
13	Smelter Ave NE/6th St NE (1)	Signal	15.8	B	11.6	B
14	Smelter Ave NE/6th St NE (2)	Signal	4.4	A	9.4	A
15	Old Havre Hwy/25th Ave NE	TWS	18.0	C	32.4	D
16	Bootlegger Trail/US 87	TWS	34.2	D	266.5	F
17	15th St NE/25th Ave NE	TWS	145.4	F	1257.2	F
18	River Dr N/25th St N	TWS	36.5	E	133.1	F
19	8th Ave N/38th St N/Highwood Dr	TWS	17.3	C	41.6	E
20	Central Ave/38th St N	AWS	21.6	C	25.5	D
21	3rd Ave S/38th St S	TWS	43.7	E	24.9	C
22	3rd Ave S/57th St S	TWS	20.1	C	32.9	D
23	Central Ave/River Dr S/1st Ave N	Signal	28.5	C	66.5	E
24	1st Ave N/Park Dr	Signal	17.5	B	35.1	D
25	1st Ave S/Park Dr	TWS	10.0	A	10.6	B
26	9th St N/2nd Ave N	Signal	22.0	C	20.1	C
27	9th St N/1st Ave N	Signal	24.4	C	35.9	D
28	9th St N/Central Ave	Signal	16.1	B	41.1	D
29	9th St N/1st Ave S	Signal	8.7	A	9.0	A
30	9th St N/2nd Ave S	Signal	5.6	A	8.6	A
31	10th Ave S/5th St S	Signal	12.9	B	18.6	B
32	10th Ave S/9th St S	Signal	20.9	C	30.4	C
33	10th Ave S/20th St S	Signal	8.9	A	12.6	B
34	10th Ave S/23rd St S	Signal	6.7	A	34.5	C
35	10th Ave S/26th St S	Signal	15.2	B	25.1	C
36	10th Ave S/29th St S	TWS	37.4	E	113.4	F
37	10th Ave S/32nd St S	Signal	22.8	C	32.8	C
38	15th Ave S/26th St S	TWS	104.9	F	52.4	F
39	13th St S/24th Ave S	TWS	11.2	B	12.2	B
40	US 89/Highwood Rd/Stockett Rd	TWS	16.6	C	13.4	C
41	14th St SW/Market Place Dr	Signal	7.3	A	11.4	B
42	14th St SW/EB Ramps	Signal	9.5	A	10.4	B
43	14th St SW/WB Ramps/16th Ave SW	Signal	12.0	B	12.9	B
44	14th St SW/13th Ave SW	TWS	10.2	B	10.5	B
45	3rd St NW/16th Ave NW	TWS	16.9	C	22.7	C
46	8th St NE/Sacajawea Dr	TWS	11.9	B	12.0	B
47	6th St NW/Skyline Dr NW	TWS	9.9	A	10.5	B
48	Division Rd/Skyline Dr NW	TWS	9.4	A	10.9	B
49	2nd St NE/Skyline Dr NE	TWS	13.2	B	14.5	B
50	5th St NE/Skyline Dr NE	TWS	9.3	A	9.5	A
51	9th St NE/Skyline Dr NE	TWS	9.1	A	8.9	A
52	9th St NE/32nd Ave NE	TWS	10.4	B	8.8	A
53	2nd St NE/36th Ave NE	TWS	13.4	B	13.9	B
54	5th St NE/36th Ave NE	TWS	9.5	A	9.5	A
55	9th St NE/36th Ave NE	TWS	17.9	C	17.1	C
56	Bootlegger Tr/36th Ave NE	TWS	17.4	C	16.8	C
57	Bootlegger Tr/46th AVE NE	TWS	9.9	A	8.8	A
58	Vinyard Rd/6th St NW	TWS	8.6	A	8.5	A
59	River Dr S/3rd Ave S	TWS	9.2	A	10.8	B
60	River Dr N/15th St NE	Signal	55.4	E	71.9	E
61	1st Ave N/15th St N	Signal	9.8	A	32.5	C
62	10th Ave S/18th St S	TWS	1794.7	F	3011.9	F
63	38th St N/2nd Ave N	Signal	10.9	B	11.9	B

*TWS = Two-Way Stop, AWS = All-way Stop

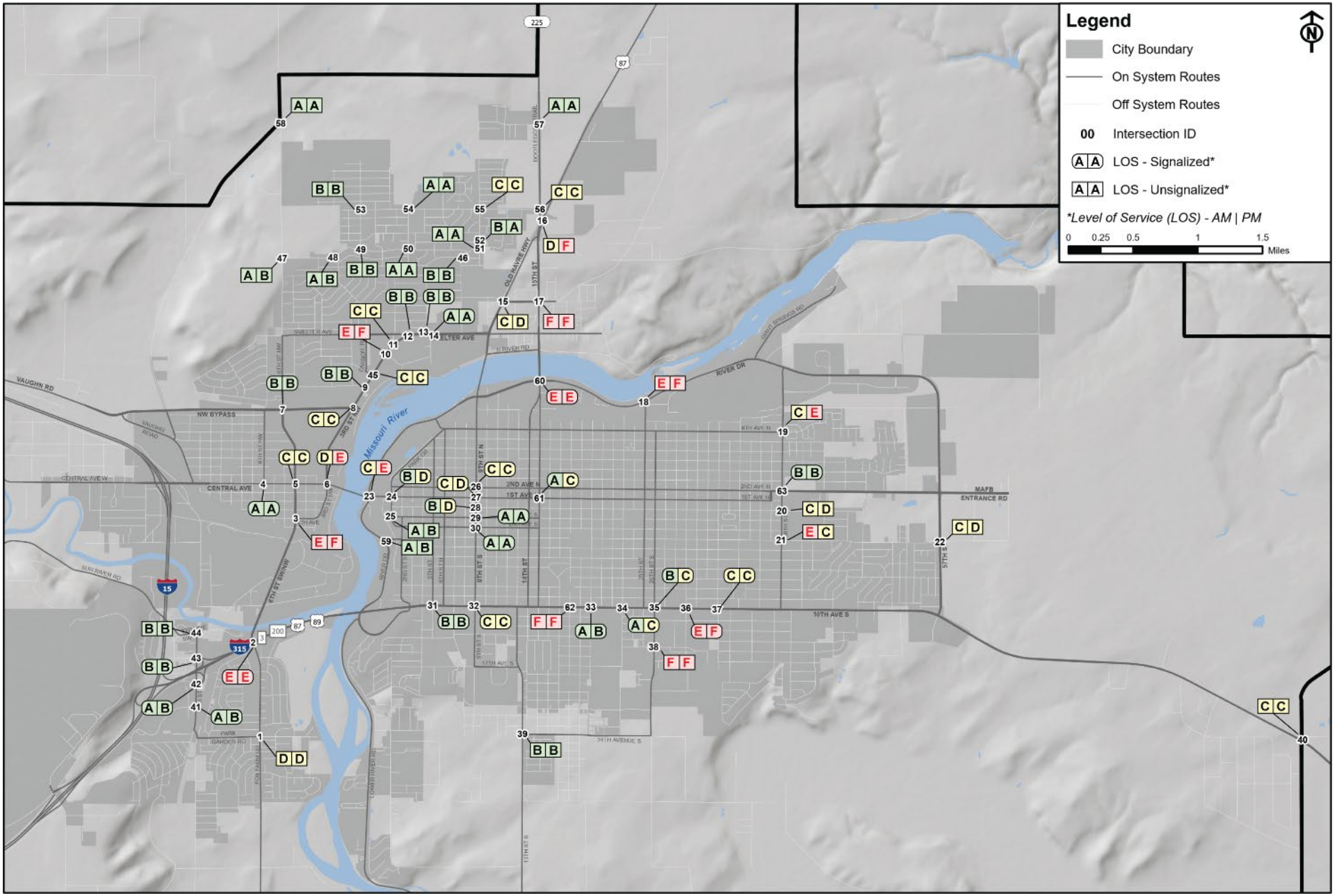


Figure 4.4: Projected Intersection Level of Service

5.0 AREAS OF CONCERN AND CONSIDERATION SUMMARY

This section provides a list and description of areas of concern within the study area which should be taken into consideration as recommendations are developed for the LRTP. These areas were identified through review of existing traffic data, growth projections, field review, public comment, and other available resources. Please refer to previous sections for more detailed discussions.

5.1. Existing Transportation System

- **MAJOR STREET NETWORK:** A transportation system is made up of a hierarchy of roadways functionally classified according to parameters such as geometric configuration, traffic volumes, spacing, speed, and adjacent land use. Maintaining this hierarchy is important for efficient traffic management throughout the entire network. Although traffic volumes may differ between urban and rural sections of a roadway, it is important to still maintain coordinated right-of-way standards to allow for efficient operation and potential urban development in the future.
- **BICYCLE AND PEDESTRIAN FACILITIES:** The RET provides a significant pedestrian and bicycle network in the Great Falls area but is generally constrained to the banks of the Missouri River. While pedestrians have ample access to sidewalks in and around the city, there is a relative lack of sidewalks in recently annexed areas and in areas outside the city boundary. The bicycle network is generally lacking, and some bike facility markings and signage have not been well-maintained since their original installation. Widened sidewalks in the study area are intended to serve both pedestrians and bicyclists.
- **TRANSIT:** The GFTD currently operates seven fixed routes and a curb-to-curb paratransit service covering a service area of 20 square miles within the City of Great Falls. Buses operate on a fixed fare basis from 6:00 AM to 6:30 PM on weekdays and from 9:30 AM to 5:30 PM on Saturday with no transit service provided on Sundays or major holidays. Users have indicated that, as Great Falls continues to expand outward, transit services are limited, inconvenient, or otherwise unavailable. The GFTD is currently conducting an update to its *Transit Development Plan*.
- **ELECTRIC VEHICLES:** Cascade County residents are beginning to adopt electric vehicle technologies. Great Falls has 7 public electric vehicle charging stations with 21 ports supporting I-15, the only AFC in the Great Falls area.
- **FREIGHT AND RAIL:** Freight movement is critical to the Great Falls economy, providing access to important commodities, creating jobs, and encouraging economic growth. It is important to understand and consider how truck and rail networks within the study area interact with the rest of the transportation network to help ensure all transportation modes can move safely and efficiently through the network.
- **ROADWAY CAPACITY:** High traffic volumes are experienced along 10th Avenue South, River Drive, Central Avenue, 3rd Street Northwest, and Smelter Avenue. Several segments on River Drive, 10th Avenue South, Central Avenue, and 9th Street South are at or approaching the available capacity of the roadway. Conversely, some of the Downtown one-way streets carry traffic volumes far below their available capacity.
- **INTERSECTION LOS:** A handful of unsignalized intersections are operating at or beyond their available capacity during peak hours under existing conditions. Several other intersections of varying traffic control experience LOS C or D during peak hours and may experience worsening conditions as growth occurs.

- **COMMUTE MODE SHARE:** The share of Great Falls residents who walk, bike, or take public transportation to work has decreased in recent years while personal vehicle ownership has also decreased. However, the share of workers who work from home has increased. According to the city's walk score, Great Falls is a car-dependent city with most errands requiring a vehicle.
- **REGIONAL TRAVEL PATTERNS:** Weekday traffic experiences distinct peaks during the morning, midday, and evening commuting timeframes. On weekends, traffic volumes are approximately 34 percent less than on weekdays. More trips are taken in the Great Falls area during August and September but otherwise experience little variation throughout the year. Average trip lengths for all vehicles range from 12 to 23 miles long with about 75 percent of all trips in the Great Falls area being less than 5 miles long. Approximately 6 percent of trips originating in the Great Falls area end in a destination outside the Great Falls area with the Southside and Westside areas accounting for the highest number of trips within the study area.
- **EQUITY:** When compared to the Nation, Cascade County is generally considered disadvantaged, however, in comparison to the state of Montana only, Great Falls ranks lower in terms of comparative disadvantages. The core of Great Falls, generally bounded by 10th Avenue South, River Drive, and 38th Street North, is ranked relatively low in terms of Transportation Insecurity with Transportation Insecurity increasing in further reaches of the city and in the county due to longer commute times and limited access to transit.
- **STRUCTURES AND PAVEMENT:** Of the 44 structures within the study area, 5 are owned and maintained by the City of Great Falls. All bridges are rated fair or good. The majority of the roadway network is reported as being in fair condition, however approximately 35 miles of roadway are in poor to failing condition and require major rehabilitation or reconstruction. The city plans to conduct a full pavement inventory to re-establish baseline conditions and help inform future investment decisions.

5.2. Safety Conditions

- **TOTAL CRASHES:** A total of 8,567 crashes were reported within the study area between January 1st, 2017, and December 31st, 2021. There were 1,674 injury crashes reported with about 5 percent of those crashes being severe. Sixteen fatalities were reported over the five-year period.
- **CRASH PERIOD:** Crash occurrences are heavily correlated with traffic volumes with higher numbers occurring during peak commuting hours on weekdays. Approximately 48 percent of all crashes occurred during winter months (November to March) with the most crashes occurring in February. However, the largest number of severe crashes occurred during August.
- **CRASH TYPE:** The most common multi-vehicle crash types were rear-end and right angle crashes while the most common single-vehicle crash types were fixed object, wild animal, and rollover crashes.
- **CRASH LOCATION:** About 45 percent of crashes occurred at a non-junction and roughly 50 percent of crashes were at or related to an intersection. The greatest number of crashes occurred on local roads (38 percent), however the greatest number of severe crashes occurred on principal arterials (39 percent) where traffic volumes and travel speeds are greater.
- **ENVIRONMENTAL CONDITIONS:** Crashes occurred most commonly on clear or cloudy days with dry roads and daylight. Approximately 27 percent of crashes occurred under inclement road conditions. About 41 percent of crashes occurred under dark lighting conditions (both with and without street lighting).

- **DRIVER CHARACTERISTICS/BEHAVIOR:** About 26 percent of severe crashes and 6 percent of all crashes involved an impaired driver. Less than 2 percent of drivers were fatigued or distracted at the time of the crash. About 12 percent of drivers involved in crashes were over the age of 65 and about 2 percent were under the age of 15.
- **VEHICLES/PERSONS INVOLVED:** Large trucks or buses were involved in about two percent of crashes while motorcycles were involved in less than one percent of crashes (but 16 percent of severe crashes). There were 49 bicycle and 94 pedestrian-related crashes that occurred within the analysis period, with 11 pedestrian-related crashes resulting in severe injuries.
- **HIGH INJURY NETWORK:** In general, intersections along high volume corridors, including 10th Avenue South and Central Avenue, received the highest overall safety scores. However, some intersections on lower-volume routes were also identified as having high safety scores including 4th Avenue South, 6th Avenue South, and 8th Avenue South due to higher crash rates. Two of the highest scoring intersections have recently been reconstructed to address historic trends. When intersection crashes are excluded, the frequency of crashes and severe injuries on individual roadway segments is much lower. Overall, the roadway segment safety score analysis revealed a mix of urban and rural locations with nearly half of the top scoring segments being on lower volume roads outside city limits.

5.3. Projected Transportation Conditions

- **ROADWAY CAPACITY:** River Drive, Central Avenue, 10th Avenue South, 3rd Street Northwest, and Smelter Avenue are likely to approach or exceed available roadway capacity by 2045 if traffic continues to grow as anticipated. Consequently, traffic is anticipated to shift to other arterials in the roadway network to avoid congestion on parallel routes. As a result of growth in the southern part of the city near the universities and hospitals, traffic volumes are expected to increase, though continuing to operate below capacity.
- **INTERSECTION LOS:** With continued growth intersection operations on major arterials will experience deteriorated conditions and high amounts of delay, especially during the PM peak hour. Several unsignalized intersections are shown to operate at LOS E or F during one or more peak hours. There are also several signalized intersections which are projected to reach or exceed their available capacity if traffic growth occurs in the manner predicted. Intersections along 10th Avenue South, 3rd Street Northwest, River Drive, 6th Street Southwest, 15th Street and 38th Street experience the highest amounts of delay.

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GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

APPENDIX F-1:

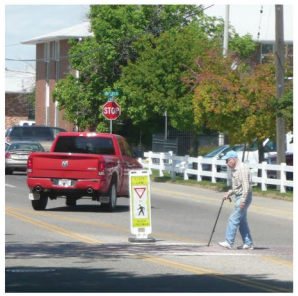
Freight and Security Technical Memorandum

Prepared for:

Great Falls MPO

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

March 22, 2024



Freight and Security

TECHNICAL MEMORANDUM

Prepared by:

RPA

CIVIL ENGINEERING / PLANNING / SURVEYING

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Freight and Security

1.0 INTRODUCTION

A detailed analysis of freight and goods movement, transportation security, disaster mitigation, and emergency response in the Great Falls area was conducted by Cambridge Systematics for the 2014 *Long Range Transportation Plan* (LRTP). The information contained in the *Freight and Goods Movement*[1] and *Transportation Security*[2] memos remains largely the same today. For the 2018 LRTP, an update to these two memos was provided to reflect current conditions using the most current data available. Similarly, another update to this information is included in this *Freight and Security* technical memo.

2.0 FREIGHT AND GOODS MOVEMENT

Moving goods efficiently and safely in the region is critical to the economy and quality of life in the Great Falls Area. Local businesses engaged in industrial, agricultural, office, and retail activities rely on timely deliveries to supply finished goods and services to their customers. These businesses contribute jobs that grow the region's economy and maintain long-term economic competitiveness. Goods movement is important to local consumers, as increasing numbers of people shop online and expect goods to be delivered quickly to their homes. The Great Falls Area is part of many long-distance goods movement corridors supporting interstate and international commerce.

Goods movement affects all modes of transportation and a broad mix of land uses in the Great Falls Area. Goods move through the region, alongside drivers, pedestrians, cyclists, and passengers traveling by bus, car, and air, connecting to and passing through commercial districts, residential neighborhoods, and parks. Demand for goods movement will continue to increase as the region's economy and population grows. Integrating goods movement into the transportation system and local land uses is critical to protecting safety and quality of life for residents and visitors to the Great Falls area.

The following sections describe the role of goods movement in the regional economy and explain how it relates to the regional transportation system. The information comes from a variety of publicly available resources including the City of Great Falls, the Great Falls Development Authority, the Cascade County Commission, the Montana Department of Transportation (MDT), and the Federal Highway Administration (FHWA).

2.1. GOODS MOVEMENT AND THE REGIONAL ECONOMY

The Great Falls Area serves as a key destination and transfer point for goods carried regionally by truck, rail, and air. Goods movement in the area supports the well-being of local residents and businesses. Businesses receive key inputs and supplies to keep their operations going and rely on shipping networks to get their products to customers. Residents rely on goods movement to support day-to-day activities such as buying groceries, going out to dinner, and online shopping.

2.1.1. Local Context

Great Falls is the largest city in north central Montana and serves as the primary financial, trade, health care, and transportation center of the region, serving the broader areas of Cascade County, the Sweetgrass Economic Development District,[1] and Vibrant Futures Planning Region[2]. Great Falls is the largest city in all of these regions, which positions the city well for economic and employment growth especially related to renewable energy and agriculture in recent years. Growth in the region supports the availability of jobs for the City of Great Falls' nearly 60,500 residents and Cascade County's population of about 84,500 people. **Figure 2.1** illustrates the City of Great Falls' employment sectors in 2021, including business and management, sales, services, natural resources and construction, and production and transportation. Military employment is not included in this analysis. The largest sector, business and management, employs nearly 35 percent of Great Falls' workforce. Sales and office jobs represent nearly 25 percent of the region's employment. Together these sectors represent nearly two-thirds of employment, with services comprising approximately one-fifth of employment, and production, transportation, natural resources, and construction also making up a combined fifth of the region's jobs.

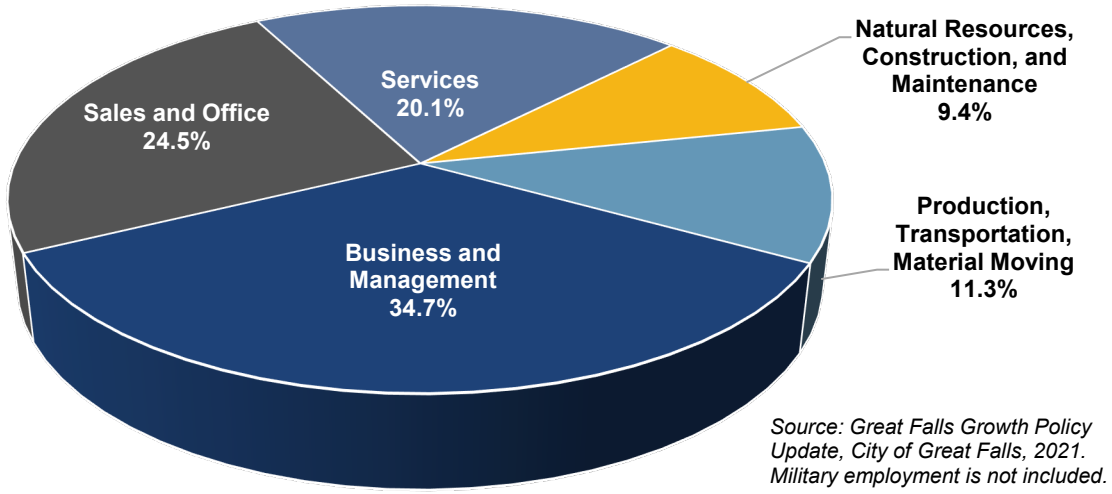


Figure 2.1: Great Falls Non-Military Jobs by Sector (2021)

GOODS MOVEMENT BY INDUSTRY

Each employment sector relies on a high-quality goods movement network for business. These sectors can be categorized into three main industries including heavy industry; service, retail, and management industry; and military industry. The relationship of each of these industries to the goods movement network can be summarized as follows.

[1] Sweetgrass Development is a private, non-profit corporation created in 2004 to support economic development in the counties of Glacier, Cascade, Pondera, Teton and Toole, as well as the Blackfeet Nation.
[2] The Vibrant Futures region encompasses 11 counties and three Indian reservations, including the counties of Glacier, Toole, Liberty, Hill, Blaine, Phillips, Pondera, Chouteau, Teton, Cascade, and Judith Basin as well as the Blackfeet, Rocky Boy's, and Fort Belknap Reservations.

Heavy Industry: The heavy industry consists of two primary employment sectors – production and transportation, and natural resources and construction – making up about 21 percent of jobs in the Great Falls Area. Goods movement is critical to heavy industry as businesses in these sectors make location decisions based on access to efficient, secure, and safe transportation infrastructure to support their growth. These industries are expecting continued growth in the Great Falls Area to support developments in oil and gas extraction and refining, and agriculture. In recent years, interest in renewable energy has increased, positioning the Great Falls area well for opportunities in development of wind, biofuels, hydro-electric based power, and petroleum-based byproducts. Recent investment in this sector includes the construction of a 100,000 square foot steel fabrication and assembly plant to support the energy and power industry. Notable products on the local goods movement system from these industries include: oil and gas extraction materials and equipment; grains and other perishables; aerospace equipment and parts; and wind energy equipment and supplies. Local employers in these industries include Calumet Montana Refining, Pacific Steel and Recycling, ADF Group (Steel Fabrication), Pasta Montana, International Malting Corporation, Malteurop, and General Mills.

Service, Retail, and Management Industry: Goods movement is critical to the local service, sales, and management businesses which account for nearly 80 percent of the jobs in the City of Great Falls. Businesses in these industries are less likely to make location decisions based on goods movement access and are generally more concerned with customer and employee transportation access. However, these industries all rely on the efficient shipment of goods to conduct day-to-day business. Retail businesses, for example, require routine shipments of products to keep stores stocked, and with growth in online shopping, retail businesses also rely on efficient shipments of goods to customers. Management offices require office supplies and mail shipments, and health care facilities require medical diagnostic equipment and pharmaceuticals. Service and office businesses are expected to continue to grow in the Great Falls Area based on growing demand for health care, availability of a skilled workforce, and the natural environment that attracts tourists from all over. Local employers in these industries include Benefis Health System, Great Falls Clinic, Wal-Mart, higher education institutions, and local government offices.

Military Industry: The military maintains a strong presence in the Great Falls Area. Malmstrom Air Force Base (AFB) employs over 3,900 military-related personnel and the Montana Air National Guard (MANG) has over 1,000 military-related personnel. The city is also home to the United States Army Reserve and the Montana Army National Guard. According to the Fiscal Year 2022 Economic Impacts Analysis Fact Card, Malmstrom AFB's direct and indirect impact on the regional economy totaled over $397 million, with expenditures for construction, services, materials, equipment, and supplies making up about $71 million, payroll making up $258 million, and indirect jobs composing the remaining $68 million.[3] The AFB relies on an efficient and secure goods movement network to transport these goods to and from the base. In particular, the AFB relies on roadway connections to the Great Falls International Airport, which is a key component of the military transportation network. MANG and the US Army Reserves are also co-located near the airport.

2.1.2. Interstate and International Context

Goods movement routes in and around the Great Falls Area play a significant role on the regional, state, and national economies. Statewide, the key industries reliant on the goods movement system are oil and gas extraction and agriculture.

Oil and Gas Extraction: The oil and gas industries represent a six-billion-dollar economic sector in Montana, with 53,400 jobs across the state's economy. Expansion in this industry is leading businesses to locate in the Great Falls Area due to its skilled workforce, access to major transportation routes, and proximity to oil and gas resources such as the Alberta Basin Bakken Fairway and Williston Basin oil fields. The Calumet Montana refinery in Great Falls currently produces 30,000 barrels of oil per day and, in 2021, launched a new project focused on creating renewable fuel for the State.

Agriculture: The Great Falls Area is located near the "Golden Triangle" of Montana, known for producing large quantities of wheat between the Cities of Great Falls, Shelby, and Havre. Related industries process the wheat to supply consumer product manufacturing. The greater Sweetgrass Economic Development Region is known for its prairie grazing lands, other small grains such as barley, forage crops, forage animals, and durum wheat. Demand for organic and natural products has continued to grow. The region has competitive advantages for agri-processing, energy sources (i.e., electricity, natural gas, and oil), rail transportation, water resources, and a capable workforce. Expansion of local agri-based processors is being promoted and supported, as evidenced by the recent development of the Agri-Tech industrial park in northeast Great Falls.

On an international scale, the City of Great Falls is located approximately 120 miles south of the Canadian border. The city's proximity to Canada creates opportunities for international trade and tourism. Overall, the city benefits from Canada's tourism and trade investment, which can continue to prosper with enhancements to the transportation and goods movement networks.

2.2. Existing Goods Movement System

The existing transportation system facilitates considerable goods movement to, from, and throughout the region. This section describes the types and quantities of goods moved, how the goods are moved, the routes and freight facilities, and gaps or needs on the regional goods movement transportation system.

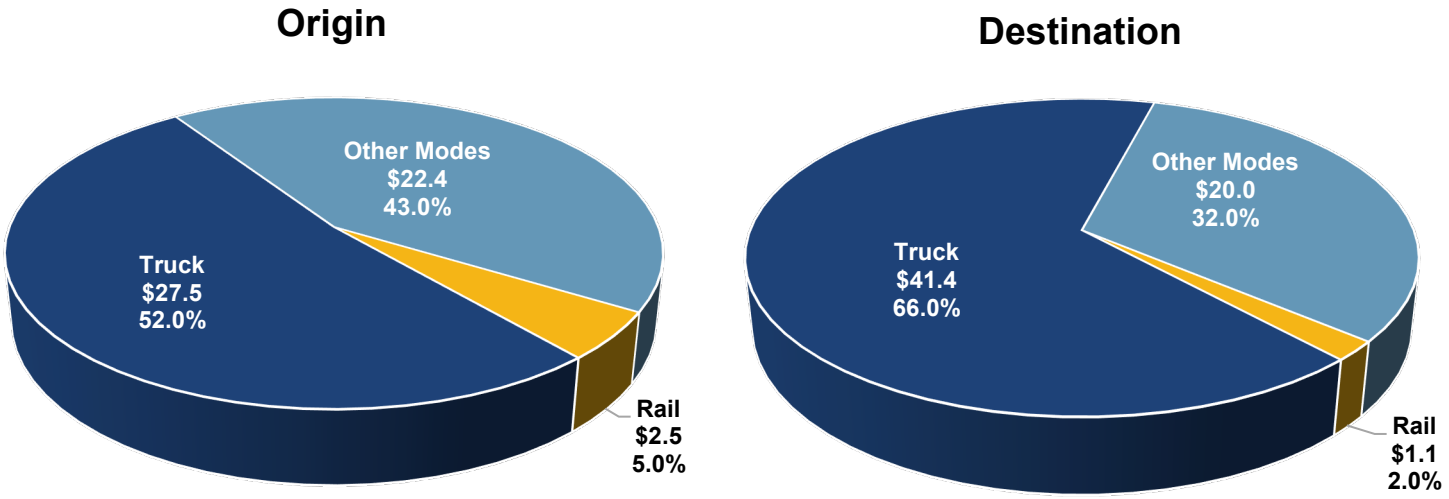
2.2.1. Commodities and Products Overview

Over 270 million tons of goods are shipped from, to, and within Montana, with a total value of nearly $115 billion dollars in 2022; constituting an increase of approximately 9 percent by weight and 5 percent by value since 2017.[4] The top commodities shipped from Montana by weight include natural gas and other fossil products, crude petroleum, coal, cereal grains, and gravel. The top outbound commodities by value are slightly more diverse, with natural gas and other fossil products, crude petroleum, gasoline, and other fuel oils making up a majority of the outbound value, supplemented by shipments of live animals/fish, cereal grains, meat/seafood, machinery, and wood products. Inbound goods are similar, consisting of natural gas, crude petroleum, gasoline, gravel, coal, and cereal grains making up the top commodities by weight. By value, the top inbound commodities to Montana include mixed freight, machinery, motorized vehicles, crude petroleum, gasoline, natural gas, and electronics.

GOODS MOVEMENT BY TRANSPORTATION MODE

Montana is part of a trade corridor linking midwestern and northwestern port markets. This leads to a large share of through-bound goods movement. The majority of freight in Montana is moved by three modes of travel: pipeline, truck, and rail. By value, trucking is the dominant form of freight transportation in the state, transporting approximately 60% of goods in 2022. By weight, trucks transported approximately 37% of goods while rail transported 10% of goods in 2022. Rail and pipeline typically move low-value and often bulk commodities across long distances while trucking primarily serves a greater share of locally serving trips due to the ability of trucks to serve diffuse markets. While the Great Falls Area is affected by through trips on the highway and rail networks, locally serving trips have the greatest impact on the regional economy, quality of life, and local traffic.

In 2022, trucks carried 52 percent of goods by value that originate in Montana, and 66 percent of goods by value destined for Montana. **Figure 2.2** illustrates the value of freight transportation in Montana by transportation mode. Truck and intermodal modes represent large proportions of overall value because more valuable commodities tend to be transported as containerized or truck trailer freight.



Source: Freight Analysis Framework 5. "Other Modes" includes air, multiple modes, pipeline, and unknown.

Figure 2.2: Montana Freight Value by Mode (2022, Billions of U.S. Dollars)

Rail accounts for about 5 percent of the freight value originating in Montana, but it accounts for about two percent of the freight value with a destination in Montana. This is partly due to the fact that trucks (hauling containers or trailers) are better suited to distributing high-value finished goods to diffuse markets (e.g. grocery stores, retail stores). Industrial sectors in Montana, such as oil and gas extraction, move goods primarily by truck freight, while agriculture-related industries transport goods both by truck and rail.[5]

Great Falls International Airport is the second largest cargo airport handling 29 percent of Montana's air cargo by tonnage and is federally designated as a foreign trade zone.[6] Large distances and rough terrain between cities and towns often make air travel the most efficient mode of transportation. Airport services include many different air cargo carriers including FedEx, UPS, ALPINE Air, Corporate Air, and Empire Air. FedEx uses the airport as their statewide hub, linking smaller flights to communities within the state, and linking to hubs in other states. FedEx also contracts with the United States Postal Service to carry first class mail.

There were about 143,500 annual enplanements at the Great Falls International Airport in 2022. **Table 2.1** breaks out the overall aircraft operations by purpose and compares Great Falls International Airport to Billings Logan International Airport and Helena Regional Airport. These two airports provide a comparison of operations at other Montana airports that are similar in size to Great Falls International Airport.

Table 2.1: Great Falls International Airport Infrastructure

	Great Falls International	Helena Regional	Billings Logan International
Annual Operations	34,599	33,402	91,587
% Commercial	11%	6%	13%
% Air Taxi	32%	7%	29%
% General Aviation Local	17%	47%	24%
% General Aviation Itinerant	23%	33%	34%
% Military	16%	7%	1%

Source: FAA Airport Master Records, Accessed 4/3/23, https://www.airportiq5010.com/5010Web/

Air cargo transport trends at Great Falls International Airport have fluctuated since 2015, holding relatively steady between 2015 and 2019, spiking in 2020 then decreasing by 50% in 2021. **Table 2.2** presents the total air cargo tonnage from 2015 to 2021.

Table 2.2: Great Falls International Airport Air Cargo 2015 to 2021

	2015	2016	2017	2018	2019	2020	2021
Tons Air Cargo (Freight/Mail)	8,629	8,923	8,837	9,470	9,288	10,879	5,448
Change from previous year		3%	-1%	7%	-2%	17%	-50%

Source: US Bureau of Transportation Statistics, https://www.bts.gov/product/state-transportation-statistics?page=1

Air cargo is typically high value and relatively low weight, so trends in air cargo by weight are not necessarily indicative of economic strength. The Great Falls International Airport regularly transports cargo that supports the local economy. Common inbound goods include aerospace parts and equipment; legal and financial documents; cell phones; wind energy parts and equipment to repair local wind turbines; mining parts and equipment; and oil and gas extraction parts and equipment.

Other goods arrive bound for local medical facilities, including diagnostic equipment, pharmaceuticals, and medical devices. Other inbound goods include flowers and parts for tractors and other heavy equipment. Outbound air cargo is based on the local tourism industry (related to hunting and fishing), as well as financial and management service and aerospace industries. The top local commodities include meat products; taxidermies; music concert equipment; documents and forms; and aerospace related equipment and supplies.

2.2.2. Origins and Destinations

Much of the locally serving goods movement is destined for industrial or commercial districts. Heavy industrial areas (I-2) are located within the northeastern quadrant of the city, along Highway 87, heading northeast from Great Falls, or along River Drive North on the east side of Great Falls. There are some light industrial districts (I-1) just north of a high-density residential district (R-3) adjacent to 8th Avenue North, and also on the west side of Great Falls between the Missouri River and I-15. The latter area is the location of the BNSF rail yard. Great Falls International Airport is also an important location in the area's freight network for goods that move to and from the region via aircraft. **Figure 2.3** illustrates the City of Great Falls zoning map, indicating where these districts are located.

Local goods commonly move to and from commercial districts of the city as well, many of which are located on the city's south side, along 10th Avenue South. The Central Business Core (C-4) is located along Central Avenue, just east of the Missouri River. Goods moving to the Central Business Core arrive by various arterials connecting to the Core which are described in more detail in **Section 2.2.4**.

Cascade County has two industrial zoning designations: Light Industrial (I-1) and Heavy Industrial (I-2). Areas of I-2 zoning are found in and around the unincorporated area of Black Eagle and around the periphery of the I-2 industrial area in the City along River Drive North. Areas of I-1 zoning are spread along several miles of Vaughn Road, southwest of Great Falls International Airport adjacent to the Tri-Hill Frontage Road, near the Emerson Junction interchange, and adjacent to the NW Bypass. All of these areas are located outside of the City limits but within the study area boundary for the LRTP. These areas are likely to have future industrial uses develop over the LRTP planning horizon.

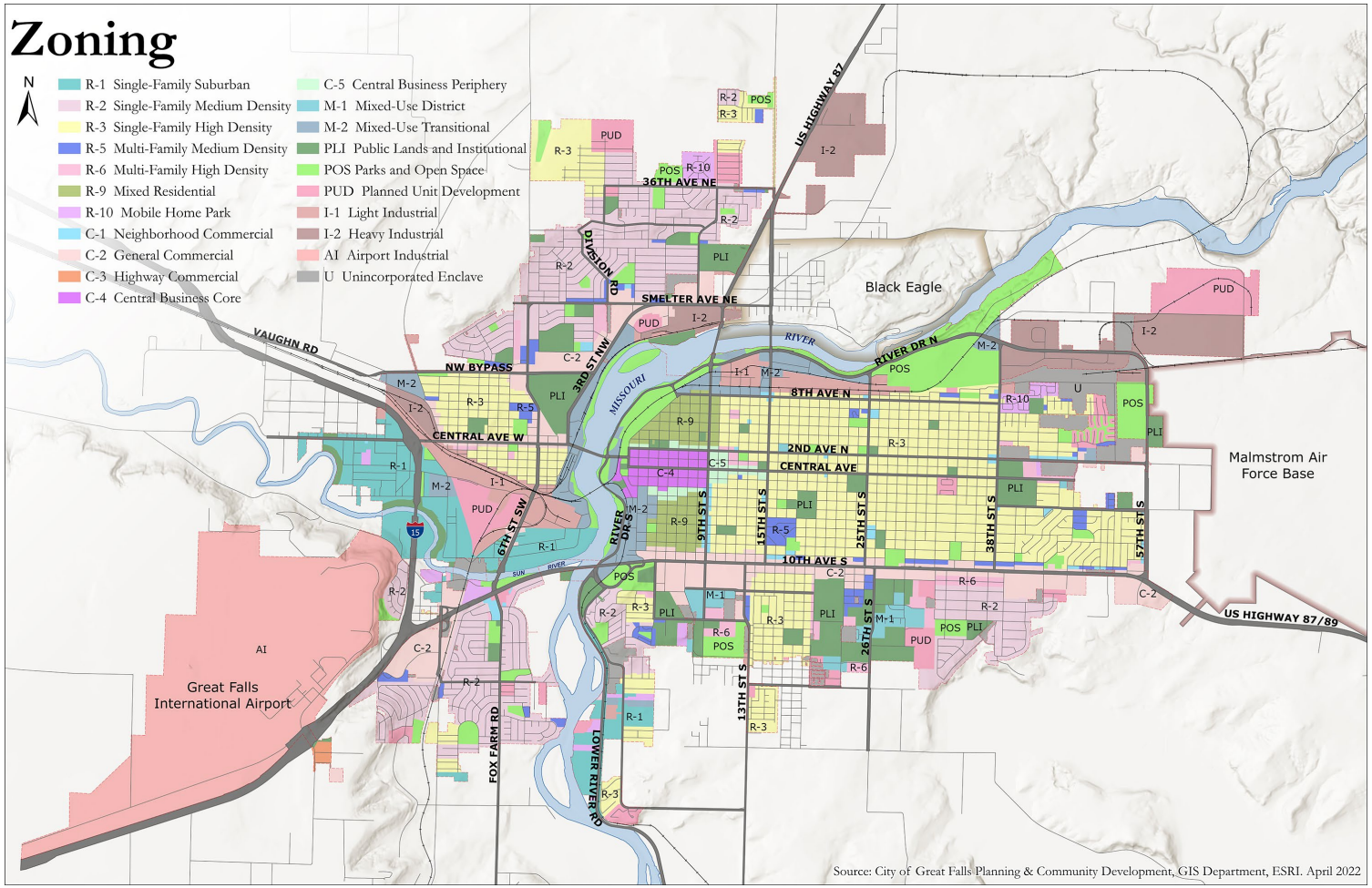
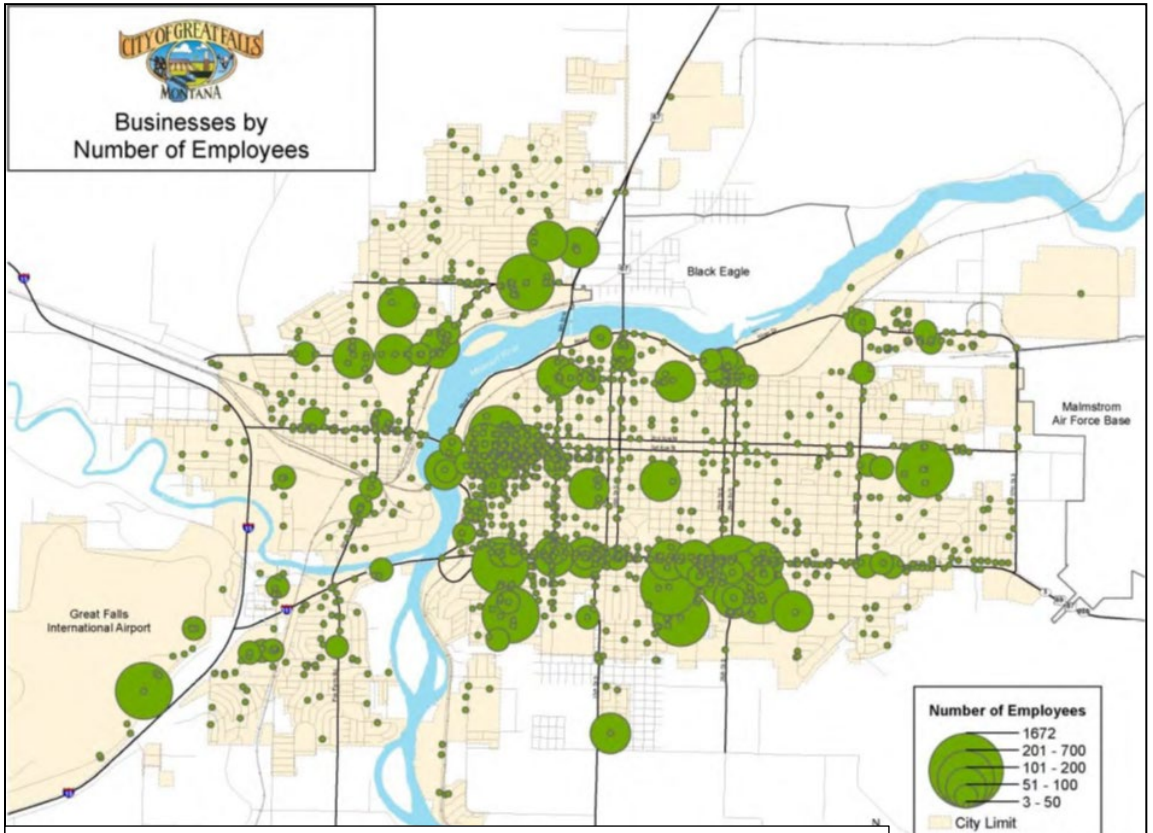


Figure 2.3: City of Great Falls Zoning Districts

Figure 2.4 presents employment intensity and location in the City of Great Falls from 2013. The size of a symbol corresponds to the number of employees with larger bubbles indicating a greater number of employees working at the establishment. The number of employees is an indicator of economic activity, indicating the total economic output of a business. The number of employees is also associated with local spending, as employees spend their income in the region. Providing efficient goods movement to and from employment clusters supports business activity and helps preserve jobs in the region. This is important for retail and office professions as well as manufacturing and industrial sectors. Retail stores, offices, and other establishments, for example, located near River Drive North and 1st Avenue North rely on regular shipments of supplies and materials to support employee activity. The University of Great Falls and Great Falls Clinic Medical Center rely on regular shipments of medical equipment, food, and other products to serve thousands of customers and employees. The ability to receive goods on a regular basis is especially critical in industrial job centers. Employment in **Figure 2.4** shows significant activity in the Central Business Core, along 10th Avenue South, around Great Falls International Airport near existing industrial activities, and in the northern part of the city east of the Missouri River. Malmstrom AFB has nearly 4,000 employees but is not represented on this map.



Source: *Imagine Great Falls 2025: Growth Policy Update 2013*, City of Great Falls, 2013.

Figure 2.4: City of Great Falls Business Location by Number of Employees

2.2.3. National and International Routes

Goods travel to and from Montana to national and international destinations via several designated routes. The routes that pass through Great Falls are described in more detail below.

INTERNATIONAL PORT OF ENTRY

The Port of Sweetgrass is located along I-15 approximately 120 miles north of Great Falls and is Montana's largest international port of entry. It is the only port of entry in western Montana that is open twenty-four hours a day. It is located near three of western Canada's largest cities: Calgary, Lethbridge, and Edmonton which have a combined population of over 2.4 million. In 2022, approximately 725,000 people traveled through the Sweetgrass Port of Entry.[7] After passing through the Port of Sweetgrass, trucks largely travel on I-15 through Great Falls and continue to destinations in Montana and beyond.

INTERNATIONAL TRADE CORRIDORS

Great Falls is located along the Canamex and Camino Real Corridors. The Canamex Corridor was designated as a High Priority Corridor by Congress in the 1995 National Highway Systems Designation Act to facilitate trade between Canada, the United States, and Mexico and strengthen the nations' positioning in the global economy.[8] I-15 is the designated corridor through Great Falls and northern Montana. The Camino Real Corridor runs north-south, beginning at the Port of Sweetgrass and extending south across the state along I-15, US 87, and I-90, and ending in El Paso, Texas.

NATIONAL MULTIMODAL FREIGHT NETWORK

In 2016, the United States Department of Transportation (USDOT) published the Interim National Multimodal Freight Network (NMFN). The network addresses all modes of freight transportation, which includes highway and rail for Montana. In Great Falls, the NMFN consists of I-15 and US 87 extending north and south of the study area as well as all of the main rail lines within the study area.

NATIONAL HIGHWAY FREIGHT NETWORK

The National Highway Freight Network (NHFN) strategically directs federal resources and policies toward improved performance of highway portions of the United States freight transportation system. The NHFN includes the Primary Highway Freight System (PHFS), Interstates not part of the PHFS, and Critical Freight Corridors (Urban and Rural). Within the study area, I-15 is designated as an interstate on the PHFS. In the fall of 2023, MDT designated I-94 as a critical freight corridor with both urban and rural components which ensure the route's connectivity to the PHFS in Billings and North Dakota's NHFN.

MILITARY NETWORKS

The United States Military has designated segments of the highway and rail systems as part of their strategic military networks. The Strategic Rail Corridor Network (STRACNET) and Strategic Highway Network (STRAHNET) are also designated to prioritize infrastructure and connectivity needs for national defense. The STRACNET in Great Falls includes a rail connector between Malmstrom AFB and Shelby where the main STRACNET runs along US Highway 2 east and west across Montana. Other rail lines extending away from the City of Great Falls are designated as "other railroads" on the STRACNET. The STRAHNET in Great Falls consists of I-15 extending north and south of the city as a designated Interstate corridor and 10th Avenue South/US 87 extending east of the city as a designated non-Interstate corridor.

Malmstrom AFB, the only operating military base in Montana, has direct access to the STRAHNET via these routes as well as 57th Street South and 2nd Avenue North which serve as designated STRAHNET connectors.[9] The AFB is reliant on an efficient and secure goods movement network to transport goods to and from the base. In particular, the AFB relies on roadway connections to Great Falls International Airport, which is a key component of the military transportation network as well as being the location of the MANG Facilities. Additionally, the 341st Missile Wing, headquartered at MAFB, is one of three U.S. Air Force Bases that operates, maintains and secures the Minuteman III intercontinental ballistic missile (ICBM). MAFB has designated ICBM haul routes that utilize the STRAHNET as part of the strategic mission of the base.

2.2.4. Local Routes and Facilities

The Great Falls area's goods movement network benefits from truck, rail, and air transportation modes that facilitate goods movement throughout the region. **Figure 2.5** presents the goods movement routes and facilities in the Great Falls Area, which are discussed in greater detail in the following sections.

TRUCKS

Figure 2.5 illustrates the routes generally used by trucks in the Great Falls Area. Official truck routes to be used by through trucks (those not involved in local truck service) are identified in the City of Great Falls city code.[10] Typical truck routes are also shown in the figure and include those that are generally outside the municipal boundary but connect to the official truck routes, forming a complete goods movement network. The official truck routes within Great Falls include:

- 10th Avenue South from the west City limits to the east City limits;
- The Northeast Bypass from the intersection at 57th Street South and 10th Avenue South, north and then westerly to the Tenth Street Bridge;
- River Drive from its connection with 10th Avenue South at or near the Warden Bridge to the 1st Avenue North Bridge; 1st Avenue North from Park Drive westerly through the 1st Avenue North Bridge; Central Avenue West from the west end of the 1st Avenue North Bridge to the west City limits on the Vaughn Highway;
- 3rd Street Northwest and Smelter Avenue from Central Avenue West to the northeasterly City limits;
- 2nd Street from the 10th Avenue South approaches north to 1st Avenue South;
- 1st Avenue South from 2nd Street, west to Park Drive; Park Drive from 1st Avenue South to 1st Avenue North;
- 6th Street Southwest from Central Avenue West to 10th Avenue South; and
- River Drive from 1st Avenue North to the 10th Street Bridge;

Figure 2.6 illustrates the 2021 commercial truck traffic volumes on the Great Falls street network based on annual MDT traffic counts. The maps show that the highest volumes of trucks travel on I-15, presumably to access markets outside the region. Locally serving trucks appear to access the city via the NW Bypass or Central Avenue. From the southwest, trucks access the city on Country Club Boulevard and 10th Avenue South, which also provide access to commercial areas in the Downtown core. Trucks access the city via US 87 in the northeast, with connections to Smelter Avenue and River Drive. From the southeast, trucks enter along US 87 and 10th Avenue South.

RAIL

Great Falls is well-integrated into the nation's freight rail system, with numerous facilities and services as shown in **Figure 2.5**. Rail facilities carry freight on lines northeast of the city and along the east side of the Missouri River, crossing the river south of downtown. The rail lines connect to the BNSF rail yard just west of the river. Rail lines extend south and northwest from the rail yard to destinations outside of city limits. Great Falls is located on the 100-mile BNSF main line that links Shelby and Great Falls, known as "The Great Falls Subdivision" line. Shelby is also located along "The Hi-Line Subdivision", a BNSF main line that runs east-west. Shelby has advocated for a freight intermodal facility to support nearby goods movement routes. The rail facilities in Shelby also serve an Amtrak passenger rail station on the Empire Builder Route (Chicago to Portland/Seattle).[11]

Rail spurs connect the rail network to several industrial facilities within the Great Falls Area, providing direct access to major goods movement facilities. A circuitous railroad spur deviates from the area near the AgriTech Industrial Park, crosses the Missouri River just west of Rainbow Dam, and circles north and west to the Malteurop Malting Plant between US 87 and Black Eagle Road. This spur line is located outside the City of Great Falls but supports significant goods movement activity in and through the area. The city plans to continue constructing rail spurs to serve the AgriTech Industrial Park, generally located north of 18th Avenue North and west of 57th Street North. In 2016, rail spurs were constructed as far east as Giant Springs Road/67th Street. Extensions east of 67th Street are anticipated to be designed and constructed as industrial development occurs in the area.

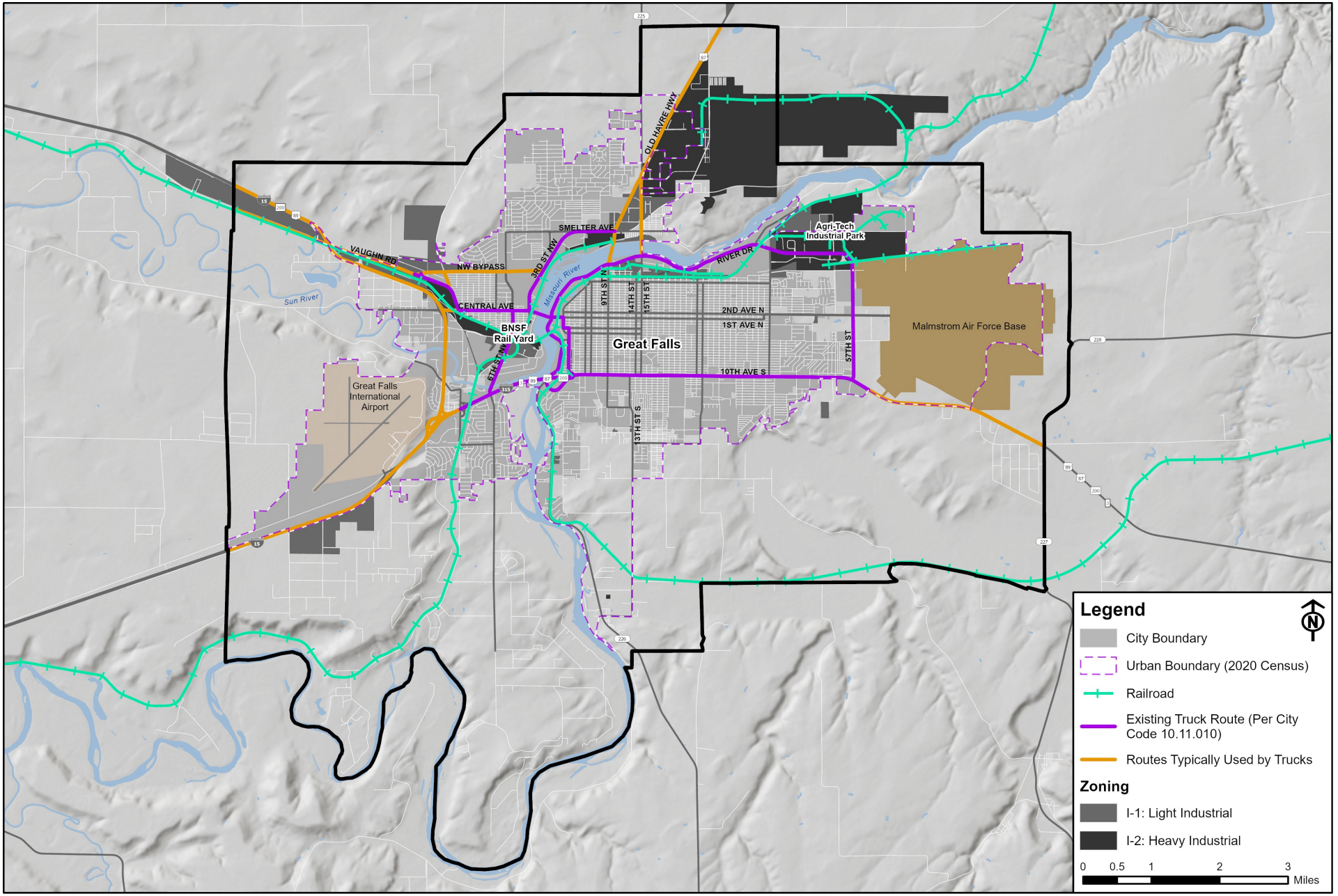


Figure 2.5: Goods Movement Routes and Facilities

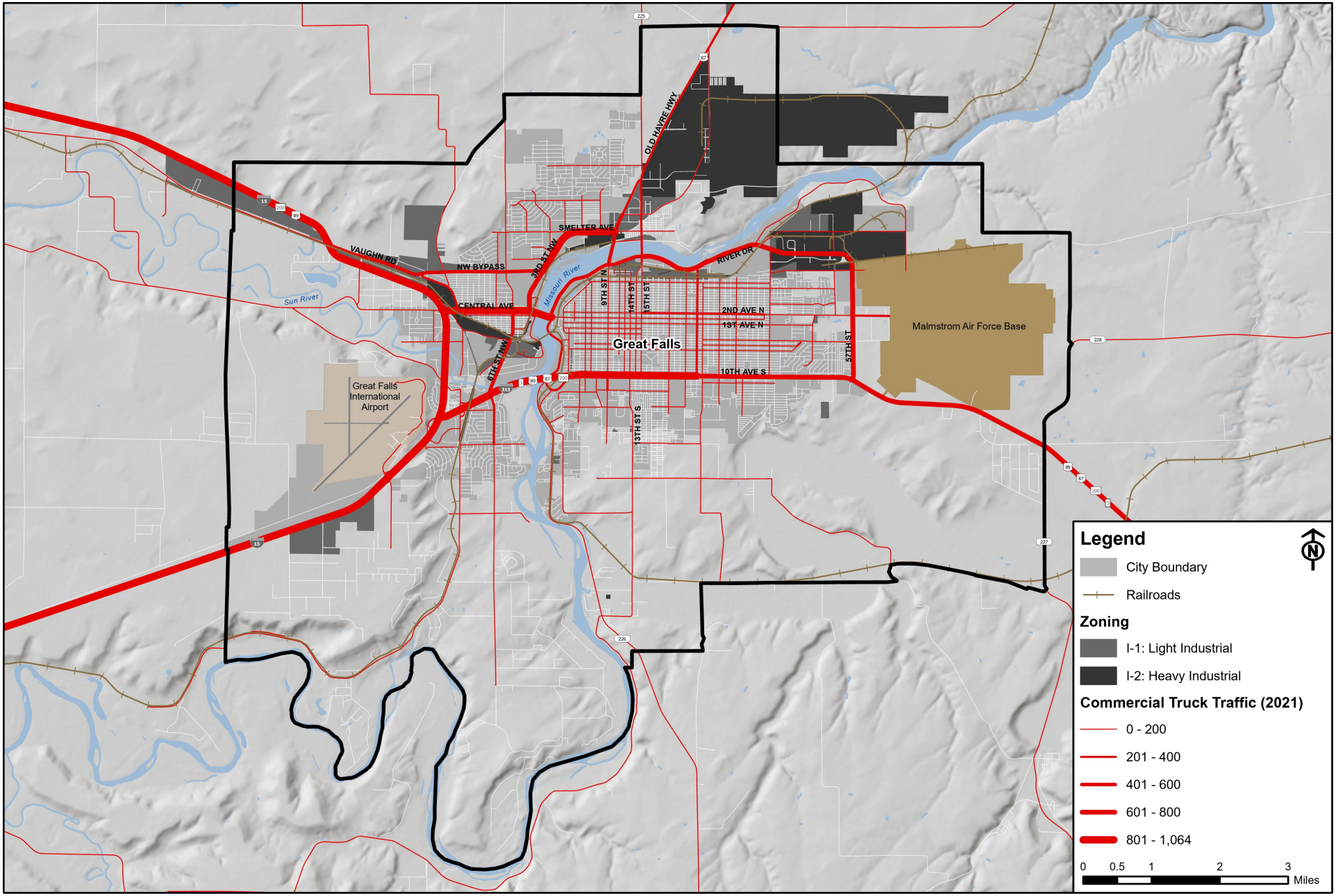


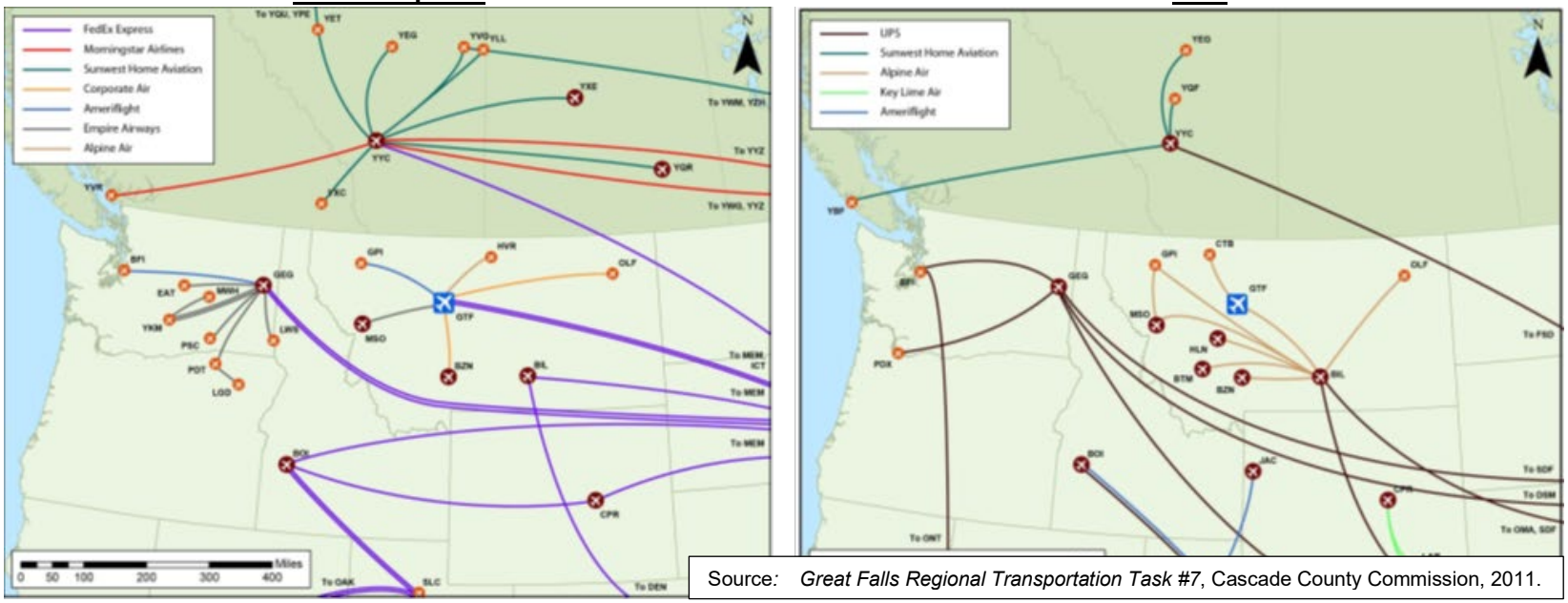
Figure 2.6: Commercial Truck Traffic (2021)

AIR

The Great Falls International Airport offers substantial infrastructure for the air cargo industry. The airport's primary runway is 10,502 feet long; the secondary runway is 6,030 feet long. The airport operates a control tower and five terminal gates. The airport occupies just over 2,100 acres and has a 531,000-square foot cargo apron area, and 72,000 square feet of cargo warehouse space. FedEx uses the warehouse space as a sorting and distribution hub for Montana. The airport operates a foreign trade zone that offers tax-free purchases to international customers. The U.S. Customs Border Patrol operates an office at the airport, which facilitates international travel.

The airport's primary runway is adequate to accommodate the mid-size cargo jets such as the B-757 operated by FedEx for interstate shipments, given typical weather and operating conditions. **Figure 2.7** illustrates the FedEx Express and UPS air cargo route network for the western United States and Canada from 2011. Current FedEx flight information indicates that FedEx operates cargo routes between Great Falls International Airport (GTF), Bozeman (BZN), Missoula (MSO), Kalispell (GPI), Omaha (OMA), Memphis (MEM), Reno (RNO). While UPS does not directly operate air cargo flights out of GTF, its affiliate, Alpine Air, operates routes between Great Falls (GTF), Billings (BIL), and Cut Bank (CTB). The majority of air cargo routes from the airport, like many in Montana, are "long-thin" routes that cover long distances with consistently low volume of cargo.

FedEx Express **UPS**



Source: *Great Falls Regional Transportation Task #7*, Cascade County Commission, 2011.

Figure 2.7: FedEx Express and UPS Air Cargo Networks in Western U.S. and Canada

2.3. Future Goods Movement System

The Great Falls area expects to experience continued population, employment, and overall economic growth over the planning horizon. A strong goods movement network will support economic growth by maintaining capacity, safety, and security of the transportation system, and preserve quality of life for local businesses and residents.

As the Great Falls population increases, goods production and consumption will also increase. Population and economic projections across the state suggest that the proportional share of goods shipped by truck, rail, and intermodal service are likely to remain the same as they are today, even as demand for goods movement increases. This means that higher value finished goods produced and consumed in Montana will continue to rely on trucks to distribute goods between dispersed origins and destinations. Rail is expected to continue its primary role in shipping most of the outbound goods by weight.

The 2022 *Montana Freight Plan* forecasts that total freight volume by weight for truck, rail, and air traffic either originating or terminating in Montana is forecast to grow by 30 percent between 2017 and 2050, from 88 million tons to 114 million tons. By monetary value, freight movements are projected to increase by 84 percent, from $54 billion to $101 billion. The plan anticipates that truck shipments will continue to account for the largest share of in-state goods movement by weight and value, while transport by rail may experience a decline in shipments by weight. **Table 2.3** shows the forecasted change in shipments by weight and monetary value by 2050.

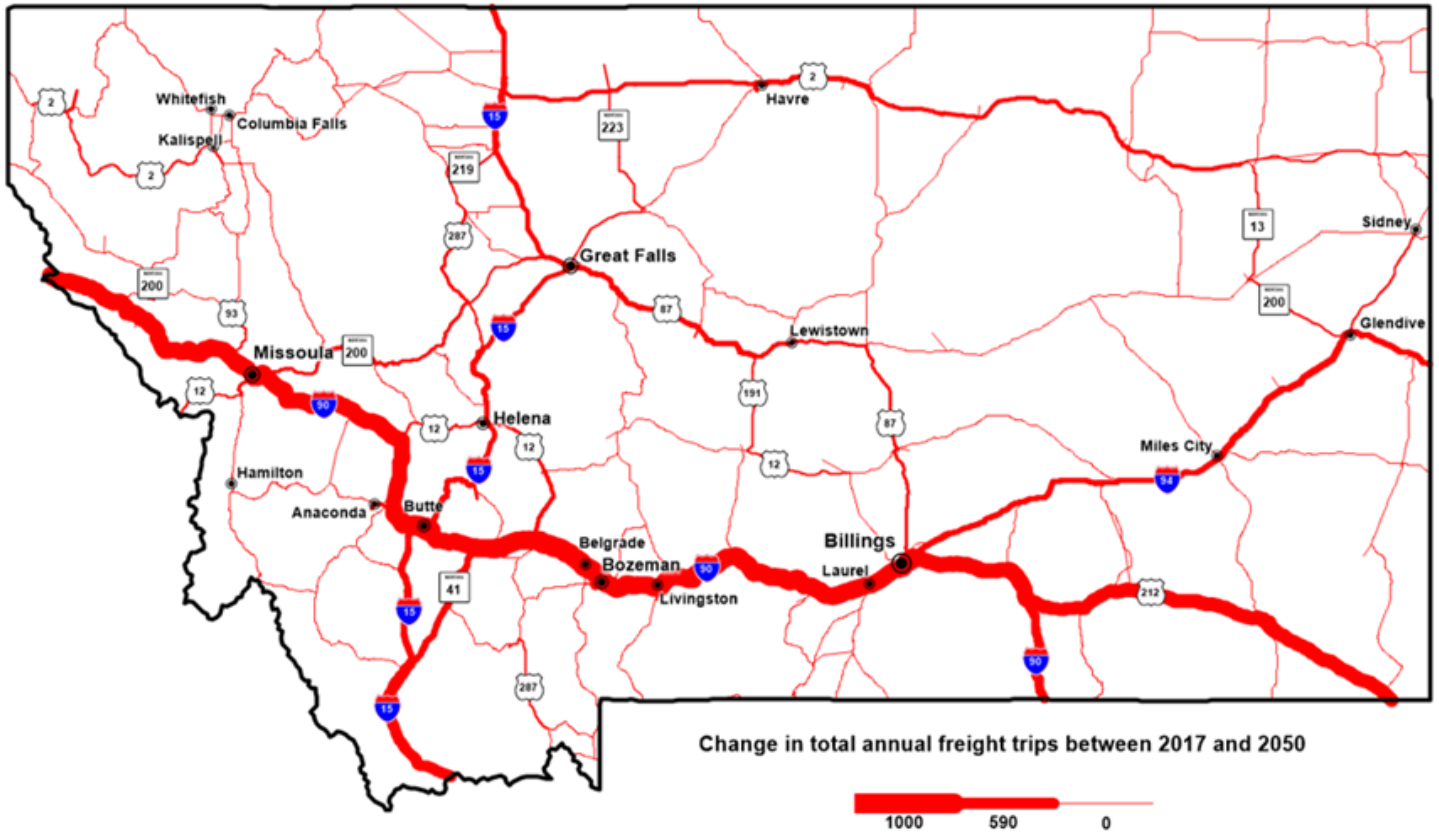
Table 2.3: Montana Forecast Change in Shipments by Weight (2017 to 2050)

Mode	Thousands of Tons		Percent Change (Tons)	Millions of Dollars		Percent Change (Value)
	2017	2050		2017	2050	
Truck	63,017	95,381	51%	$51,414	$95,469	86%
Rail	25,363	19,211	-24%	$2,994	$4,552	52%
Air	5	10	100%	$562	$1,179	110%
Total	**88,385**	**114,602**	**30%**	**$54,970**	**$101,200**	**84%**

Source: Montana Freight Plan, MDT, 2022. Does not include pipeline and intermodal shipments.

The Freight Plan also discusses how growth in e-commerce and omni-channel distribution continues to change the way freight moves across the country. The model of buying and selling has changed the way retailers and consumers interact with each other as purchasing goods online typically means goods bypass traditional brick-and-mortar stores and travel directly from a warehouse or distribution center to consumers' homes, or vice versa for returns. The "last mile" trip for consumer goods has shifted to delivery trucks rather than store-to-home trips by consumers. Growth in the e-commerce space has put increased emphasis on the reliability and timeliness of truck transportation, changing truck delivery patterns, an increase in shorter trips, and a greater strain on local infrastructure. The shift has also led to an increased demand for air cargo due to the demand for next-day or two-day deliveries, and changes in land use development patterns, such as the need for locating inventory and distribution hubs closer to population centers.

Forecasts of growth in freight trips across Montana show growing freight volumes by the year 2050 in the Great Falls Area. **Figure 2.8** shows the predicted change in annual freight trips in Montana between 2017 and 2050. The forecasts show moderate growth on routes connecting the Great Falls region to Canada, Helena, and Lewistown (I-15 and US 87) while the most freight growth is predicted to occur on I-90.



Source: Montana Freight Plan, MDT, 2022.

Figure 2.8: Average Annual Daily Truck Traffic (2017 and 2050)

Truck traffic is expected to increase locally due to expected increases in truck-dependent industrial manufacturing, supported by infrastructure improvements to support these industrial sectors. Expected areas of increased truck traffic include the following areas:

- *River Drive North and 57th Street North (NE Bypass)*. A new industrial park, Agri-Tech Park, opened in 2016 and will continue to be developed north of Malmstrom AFB. Developments in the area include Pacific Steel & Recycling, FedEx Ground, Montana Specialty Mills, and Helena Chemical. Future phases are being developed now and are expected to serve developments reliant on goods movement by truck.

- *River Drive North and 38th Street North*. Montana Egg opened a new agricultural processing facility in northeast Great Falls in 2017. Products are shipped throughout Montana and eastern Washington mainly by truck.
- *US 87, 3rd Street Northwest, and NW Bypass*. Steel production at the ADF site continues to increase as the firm fabricates steel modules for oil and gas sites in Alberta and eastern Montana, which are delivered by truck. The industrial complex is located on the east side of US 87 and north of Black Eagle. The Great Falls Development Authority plans to increase road access to the area in order to spur further development and allow for safer and more efficient truck traffic in and out of the area.
- *U.S. Highway 89/200*. Plans for development of the Madison Food Park are underway. The park would be located in Cascade County, just east of the LRTP study area boundary. The complex would include meat packing elements, as well as milk processing facilities and production of grain for various products. A fully functioning site like this could generate upwards of 165 truck arrivals and departures weekly.
- *Vaughn Road near the planned Emerson Junction*. This planned highway interchange is located near vacant land zoned for industrial uses. The interchange could incentivize future industrial uses and lead to increased truck traffic to and from the area.
- *Airport Interchange*. This interchange is planned to be reconstructed. Completion of the new interchange is anticipated to attract new growth and continue to support the existing truck-dependent developments at the interchange and along the Tri Hill and Ulm Frontage Roads.

2.4. Conclusion

The Great Falls Area is expected to experience an increase in goods movement as the population and employment base grows across the region and the state. A strong goods movement system can facilitate and enhance economic growth while also protecting residents' quality of life. Improving efficiency and accessibility of the freight network can encourage and support the economic growth that the region projects. Important issues to address in long range planning emerge from this assessment of the goods movement transportation system, including reducing traffic congestion, balancing land uses, preserving quality of life, and creating a safe multimodal transportation network.

- **Reducing traffic congestion.** Although trucks make up a relatively small share of overall traffic in the Great Falls area, trucks contend with – and contribute to – traffic congestion. Transportation modeling results indicate that traffic will become severely congested on already congested routes and experience growth on routes that are nearing congested today. Congested roadway routes will hamper economic growth by reducing the efficiency of goods movement. Less efficient goods movement can result in higher prices for local goods, which reduces the economic competitiveness of the region, deters future businesses relocations in the region, and increases out-of-pocket costs for residents.
- **Preserving quality of life.** Quality of life issues related to goods movement include vehicle and loading noise, air quality impacts, and traffic safety. Goods movement directly affects these issues due to interactions with land uses and other users of the transportation system. It is essential for trucks to access local markets by using local streets, while through-bound truck traffic is required to use official truck routes. The volume or frequency of truck traffic traveling on local streets can adversely affect quality of life for those who live and work on local streets, however, and has been noted as a primary concern by residents and officials in ongoing engagement efforts.

- **Balancing land use.** The City of Great Falls, Cascade County, and regional economic development organizations are advocating for continued growth in the regional economy by attracting commercial businesses, industrial businesses, and residents. As the region grows, conflicts may arise between incompatible land uses. In addition, conflict may arise between users of the transportation system. 10th Avenue South is an official truck route along a busy commercial district, a military convoy route, and provides direct access to Benefis Hospital and the University of Great Falls. Continued growth has necessitated a closer look into ways to mitigate transportation congestion and improve safety on the corridor. Adequate planning can facilitate growth that preserves quality of life while allowing local businesses and industries the ability to efficiently move goods into and out of the region.
- **Providing convenient truck and rail access to heavy industry.** More than 20% of jobs in the City of Great Falls are associated with heavy industry. Continued growth is expected in these sectors, which include agriculture, oil and gas extraction, and refining. These industries are dependent upon the movement of goods such as extraction materials and equipment, grains, aerospace, and wind energy equipment. Accessibility to the Interstate, highways, and rail systems is critical for these industries and their daily processes. The City of Great Falls and surrounding region can help support the growth of these industries by providing efficient truck routes and easy access to the Interstate, highway, and freight rail systems for the movement of goods.
- **Creating a safe multimodal transportation network.** The Great Falls Area has a robust transportation network that serves personal vehicles, trucks, public transit, pedestrians, and bicyclists. Preserving multimodal access and safety will be important as demands for transportation and goods movement grow. The region should be particularly mindful of balancing transportation needs in downtown areas where major motorized transportation routes intersect with people walking, riding bikes, or accessing public transit.

3.0 TRANSPORTATION SECURITY

The Great Falls area is exposed to many hazards, all of which have the potential to disrupt the community and cause damage. Hazards include a range of human and environmental incidents or events with varying probabilities of occurring and ranging severities of resulting impacts. The transportation system is a valuable asset in mitigating and responding to emergencies, however, hazards may also threaten the security of the regional transportation system.

Federal, state, and local agencies, and their private partners work together to create plans and policies to maintain a secure regional transportation system. These organizations coordinate to ensure that the transportation system is available as a resource to respond to emergencies in the region. The following sections describe the security issues relevant to the Great Falls Area transportation system, and how the LRTP helps preserve and enhance transportation security.

Consultations with emergency planning staff at the City of Great Falls, Cascade County, and Malmstrom AFB were held in October 2013 in preparation of the 2014 LRTP. Those consultations guided and augmented the information available from public documents. The information is updated for the 2024 LRTP where new documents are available.

3.1. PLANS AND POLICIES

Montana's political subdivisions have the primary responsibility for deploying emergency operations and managing all available resources to save lives and minimize property damage. Local plans and policies are critical to informing this responsibility. Security and emergency plans guide government agencies and private organizations to ensure efforts are coordinated and comprehensive. A range of different types of plans address emergency response at different levels of the transportation system in the Great Falls Area and are presented in **Table 3.1**. The plans are organized chronologically. Some plans, such as the Fixing America's Surface Transportation (FAST) Act, identify available security resources and mandate actions required by state and local government agencies. Others, such as the *Cascade County Multi-Jurisdictional Multi-Hazard Mitigation Plan* (MHMP) outline planning and response procedures for local organizations.

Table 3.1: Plans, Policies and Guidelines for Transportation Security

Document (Year written)	Agency Type (Name)	Description and provisions
Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (2005)	Federal	Prior federal surface transportation funding authorization. Emphasized transportation system security by creating security planning factor. Also mandated that states address security in long-range transportation plans.
TranPlan 21 (2002, amended in 2007)	State (MDT)	Montana's long-range transportation plan was amended in 2007 after SAFETEA-LU was passed. Key changes included creating security section, and adding security-related goals, priorities, projects, and policies.
Implementing the Recommendations of the 9/11 Commission (IRC) Act of 2007	Federal	Identifies the Department of Homeland Security (DHS) as responsible agency for national rail security planning, hazardous materials, and information sharing.
Moving Ahead for Progress in the 21st Century (MAP-21) (2012)	Federal	Prior federal surface transportation funding authorization. Requires states to develop a risk-based asset management plan for the National Highway System to improve or preserve the condition of the assets and the performance of the system. Establishes Public Transportation Emergency

Document (Year written)	Agency Type (Name)	Description and provisions
		Relief Program that provides grants to fund capital projects and operating costs related to damage resulting from an emergency.
Fixing America's Surface Transportation (FAST) Act (2015)	Federal	Federal surface transportation funding authorization. Requires strategies to reduce the vulnerability of existing transportation infrastructure to natural disasters. Continues MAP-21 Emergency Relief Program which provides funds for emergency repairs for road damage that occurs as a result of natural disasters.
TranPlanMT (2017)	State (MDT)	Montana's current long-range transportation plan which reflects the provisions of the FAST Act. Includes discussion of efforts used to quickly and effectively respond to disasters.
National Response Framework (NRF) (2019)	Federal	Provides guidelines to state and local governments to create security and emergency management plans. Guided by the National Preparedness Goal: "A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk."
Cascade County Multi-Hazard Mitigation Plan (2011, Updated 2017)	Local (Cascade County Disaster and Emergency Services)	Profiles significant hazards to the community and identifies mitigation projects that can reduce those impacts. The plan addresses security in the cities of Great Falls, Belt, Cascade, and Neihart as well as all unincorporated parts of the county.
Montana Emergency Response Framework (2012, Updated 2022)	State (Montana Disaster and Emergency Services)	Identifies state's roles and actions in the event of an emergency and coordinates all other emergency operations plans in Montana. Emergency Support Function – Transportation explains the role of MDT in the event of an emergency. One key action is to request support from other agencies including local agencies such as Cascade County Disaster and Emergency Services.
Bipartisan Infrastructure Law / Infrastructure Investment and Jobs Act (2021)	Federal	Federal transportation funding authorization. Continues the Emergency Relief Program (with revisions), authorizes new grant funding to help states improve the resiliency of transportation infrastructure, authorizes appropriations for hazardous materials emergency preparedness, requires FHWA to assist transportation authorities detect and respond to cyber incidents, and directs the Secretary to study the utility of incorporating the use of bicycles into the disaster preparedness of local communities.

The *Cascade County MHMP* is the security plan for the Great Falls Area. The plan applies to and incorporates security activities from all jurisdictions in Cascade County, including Great Falls, Belt, Cascade, and Neihart. The MHMP integrates with plans from federal and state levels of government, including the *Cascade County Emergency Operations Plan*. It identifies agencies and staff that have authority to manage security activities, and outlines procedures for implementing the activities. The MHMP is designed to address six hazard mitigation objectives, including Public Education and Awareness, Property Protection, Prevention, Structural, Natural Resource Protection, and Emergency Services.

The MHMP identifies 18 potential hazards facing Cascade County and the municipalities. The county identified the hazards based on historic events, available GIS data, public input, expert opinions, and past disaster declarations. **Table 3.2** presents the hazards, including their probability of occurrence, other related hazards, and a description of the primary risk factors. Four hazards stem directly from the

transportation system, including hazardous material incidents, railroad accidents, highway accidents (mass casualty), and aircraft accidents. The transportation system is also critical to facilitating response efforts of nearly every identified hazard.

Table 3.2: Potential Hazards

Hazard	Occurrence Probability	Magnitude and/or Severity	Warning Time	Duration
Hazardous Material Incidents	Highly Likely	Critical	< 6 hours	> 1 week
Wildfires	Highly Likely	Critical	< 6 hours	> 1 week
Railroad Accidents	Highly Likely	Critical	< 6 hours	> 1 week
Communicable Disease	Highly Likely	Catastrophic	12-24 hours	> 1 week
Cyber Security	Likely	Catastrophic	< 6 hours	> 1 week
Highway Accidents (Mass Casualty)	Highly Likely	Critical	< 6 hours	< 24 hours
Aircraft Accidents	Likely	Critical	< 6 hours	< 1 week
Severe Summer Weather	Highly Likely	Limited	< 6 hours	< 6 hours
Structure Fire	Likely	Critical	< 6 hours	< 24 hours
Terrorism, Violence, Civil Unrest	Possible	Catastrophic	< 6 hours	< 1 week
Severe Winter Weather	Highly Likely	Limited	> 24 hours	< 1 week
Floods, Ice Jams, Flash Flooding	Likely	Critical	> 24 hours	> 1 week
Dam Failure, Levee Failure	Possible	Catastrophic	> 24 hours	> 1 week
Drought	Likely	Limited	> 24 hours	> 1 week
Earthquake	Possible	Limited	< 6 hours	< 24 hours
Landslide	Unlikely	Negligible	< 6 hours	< 6 hours
Avalanche	Unlikely	Negligible	< 6 hours	< 6 hours
Volcanic Ash	Unlikely	Negligible	> 24 hours	< 1 week

Source: Cascade County Multi-Hazard Mitigation Plan, Cascade County, 2017.

After consideration of these potential hazards, the county planning team re-prioritized and combined several hazards to develop a list of eight priority hazards including: Hazardous Material Incidents; Wildfire; Severe Weather and Drought; Communicable Disease; Transportation Accidents; Flooding and Dam Failure; Terrorism, Flooding and Dam Failure; and Cyber Security.

The LRTP considers these hazards in planning for transportation projects and programs, to ensure that local agencies have the capability to maintain transportation security through these hazards and adequately respond to potential events. The Cascade County Local Emergency Planning Committee periodically reviews the MHMP to determine if updates are needed. The MHMP is intended to be updated every five years, or more frequently if conditions warrant.

3.2. Transportation Security Roles

The Great Falls area's transportation infrastructure is owned and operated by different public agencies and organizations. These entities coordinate with representatives of federal, state, and local governments, neighboring owners/operators, and the surrounding community. Interstate 15, for example, is overseen by MDT, and passes through the City of Great Falls, affecting local traffic, quality of life, and is a key access route for personal travel, freight, and emergency services. Likewise, Great Falls International Airport operates commercial flights and carries air freight and is therefore subject to federal security regulations.

Table 3.3 summarizes the agencies that play a role in ensuring a secure transportation system in the Great Falls area. The table is organized alphabetically within the level of government. Each organization is described by its type (federal, state, or local), its main security role or level of authority, key security-related programs or departments, and the transportation modes addressed.

Table 3.3: Transportation Agencies and Security-Related Roles

Organization or Agency	Type	Security Role or Authority	Key Programs, Departments	Transportation Modes
Customs and Border Protection (CBP)	Federal	• Detect, apprehend, and deter terrorists and weapons from crossing international borders. • Protect against illegal entry, illicit activity, or other threats. • Department under the U.S. DHS.	• Customs and Trade Security	• Air passenger • Freight (air, truck, rail) • Highways • Transit
Federal Emergency Management Agency (FEMA)	Federal	• Provide support to first responders and citizens in preparation for and response to all hazards. • Assist government agencies and private sector in managing transportation systems during threats. • Department under the U.S. DHS.	• Emergency Support Function #1 (ESF #1)-Transportation	All modes
Federal Motor Carrier Safety Administration (FMCSA)	Federal	• Regulates U.S. trucking industry. • Enhance safety of truck drivers and commercial motor vehicles.	N/A	Truck Freight
Federal Railroad Administration	Federal	• Regulates railroad safety and investigates accidents. • Promotes compliance in hazardous materials. • Develops and implements safety standards. • Conducts railroad safety and customer training.	N/A	Rail
Transportation Security Administration (TSA)	Federal	• Responsible for security of U.S. transportation systems. • Focus on airport security, but also plays many other roles. • Conducts nationwide risk assessment of a terrorist attack on the freight railroad system. • Included in U.S. DHS.	• HAZMAT Endorsement, Threat Assessment Program • Air Cargo Screening and Security Programs • Federal Air Marshal Service	• Air passenger • Freight (air, truck, rail) • Highways • Transit
Montana Department of Transportation	State	• Plan for and provide traveler safety on state transportation facilities.	N/A	• Highways • Rail • General Aviation

Organization or Agency	Type	Security Role or Authority	Key Programs, Departments	Transportation Modes
Montana Department of Disaster and Emergency Services (DES)	State	• Coordinate emergency management plans and policies in Montana.	N/A	• All modes
Cascade County Emergency Management Services	Local	• Plan for natural disasters and other emergencies. Coordinate with cities within Cascade County.	N/A	All modes
City of Great Falls	Local	• Coordinate with State of Montana, Cascade County, city residents and other stakeholders to prepare for and respond to emergencies.	N/A	All modes

Source: Originally produced in 2013 through review of agency websites, public documents, and consultation with local emergency management staff. Updated as appropriate in 2023.

The MHMP Plan identifies responsibilities for agencies and officials at Cascade County, and departments or officials in the cities of Great Falls, Belt, Cascade, and Neihart. It identifies local support organizations relevant to transportation security in the event of an emergency. For example, the Public Works and Planning departments have specific roles related to regional transportation security such as monitoring culvert and drainage projects, planning for and coordinating transportation safety improvements, and educating the public.

3.3. Coordination

Cascade County and local jurisdictions periodically review emergency and security plans to share local knowledge, update hazard assessments and enhance interagency coordination. In the Great Falls area, Cascade County and the local jurisdictions jointly plan for and closely coordinate on regional security issues. The Cascade County Director of Emergency Management Services works closely with the City of Great Falls Emergency Manager. FEMA funds support emergency planning activities in the Great Falls area. Malmstrom AFB regularly transports goods using local roads and the Great Falls International Airport. Therefore, regional transportation security is critical to its mission. Malmstrom AFB and MANG representatives coordinate security planning and response with local governments. Malmstrom AFB assists local governments with security planning and response as needed. Coordination activities between regional agencies have resulted in, and are guided by, formal agreements to support security-related planning. **Table 3.4** presents these agreements, the jurisdictions involved, and a brief description of the agreement.

Table 3.4: Security-Related Agreements

Agreement Type	Jurisdictions Involved	Description
Formal Agreement	City of Great Falls, Malmstrom AFB	Standing mutual aid agreement to help one another in the event of fire or incidents involving hazardous materials.
Formal Agreement	City of Great Falls Fire Department, Malmstrom AFB	Great Falls Regional HazMat Team – Codified in state law. The team provides help in the form of phone consultation and outreach, dispatch of partial or entire team, public outreach events including HazMat training classes or exercises. City of Great Falls Fire Department leads the team; Malmstrom AFB contributes labor and capabilities.
Informal Agreement	City of Great Falls Police Department, Malmstrom AFB	In the event of extreme weather events (flooding, high winds, severe winter events, or other natural disasters), these two entities agree to assist the other as needed.

Source: Malmstrom AFB, 2013.

3.4. Barriers

The Great Falls area has an extensive transportation network. This network is strengthened by various infrastructure components that support the basic operation of the transportation system. Critical infrastructure and key resources essential to emergency preparedness, economic vitality, and overall quality of life include the following assets:

- Interstate Systems (I-15, I-315)
- U.S. Highways (U.S. 87, U.S. 89)
- Bridges (10th Ave S, Central Ave W, 10th St N, 15th St N)
- Principal Arterial Roadways (10th Ave S, 3rd St NW, NW Bypass, 14th / 15th St Couplet, 9th St, 57th St, River Dr N)
- Malmstrom AFB
- Great Falls International Airport
- Freight Activity Centers
- Rail Networks and At-Grade Rail Crossings
- Pipeline Network
- Great Falls Transit System

These resources are critical to the transportation of Great Falls citizens. During times of emergency response, it is critical that these transportation routes and accompanying assets move traffic efficiently, are built out enough so they don't create pinch-points, have viable alternative routes in the event of a closure, and are in good operating condition. Consideration of natural hazards affecting these assets is equally important, as flooding, wildfire, severe weather, or accidents could impact the use of these routes.

3.5. General Strategies to Enhance Security

As agencies charged with security develop new and expand existing emergency response plans, and as surface transportation system operators continue to look at security, the following recommendations should be considered by the appropriate implementing agencies.

- In the event of a large-scale emergency, evacuation plans should be in place. Preparation and inclusion of evacuation plans should be encouraged when planning for emergencies and natural disasters with the following considerations:
    - Identify evacuation routes away from high-risk areas and key transportation facilities. Examples may include the petroleum refinery, major bridges, rivers, Malmstrom AFB, Great Falls International Airport, and MANG.
    - Prepare a traffic control plan for key evacuation routes, including coordinated traffic signals that can be activated during the evacuation.
    - Identify detour plans and other alternate routes.
    - Identify long-term detours in the event of a major failure or catastrophic event, such as a bridge failure or destructive flood.
    - Coordinate with Cascade County to plan for emergencies that may impact areas surrounding Great Falls city limits, such as the west side near the Sun River; Fox Farm Road area south of the city; Gibson Flats; Black Eagle; or county lands between the city and Malmstrom AFB)

  - Include a complementary public emergency communication plan to communicate evacuation plans and efforts to community members.
- Owners of the local transportation system (BNSF Railroad, MDT, City of Great Falls, and Cascade County) should identify specific structures, facilities, or other elements of the transportation system that are at high risk of attack. Steps should be taken in a timely manner to make these elements secure.
- Any security measures contemplated for implementation should take into full account the privacy of the transportation user and make every attempt to preserve their privacy, while still providing a safe and secure transportation system.

3.6. Conclusion

Coordination between the City of Great Falls, Cascade County, local partners, and federal and state agencies is critical to maintain transportation system security. Coordination is also important to ensure the regional transportation system supports emergency planning for a range of potential hazards. The Great Falls Area LRTP incorporates information from security plans – in particular the MHMP – and contributes to security planning by comprehensively assessing the regional transportation system. Specific elements of transportation planning that contribute to transportation security include:

- Coordinate with Cascade County and local partners to inform and update the MHMP through activities such as data sharing and asset inventory.
- Inventory of the area's major transportation assets and potential hazards. This includes bridges, roadways, Great Falls International Airport, Malmstrom AFB, freight rail, public transportation vehicles and routes, and pedestrian facilities.
- Coordinate with the Great Falls Transit Department to manage public transportation assets.
- Assess improvements needed and identify resources to maintain critical transportation assets.
- Designate goods movement routes, particularly routes for hazardous materials transport.

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GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

APPENDIX F-2:

Existing Intersection Operations

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

AM PEAK PERIOD

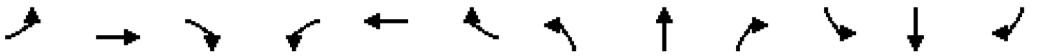
Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	8	9	2	7	14	9	408	2	26	124	50
Future Vol, veh/h	85	8	9	2	7	14	9	408	2	26	124	50
Conflicting Peds, #/hr	2	0	2	2	0	2	22	0	10	10	0	22
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	0	0	0	0	0	11	1	0	8	7	6
Mvmt Flow	96	9	10	2	8	16	10	458	2	29	139	56

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	732	739	191	694	766	472	218	0	0	471	0	0
Stage 1	248	248	-	490	490	-	-	-	-	-	-	-
Stage 2	485	491	-	204	276	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.2	7.1	6.5	6.2	4.21	-	-	4.18	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.3	3.5	4	3.3	2.299	-	-	2.272	-	-
Pot Cap-1 Maneuver	337	348	855	360	335	596	1300	-	-	1060	-	-
Stage 1	756	705	-	564	552	-	-	-	-	-	-	-
Stage 2	564	552	-	802	686	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	299	323	836	328	312	590	1273	-	-	1050	-	-
Mov Cap-2 Maneuver	299	323	-	328	312	-	-	-	-	-	-	-
Stage 1	717	669	-	552	541	-	-	-	-	-	-	-
Stage 2	534	540	-	756	650	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	22.46	13.7	0.17	1.11
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	39	-	-	319	440	221	-	-
HCM Lane V/C Ratio	0.008	-	-	0.359	0.059	0.028	-	-
HCM Control Delay (s/veh)	7.9	0	-	22.5	13.7	8.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.6	0.2	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	772	36	148	458	3	43	281	452	197	149	179
Future Volume (veh/h)	213	772	36	148	458	3	43	281	452	197	149	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1709	1750	1736	1682	1750	1682	1709	1750	1736	1709	1682
Adj Flow Rate, veh/h	248	898	42	172	533	3	50	327	526	229	173	208
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	3	0	1	5	0	5	3	0	1	3	5
Cap, veh/h	239	956	966	220	695	322	0	973	546	254	230	308
Arrive On Green	0.15	0.29	0.29	0.07	0.22	0.22	0.36	0.30	0.30	0.15	0.07	0.07
Sat Flow, veh/h	1641	3247	1483	3208	3195	1483	0	3247	1483	1654	3247	1425
Grp Volume(v), veh/h	248	898	42	172	533	3	0	327	526	229	173	208
Grp Sat Flow(s),veh/h/ln	1641	1624	1483	1604	1598	1483	0	1624	1483	1654	1624	1425
Q Serve(g_s), s	17.0	31.5	0.4	6.2	18.3	0.2	0.0	9.2	35.0	15.9	6.1	5.5
Cycle Q Clear(g_c), s	17.0	31.5	0.4	6.2	18.3	0.2	0.0	9.2	35.0	15.9	6.1	5.5
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	956	966	220	695	322	0	973	546	254	230	308
V/C Ratio(X)	1.04	0.94	0.04	0.78	0.77	0.01	0.00	0.34	0.96	0.90	0.75	0.67
Avail Cap(c_a), veh/h	239	1209	1081	220	943	438	0	973	546	594	973	634
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	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	40.2	1.8	53.6	42.9	35.9	0.0	31.9	36.2	48.6	53.3	16.5
Incr Delay (d2), s/veh	68.8	11.0	0.0	15.4	1.7	0.0	0.0	0.2	29.5	4.7	1.9	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	11.3	13.5	0.2	2.9	7.1	0.1	0.0	3.7	19.0	6.7	2.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	118.7	51.2	1.8	68.9	44.6	35.9	0.0	32.1	65.7	53.3	55.2	17.5
LnGrp LOS	F	D	A	E	D	D		C	E	D	E	B
Approach Vol, veh/h		1188			708			853			610	
Approach Delay, s/veh		63.5			50.5			52.8			41.6	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	40.9	47.7	14.3	23.0	31.9	20.9	41.0
Change Period (Y+Rc), s	6.0	6.5	6.0	6.0	6.0	6.5	3.0	6.0
Max Green Setting (Gmax), s	8.0	43.5	39.0	35.0	17.0	34.5	42.0	35.0
Max Q Clear Time (g_c+I1), s	8.2	33.5	0.0	8.1	19.0	20.3	17.9	37.0
Green Ext Time (p_c), s	0.0	0.9	0.0	0.2	0.0	0.5	0.1	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	54.1
HCM 7th LOS	D

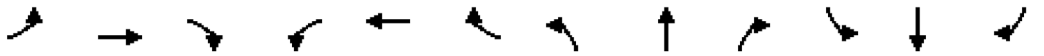
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	7	12	28	1	2	8	401	268	3	509	11
Future Vol, veh/h	5	7	12	28	1	2	8	401	268	3	509	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	20	0	0	0	0	0	13	2	2	0	4	36
Mvmt Flow	6	9	15	34	1	2	10	489	327	4	621	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	899	1470	317	994	1313	408	634	0	0	816	0	0
Stage 1	635	635	-	672	672	-	-	-	-	-	-	-
Stage 2	265	835	-	322	641	-	-	-	-	-	-	-
Critical Hdwy	7.9	6.5	6.9	7.5	6.5	6.9	4.36	-	-	4.1	-	-
Critical Hdwy Stg 1	6.9	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.9	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.7	4	3.3	3.5	4	3.3	2.33	-	-	2.2	-	-
Pot Cap-1 Maneuver	207	129	685	202	160	598	874	-	-	821	-	-
Stage 1	392	476	-	416	458	-	-	-	-	-	-	-
Stage 2	669	386	-	670	472	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	202	127	685	182	157	598	874	-	-	821	-	-
Mov Cap-2 Maneuver	202	127	-	182	157	-	-	-	-	-	-	-
Stage 1	391	474	-	412	452	-	-	-	-	-	-	-
Stage 2	657	381	-	641	470	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	21.62	28.67	0.11	0.05
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	874	-	-	246	189	821	-	-
HCM Lane V/C Ratio	0.011	-	-	0.119	0.2	0.004	-	-
HCM Control Delay (s/veh)	9.2	-	-	21.6	28.7	9.4	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.7	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	599	3	3	321	41	5	16	13	132	8	33
Future Volume (veh/h)	38	599	3	3	321	41	5	16	13	132	8	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1682	1682	1300	1750	1600	1750	1204	1668	1750	1750	1750	1709
Adj Flow Rate, veh/h	41	644	3	3	345	44	5	17	14	142	9	35
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	33	0	11	0	40	6	0	0	0	3
Cap, veh/h	562	1305	6	468	1086	137	182	156	113	446	13	48
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	893	3261	15	732	2713	343	112	838	604	1048	68	259
Grp Volume(v), veh/h	41	315	332	3	192	197	36	0	0	186	0	0
Grp Sat Flow(s),veh/h/ln	893	1598	1679	732	1520	1537	1554	0	0	1375	0	0
Q Serve(g_s), s	0.8	3.8	3.8	0.1	2.2	2.2	0.0	0.0	0.0	2.7	0.0	0.0
Cycle Q Clear(g_c), s	3.1	3.8	3.8	3.8	2.2	2.2	0.5	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.22	0.14		0.39	0.76		0.19
Lane Grp Cap(c), veh/h	562	639	672	468	608	615	452	0	0	507	0	0
V/C Ratio(X)	0.07	0.49	0.49	0.01	0.32	0.32	0.08	0.00	0.00	0.37	0.00	0.00
Avail Cap(c_a), veh/h	872	1194	1255	723	1136	1148	1958	0	0	1864	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	5.7	5.7	7.1	5.2	5.2	8.6	0.0	0.0	9.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.6	0.6	0.0	0.3	0.3	0.1	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.3	5.9	5.9	7.1	5.3	5.4	8.6	0.0	0.0	9.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A			A		
Approach Vol, veh/h		688			392			36			186	
Approach Delay, s/veh		5.9			5.4			8.6			9.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.2		10.2		15.2		10.2				
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5				
Max Green Setting (Gmax), s		19.0		30.5		19.0		30.5				
Max Q Clear Time (g_c+I1), s		5.8		2.5		5.8		5.2				
Green Ext Time (p_c), s		2.4		0.1		1.3		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			6.4									
HCM 7th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	633	92	183	302	48	83	258	61	103	183	27
Future Volume (veh/h)	48	633	92	183	302	48	83	258	61	103	183	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1682	1709	1654	1627	1668	1695	1736	1723	1695	1723	1695
Adj Flow Rate, veh/h	56	736	107	213	351	56	97	300	71	120	213	31
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	5	3	7	9	6	4	1	2	4	2	4
Cap, veh/h	435	931	135	307	1029	163	345	464	108	304	547	78
Arrive On Green	0.04	0.33	0.33	0.09	0.38	0.38	0.07	0.17	0.17	0.08	0.19	0.19
Sat Flow, veh/h	1641	2798	407	1576	2673	422	1615	2655	619	1615	2872	412
Grp Volume(v), veh/h	56	420	423	213	202	205	97	185	186	120	120	124
Grp Sat Flow(s),veh/h/ln	1641	1598	1607	1576	1546	1550	1615	1650	1624	1615	1637	1648
Q Serve(g_s), s	1.5	15.7	15.7	5.9	6.1	6.2	3.2	6.8	7.0	3.9	4.2	4.3
Cycle Q Clear(g_c), s	1.5	15.7	15.7	5.9	6.1	6.2	3.2	6.8	7.0	3.9	4.2	4.3
Prop In Lane	1.00		0.25	1.00		0.27	1.00		0.38	1.00		0.25
Lane Grp Cap(c), veh/h	435	531	535	307	595	596	345	288	284	304	312	314
V/C Ratio(X)	0.13	0.79	0.79	0.69	0.34	0.34	0.28	0.64	0.66	0.39	0.39	0.40
Avail Cap(c_a), veh/h	820	1153	1160	307	834	836	605	764	752	539	758	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	19.9	19.9	15.3	14.3	14.4	20.2	25.2	25.3	20.1	23.3	23.3
Incr Delay (d2), s/veh	0.1	1.0	1.0	6.1	0.3	0.3	0.3	2.4	2.6	0.8	0.8	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	0.5	5.5	5.5	2.4	2.0	2.0	1.2	2.7	2.8	1.4	1.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.6	20.9	20.9	21.5	14.7	14.7	20.6	27.6	27.9	20.9	24.1	24.1
LnGrp LOS	B	C	C	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		899			620			468			364	
Approach Delay, s/veh		20.4			17.0			26.3			23.0	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	27.4	9.4	18.0	7.6	30.8	10.4	17.0
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5
Max Green Setting (Gmax), s	6.0	47.5	15.0	30.5	18.0	35.5	15.0	30.5
Max Q Clear Time (g_c+I1), s	7.9	17.7	5.2	6.3	3.5	8.2	5.9	9.0
Green Ext Time (p_c), s	0.0	3.8	0.1	1.4	0.1	1.2	0.2	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	21.1
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	703	5	40	390	309	6	167	178	493	32	157
Future Volume (veh/h)	118	703	5	40	390	309	6	167	178	493	32	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1682	1695	1477	1709	1614	1695	1518	1709	1723	1736	1668	1573
Adj Flow Rate, veh/h	134	799	6	45	443	351	7	190	202	560	36	178
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	4	20	3	10	4	17	3	2	1	6	13
Cap, veh/h	308	1090	8	204	875	410	358	300	256	675	230	183
Arrive On Green	0.08	0.33	0.33	0.03	0.29	0.29	0.25	0.18	0.18	0.21	0.14	0.14
Sat Flow, veh/h	1602	3277	25	1628	3066	1437	1446	1709	1457	3208	1668	1330
Grp Volume(v), veh/h	134	393	412	45	443	351	7	190	202	560	36	178
Grp Sat Flow(s),veh/h/ln	1602	1611	1691	1628	1533	1437	1446	1709	1457	1604	1668	1330
Q Serve(g_s), s	5.0	18.8	18.8	1.7	10.6	20.2	0.3	9.0	11.6	14.6	1.7	8.9
Cycle Q Clear(g_c), s	5.0	18.8	18.8	1.7	10.6	20.2	0.3	9.0	11.6	14.6	1.7	8.9
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	536	563	204	875	410	358	300	256	675	230	183
V/C Ratio(X)	0.44	0.73	0.73	0.22	0.51	0.86	0.02	0.63	0.79	0.83	0.16	0.97
Avail Cap(c_a), veh/h	366	536	563	341	998	468	487	576	491	1099	571	455
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	19.6	25.8	25.8	22.4	26.1	29.6	24.9	33.5	34.6	33.1	33.3	21.9
Incr Delay (d2), s/veh	1.0	5.1	4.9	0.5	0.5	13.2	0.0	2.2	5.4	2.9	0.3	24.5
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	1.9	7.7	8.1	0.7	3.8	8.2	0.1	3.9	4.4	5.8	0.7	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.6	30.9	30.7	23.0	26.6	42.8	24.9	35.7	40.0	36.0	33.6	46.5
LnGrp LOS	C	C	C	C	C	D	C	D	D	D	C	D
Approach Vol, veh/h		939			839			399			774	
Approach Delay, s/veh		29.3			33.2			37.7			38.3	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	34.6	27.2	18.1	11.8	30.5	24.4	20.9
Change Period (Y+Rc), s	5.0	5.5	5.5	6.0	5.0	5.5	6.0	5.5
Max Green Setting (Gmax), s	10.0	28.5	29.5	30.0	10.0	28.5	30.0	29.5
Max Q Clear Time (g_c+I1), s	13.7	20.8	2.3	10.9	7.0	22.2	16.6	13.6
Green Ext Time (p_c), s	0.0	3.0	0.0	0.7	0.1	2.3	1.8	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	383	39	69	286	19	37	187	112	45	170	60
Future Volume (veh/h)	122	383	39	69	286	19	37	187	112	45	170	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1668	1641	1654	1573	1600	1641	1736	1723	1723	1736	1723
Adj Flow Rate, veh/h	163	511	52	92	381	25	49	249	149	60	227	80
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	6	8	7	13	11	8	1	2	2	1	2
Cap, veh/h	446	832	84	368	733	48	282	519	433	316	366	129
Arrive On Green	0.10	0.29	0.29	0.07	0.26	0.26	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1628	2903	295	1576	2846	186	938	1736	1451	906	1224	431
Grp Volume(v), veh/h	163	278	285	92	199	207	49	249	149	60	0	307
Grp Sat Flow(s),veh/h/ln	1628	1585	1613	1576	1494	1538	938	1736	1451	906	0	1656
Q Serve(g_s), s	3.4	7.2	7.3	2.0	5.4	5.5	2.3	5.6	3.8	2.8	0.0	7.6
Cycle Q Clear(g_c), s	3.4	7.2	7.3	2.0	5.4	5.5	9.8	5.6	3.8	8.3	0.0	7.6
Prop In Lane	1.00		0.18	1.00		0.12	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	446	454	462	368	385	396	282	519	433	316	0	494
V/C Ratio(X)	0.37	0.61	0.62	0.25	0.52	0.52	0.17	0.48	0.34	0.19	0.00	0.62
Avail Cap(c_a), veh/h	621	1167	1188	583	1100	1132	570	1052	879	594	0	1003
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	0.00	1.00
Uniform Delay (d), s/veh	11.2	14.7	14.7	11.7	15.1	15.1	18.6	13.6	13.0	17.1	0.0	14.4
Incr Delay (d2), s/veh	0.5	1.3	1.3	0.4	1.1	1.1	0.3	0.7	0.5	0.3	0.0	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	1.1	2.4	2.4	0.6	1.7	1.8	0.5	2.0	1.1	0.5	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.7	16.0	16.0	12.1	16.2	16.2	18.9	14.3	13.5	17.4	0.0	15.6
LnGrp LOS	B	B	B	B	B	B	B	B	B	B		B
Approach Vol, veh/h		726			498			447			367	
Approach Delay, s/veh		15.0			15.4			14.6			15.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	18.6		20.4	9.9	17.2		20.4				
Change Period (Y+Rc), s	5.0	5.0		6.2	5.0	5.0		6.2				
Max Green Setting (Gmax), s	10.0	35.0		28.8	10.0	35.0		28.8				
Max Q Clear Time (g_c+I1), s	4.0	9.3		10.3	5.4	7.5		11.8				
Green Ext Time (p_c), s	0.1	3.6		2.2	0.2	2.5		2.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	15.2
HCM 7th LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	330	106	91	406	564	263
Future Volume (veh/h)	330	106	91	406	564	263
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1682	1709	1695	1695	1709	1573
Adj Flow Rate, veh/h	248	257	103	461	641	299
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	3	4	4	3	13
Cap, veh/h	322	291	411	2166	1809	1010
Arrive On Green	0.20	0.20	0.06	0.67	0.56	0.56
Sat Flow, veh/h	1602	1448	1615	3306	3333	1333
Grp Volume(v), veh/h	248	257	103	461	641	299
Grp Sat Flow(s),veh/h/ln	1602	1448	1615	1611	1624	1333
Q Serve(g_s), s	14.1	16.6	2.4	5.3	10.5	6.7
Cycle Q Clear(g_c), s	14.1	16.6	2.4	5.3	10.5	6.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	322	291	411	2166	1809	1010
V/C Ratio(X)	0.77	0.88	0.25	0.21	0.35	0.30
Avail Cap(c_a), veh/h	382	346	543	2166	1809	1010
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.4	37.4	7.8	6.0	11.8	3.6
Incr Delay (d2), s/veh	7.8	20.1	0.3	0.2	0.1	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	7.4	0.8	1.6	3.6	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	44.2	57.5	8.1	6.3	11.9	3.8
LnGrp LOS	D	E	A	A	B	A
Approach Vol, veh/h	505			564	940	
Approach Delay, s/veh	51.0			6.6	9.3	
Approach LOS	D			A	A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.1	59.9			71.0	25.4
Change Period (Y+Rc), s	5.5	6.2			6.2	6.0
Max Green Setting (Gmax), s	13.5	45.8			64.8	23.0
Max Q Clear Time (g_c+I1), s	4.4	12.5			7.3	18.6
Green Ext Time (p_c), s	0.1	6.3			3.5	0.8

Intersection Summary		
HCM 7th Control Delay, s/veh	19.0	
HCM 7th LOS	B	

Notes
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	12	110	39	17	40	100	613	50	46	627	84
Future Volume (veh/h)	57	12	110	39	17	40	100	613	50	46	627	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1682	1750	1682	1750	1750	1750	1736	1668	1750	1750	1614	1736
Adj Flow Rate, veh/h	66	14	128	45	20	47	116	713	58	53	729	98
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	5	0	5	0	0	0	1	6	0	0	10	1
Cap, veh/h	208	22	204	146	70	164	466	2164	176	491	1736	233
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.05	0.73	0.73	0.64	0.64	0.64
Sat Flow, veh/h	1200	148	1357	1166	464	1090	1654	2968	241	653	2715	365
Grp Volume(v), veh/h	66	0	142	45	0	67	116	381	390	53	411	416
Grp Sat Flow(s),veh/h/ln	1200	0	1506	1166	0	1554	1654	1585	1624	653	1533	1547
Q Serve(g_s), s	5.0	0.0	8.6	3.7	0.0	3.7	2.1	8.4	8.4	3.1	12.9	12.9
Cycle Q Clear(g_c), s	8.8	0.0	8.6	12.3	0.0	3.7	2.1	8.4	8.4	3.1	12.9	12.9
Prop In Lane	1.00		0.90	1.00		0.70	1.00		0.15	1.00		0.24
Lane Grp Cap(c), veh/h	208	0	226	146	0	233	466	1155	1184	491	980	989
V/C Ratio(X)	0.32	0.00	0.63	0.31	0.00	0.29	0.25	0.33	0.33	0.11	0.42	0.42
Avail Cap(c_a), veh/h	359	0	416	293	0	430	622	1155	1184	491	980	989
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	40.8	0.0	38.9	44.7	0.0	36.9	5.9	4.7	4.7	6.9	8.7	8.7
Incr Delay (d2), s/veh	0.9	0.0	2.9	1.2	0.0	0.7	0.3	0.8	0.7	0.1	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	1.5	0.0	3.3	1.1	0.0	1.5	0.7	2.5	2.5	0.4	4.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.6	0.0	41.8	45.9	0.0	37.5	6.1	5.5	5.5	7.0	9.0	9.0
LnGrp LOS	D		D	D		D	A	A	A	A	A	A
Approach Vol, veh/h		208			112			887			880	
Approach Delay, s/veh		41.7			40.9			5.6			8.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.8	68.2		20.7		77.0		20.7				
Change Period (Y+Rc), s	4.0	5.8		6.0		5.8		6.0				
Max Green Setting (Gmax), s	14.0	53.2		27.0		71.2		27.0				
Max Q Clear Time (g_c+I1), s	14.1	14.9		14.3		10.4		10.8				
Green Ext Time (p_c), s	0.2	7.0		0.3		5.8		0.9				

Intersection Summary	
HCM 7th Control Delay, s/veh	12.5
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	2	59	18	0	9	0	631	41	27	647	0
Future Vol, veh/h	29	2	59	18	0	9	0	631	41	27	647	0
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	6	0	0	0	5	5	4	9	0
Mvmt Flow	36	2	73	22	0	11	0	779	51	33	799	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1259	1701	403	1274	1676	417	803	0	0	832	0	0
Stage 1	869	869	-	806	806	-	-	-	-	-	-	-
Stage 2	390	832	-	467	869	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.62	6.5	6.9	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.62	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.62	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.56	4	3.3	2.2	-	-	2.24	-	-
Pot Cap-1 Maneuver	129	93	602	120	96	590	830	-	-	784	-	-
Stage 1	317	372	-	333	398	-	-	-	-	-	-	-
Stage 2	612	387	-	535	372	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	121	88	600	98	92	589	827	-	-	782	-	-
Mov Cap-2 Maneuver	121	88	-	98	92	-	-	-	-	-	-	-
Stage 1	302	355	-	332	397	-	-	-	-	-	-	-
Stage 2	600	386	-	447	355	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	30.47	39.93	0	0.39
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	827	-	-	250	136	782	-	-
HCM Lane V/C Ratio	-	-	-	0.445	0.245	0.043	-	-
HCM Control Delay (s/veh)	0	-	-	30.5	39.9	9.8	-	-
HCM Lane LOS	A	-	-	D	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.1	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	4	113	55	538	625	1
Future Vol, veh/h	4	113	55	538	625	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	3	2	4	7	0
Mvmt Flow	5	133	65	633	735	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1182	368	736	0	-	0
Stage 1	736	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Critical Hdwy	6.8	6.96	4.14	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.33	2.22	-	-	-
Pot Cap-1 Maneuver	186	626	865	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	172	626	865	-	-	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	SB	NE	SW
HCM Control Delay, s/v	13.24	0.88	0
HCM LOS	B		

Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	865	-	574	-	-
HCM Lane V/C Ratio	0.075	-	0.24	-	-
HCM Control Delay (s/veh)	9.5	-	13.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	331	5	0	588	611	247
Future Volume (veh/h)	331	5	0	588	611	247
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1723	1682	0	1668	1627	1709
Adj Flow Rate, veh/h	414	6	0	735	764	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	5	0	6	9	3
Cap, veh/h	502	436	0	1383	1349	
Arrive On Green	0.31	0.31	0.00	0.44	0.44	0.00
Sat Flow, veh/h	1641	1425	0	3336	3173	1448
Grp Volume(v), veh/h	414	6	0	735	764	0
Grp Sat Flow(s),veh/h/ln	1641	1425	0	1585	1546	1448
Q Serve(g_s), s	10.7	0.1	0.0	7.8	8.5	0.0
Cycle Q Clear(g_c), s	10.7	0.1	0.0	7.8	8.5	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	502	436	0	1383	1349	
V/C Ratio(X)	0.82	0.01	0.00	0.53	0.57	
Avail Cap(c_a), veh/h	1861	1617	0	3195	3116	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.8	11.1	0.0	9.5	9.7	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0	0.3	0.4	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	3.8	0.0	0.0	2.1	2.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	18.2	11.1	0.0	9.8	10.0	0.0
LnGrp LOS	B	B		A	B	
Approach Vol, veh/h	420			735	764	
Approach Delay, s/veh	18.1			9.8	10.0	
Approach LOS	B			A	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		25.8		20.0		25.8
Change Period (Y+Rc), s		5.8		6.0		5.8
Max Green Setting (Gmax), s		46.2		52.0		46.2
Max Q Clear Time (g_c+I1), s		9.8		12.7		10.5
Green Ext Time (p_c), s		6.0		1.4		6.3

Intersection Summary	
HCM 7th Control Delay, s/veh	11.7
HCM 7th LOS	B

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

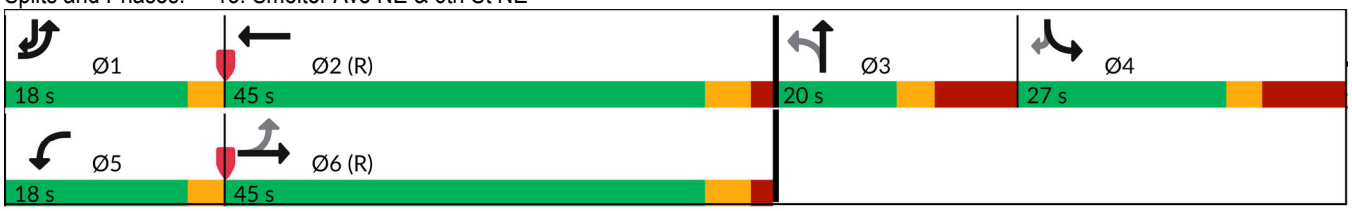
Lanes, Volumes, Timings
13: Smelter Ave NE & 6th St NE

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	849	0	0	745	29	0	0	0	100	0	142
Future Volume (vph)	35	849	0	0	745	29	0	0	0	100	0	142
Ideal Flow (vphpl)	1750	1750	1900	1900	1750	1750	1900	1900	1900	1750	1900	1750
Storage Length (ft)	100		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1662	3197	0	1863	3081	0	0	1863	0	1646	0	1473
Flt Permitted	0.247									0.950		
Satd. Flow (perm)	432	3197	0	1863	3081	0	0	1863	0	1646	0	1443
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4							178
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		801			175			190			247	
Travel Time (s)		18.2			4.0			4.3			6.7	
Confl. Peds. (#/hr)												8
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	2%	2%	7%	14%	2%	2%	2%	1%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1061	0	0	967	0	0	0	0	125	0	178
Turn Type	pm+pt	NA		Prot	NA					Prot		pm+ov
Protected Phases	1	6		5	2			3		4		1
Permitted Phases	6						3					4
Total Split (s)	18.0	45.0		18.0	45.0		20.0	20.0		27.0		18.0
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8		9.8		3.0
Act Effct Green (s)	83.6	81.0			71.7					13.6		26.7
Actuated g/C Ratio	0.76	0.74			0.65					0.12		0.24
v/c Ratio	0.11	0.45			0.48					0.61		0.36
Control Delay (s/veh)	4.5	6.8			11.6					58.1		6.3
Queue Delay	0.0	0.0			0.3					2.1		0.0
Total Delay (s/veh)	4.5	6.8			12.0					60.2		6.3
LOS	A	A			B					E		A
Approach Delay (s/veh)		6.8			12.0						28.6	
Approach LOS		A			B						C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 18 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay (s/veh): 11.7		Intersection LOS: B	
Intersection Capacity Utilization 47.3%		ICU Level of Service A	
Analysis Period (min) 15			
Description: Smelter Ave NE/6th St NE (1)			

Splits and Phases: 13: Smelter Ave NE & 6th St NE



Lanes, Volumes, Timings
14: 6th St NE & Smelter Ave NE

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	925	27	41	758	0	17	0	18	0	0	0
Future Volume (vph)	0	925	27	41	758	0	17	0	18	0	0	0
Ideal Flow (vphpl)	1900	1750	1750	1750	1750	1900	1750	1900	1750	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1900	3158	0	1511	3079	0	0	1629	0	0	1863	0
Flt Permitted				0.209				0.950				
Satd. Flow (perm)	1900	3158	0	332	3079	0	0	1585	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						153				
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		175			675			200			159	
Travel Time (s)		4.0			15.3			5.5			3.6	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	5%	0%	10%	8%	0%	6%	0%	6%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1175	0	51	936	0	0	43	0	0	0	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA				
Protected Phases	1	6		5	2			3			4	
Permitted Phases				2			3			4		
Total Split (s)	18.0	45.0		18.0	45.0		20.0	20.0		27.0	27.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8			9.8	
Act Effct Green (s)		89.0		97.8	97.5			5.5				
Actuated g/C Ratio		0.81		0.89	0.89			0.05				
v/c Ratio		0.45		0.14	0.34			0.19				
Control Delay (s/veh)		3.4		2.2	2.3			1.8				
Queue Delay		0.0		0.0	0.0			0.0				
Total Delay (s/veh)		3.5		2.2	2.4			1.9				
LOS		A		A	A			A				
Approach Delay (s/veh)		3.6			2.4			1.9				
Approach LOS		A			A			A				

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 4 (4%), Referenced to phase 2:WBTL and 6:EBT, Start of 1st Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

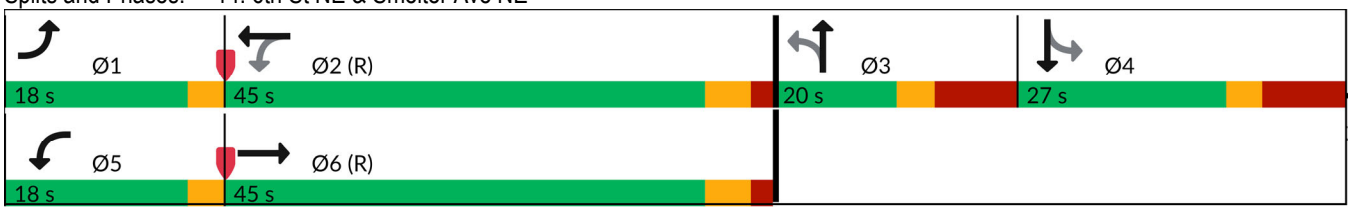
Intersection Signal Delay (s/veh): 3.0 Intersection LOS: A

Intersection Capacity Utilization 53.2% ICU Level of Service A

Analysis Period (min) 15

Description: Smelter Ave NE/6th St NE (2)

Splits and Phases: 14: 6th St NE & Smelter Ave NE



Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	111	37	31	74	3	39	136	27	2	216	9
Future Vol, veh/h	6	111	37	31	74	3	39	136	27	2	216	9
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	100	100	-	150	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	33	13	22	16	8	33	5	12	4	50	8	0
Mvmt Flow	7	121	40	34	80	3	42	148	29	2	235	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	443	506	122	429	496	89	245	0	0	177	0	0
Stage 1	244	244	-	247	247	-	-	-	-	-	-	-
Stage 2	199	262	-	182	249	-	-	-	-	-	-	-
Critical Hdwy	8.16	6.76	7.34	7.82	6.66	7.56	4.2	-	-	5.1	-	-
Critical Hdwy Stg 1	7.16	5.76	-	6.82	5.66	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.16	5.76	-	6.82	5.66	-	-	-	-	-	-	-
Follow-up Hdwy	3.83	4.13	3.52	3.66	4.08	3.63	2.25	-	-	2.7	-	-
Pot Cap-1 Maneuver	432	444	846	478	461	861	1297	-	-	1108	-	-
Stage 1	657	676	-	696	686	-	-	-	-	-	-	-
Stage 2	702	664	-	763	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	342	429	846	319	445	861	1297	-	-	1108	-	-
Mov Cap-2 Maneuver	342	429	-	319	445	-	-	-	-	-	-	-
Stage 1	655	675	-	674	663	-	-	-	-	-	-	-
Stage 2	595	642	-	596	683	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.28	15.51	1.52	0.09
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	423	846	319	445	861	30	-	-
HCM Lane V/C Ratio	0.033	-	-	0.3	0.048	0.106	0.181	0.004	0.002	-	-
HCM Control Delay (s/veh)	7.9	-	-	17.1	9.5	17.6	14.9	9.2	8.3	0	-
HCM Lane LOS	A	-	-	C	A	C	B	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.1	0.4	0.7	0	0	-	-

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	438	0	0	0	139	138	5	0	150	7
Future Vol, veh/h	8	0	438	0	0	0	139	138	5	0	150	7
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	-	-	Yield
Storage Length	-	-	-	-	-	-	250	-	-	50	-	350
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	6	17	0	0	15	0
Mvmt Flow	10	0	528	0	0	0	167	166	6	0	181	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	599	688	181	685	685	86	181	0	0	172	0	0
Stage 1	181	181	-	504	504	-	-	-	-	-	-	-
Stage 2	418	507	-	181	181	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.3	6.5	6.9	4.19	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.257	-	-	2.2	-	-
Pot Cap-1 Maneuver	403	372	867	351	373	962	1367	-	-	1417	-	-
Stage 1	826	754	-	524	544	-	-	-	-	-	-	-
Stage 2	588	542	-	826	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	354	326	867	121	328	962	1367	-	-	1417	-	-
Mov Cap-2 Maneuver	354	326	-	121	328	-	-	-	-	-	-	-
Stage 1	826	754	-	459	477	-	-	-	-	-	-	-
Stage 2	516	476	-	323	754	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.39	0	3.94	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1367	-	-	845	-	1417	-	-
HCM Lane V/C Ratio	0.123	-	-	0.636	-	-	-	-
HCM Control Delay (s/veh)	8	-	-	16.4	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	4.7	-	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	13	103	45	25	9	89	191	35	6	382	3
Future Vol, veh/h	2	13	103	45	25	9	89	191	35	6	382	3
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	100	-	0	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	50	0	10	22	24	11	1	7	6	0	3	0
Mvmt Flow	2	15	121	53	29	11	105	225	41	7	449	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	802	941	226	701	922	133	453	0	0	266	0	0
Stage 1	465	465	-	455	455	-	-	-	-	-	-	-
Stage 2	336	475	-	246	467	-	-	-	-	-	-	-
Critical Hdwy	8.5	6.5	7.1	7.94	6.98	7.12	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	7.5	5.5	-	6.94	5.98	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	5.5	-	6.94	5.98	-	-	-	-	-	-	-
Follow-up Hdwy	4	4	3.4	3.72	4.24	3.41	2.21	-	-	2.2	-	-
Pot Cap-1 Maneuver	205	265	752	290	233	864	1111	-	-	1310	-	-
Stage 1	437	566	-	505	515	-	-	-	-	-	-	-
Stage 2	535	560	-	682	508	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	159	239	752	206	210	864	1111	-	-	1310	-	-
Mov Cap-2 Maneuver	159	239	-	206	210	-	-	-	-	-	-	-
Stage 1	435	563	-	457	467	-	-	-	-	-	-	-
Stage 2	449	508	-	553	505	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.14	31.39	2.42	0.12
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1111	-	-	159	239	752	227	1310	-	-
HCM Lane V/C Ratio	0.094	-	-	0.015	0.064	0.161	0.409	0.005	-	-
HCM Control Delay (s/veh)	8.6	-	-	28	21.1	10.7	31.4	7.8	-	-
HCM Lane LOS	A	-	-	D	C	B	D	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0	0.2	0.6	1.9	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	567	286	23	383	76	35
Future Vol, veh/h	567	286	23	383	76	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	175	50	-	0	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	5	6	13	11	7	9
Mvmt Flow	675	340	27	456	90	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	675	0	1186	675
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	511	-
Critical Hdwy	-	-	4.23	-	6.47	6.29
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	-	-	2.317	-	3.563	3.381
Pot Cap-1 Maneuver	-	-	867	-	204	442
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	592	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	867	-	197	442
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.53	30.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	197	442	-	-	867	-
HCM Lane V/C Ratio	0.458	0.094	-	-	0.032	-
HCM Control Delay (s/veh)	37.8	14	-	-	9.3	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	2.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	46	2	82	7	10	1	38	270	6	1	162	22
Future Vol, veh/h	46	2	82	7	10	1	38	270	6	1	162	22
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	3	3	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	6	0	0	0	5	3	0	100	8	5
Mvmt Flow	55	2	98	8	12	1	45	321	7	1	193	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	628	632	208	615	642	328	221	0	0	332	0	0
Stage 1	210	210	-	418	418	-	-	-	-	-	-	-
Stage 2	418	422	-	196	223	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.1	6.5	6.2	4.15	-	-	5.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.5	4	3.3	2.245	-	-	3.1	-	-
Pot Cap-1 Maneuver	398	400	822	406	395	718	1330	-	-	835	-	-
Stage 1	796	732	-	616	594	-	-	-	-	-	-	-
Stage 2	617	592	-	810	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	368	381	821	340	376	716	1328	-	-	832	-	-
Mov Cap-2 Maneuver	368	381	-	340	376	-	-	-	-	-	-	-
Stage 1	794	729	-	589	567	-	-	-	-	-	-	-
Stage 2	577	565	-	710	720	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	13.76	15.32	0.94	0.05
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	217	-	-	565	370	10	-	-
HCM Lane V/C Ratio	0.034	-	-	0.274	0.058	0.001	-	-
HCM Control Delay (s/veh)	7.8	0	-	13.8	15.3	9.3	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.2	0	-	-

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	90	55	34	86	40	62	190	40	45	198	30
Future Vol, veh/h	25	90	55	34	86	40	62	190	40	45	198	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	107	65	40	102	48	74	226	48	54	236	36
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	12.3	12.3	15.6	14.9
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	15%	21%	16%
Vol Thru, %	65%	53%	54%	73%
Vol Right, %	14%	32%	25%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	170	160	273
LT Vol	62	25	34	45
Through Vol	190	90	86	198
RT Vol	40	55	40	30
Lane Flow Rate	348	202	190	325
Geometry Grp	1	1	1	1
Degree of Util (X)	0.553	0.343	0.328	0.521
Departure Headway (Hd)	5.727	6.108	6.191	5.774
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	633	589	581	627
Service Time	3.74	4.155	4.237	3.786
HCM Lane V/C Ratio	0.55	0.343	0.327	0.518
HCM Control Delay, s/veh	15.6	12.3	12.3	14.9
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.4	1.5	1.4	3

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	12	14	54	23	78	5	246	90	70	238	1
Future Vol, veh/h	3	12	14	54	23	78	5	246	90	70	238	1
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	22	22	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	8	0	0	0	1	0	2	0	1	1	0
Mvmt Flow	4	15	18	68	29	99	6	311	114	89	301	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	824	945	308	889	889	390	309	0	0	447	0	0
Stage 1	485	485	-	403	403	-	-	-	-	-	-	-
Stage 2	339	460	-	486	486	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.58	6.2	7.1	6.5	6.21	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.072	3.3	3.5	4	3.309	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	294	256	737	266	285	660	1264	-	-	1118	-	-
Stage 1	567	542	-	628	603	-	-	-	-	-	-	-
Stage 2	680	556	-	566	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	199	223	733	214	248	646	1256	-	-	1095	-	-
Mov Cap-2 Maneuver	199	223	-	214	248	-	-	-	-	-	-	-
Stage 1	509	486	-	611	587	-	-	-	-	-	-	-
Stage 2	544	541	-	483	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.28	30.22	0.12	1.94
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	25	-	-	330	333	407	-	-
HCM Lane V/C Ratio	0.005	-	-	0.111	0.589	0.081	-	-
HCM Control Delay (s/veh)	7.9	0	-	17.3	30.2	8.6	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	3.6	0.3	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	5	37	10	1	4	42	379	17	6	231	53
Future Vol, veh/h	63	5	37	10	1	4	42	379	17	6	231	53
Conflicting Peds, #/hr	1	0	0	0	0	1	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	11	20	0	0	5	3	12	0	4	6
Mvmt Flow	68	5	40	11	1	4	46	412	18	7	251	58

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	592	815	154	654	834	216	309	0	0	430	0	0
Stage 1	293	293	-	513	513	-	-	-	-	-	-	-
Stage 2	299	522	-	141	322	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.5	7.12	7.9	6.5	6.9	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.54	5.5	-	6.9	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.5	-	6.9	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4	3.41	3.7	4	3.3	2.25	-	-	2.2	-	-
Pot Cap-1 Maneuver	390	314	836	318	306	795	1227	-	-	1140	-	-
Stage 1	691	674	-	469	540	-	-	-	-	-	-	-
Stage 2	685	534	-	797	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	370	301	836	285	293	794	1227	-	-	1140	-	-
Mov Cap-2 Maneuver	370	301	-	285	293	-	-	-	-	-	-	-
Stage 1	687	670	-	451	519	-	-	-	-	-	-	-
Stage 2	654	515	-	749	651	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.57	15.97	0.77	0.17
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1227	-	-	454	345	1140	-	-
HCM Lane V/C Ratio	0.037	-	-	0.251	0.047	0.006	-	-
HCM Control Delay (s/veh)	8	-	-	15.6	16	8.2	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1	0.1	0	-	-

Lanes, Volumes, Timings
23: River Dr N & 1st Ave N

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	662	283	31	373	17	159	85	26	7	51	123
Future Volume (vph)	224	662	283	31	373	17	159	85	26	7	51	123
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	125		50	100		0	230		230	0		150
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1525	3292	1473	1662	3236	0	1533	1578	1488	0	1625	1293
Flt Permitted	0.297			0.333			0.950	0.984			0.994	
Satd. Flow (perm)	475	3292	1430	581	3236	0	1533	1578	1488	0	1625	1293
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		4				182			177
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1798			943			577			569	
Travel Time (s)		40.9			21.4			13.1			12.9	
Confl. Peds. (#/hr)	5		6	6		5						
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	9%	1%	1%	0%	2%	0%	3%	4%	0%	0%	8%	15%
Shared Lane Traffic (%)							25%					
Lane Group Flow (vph)	287	849	363	40	500	0	153	160	33	0	74	158
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6					3			4
Total Split (s)	24.0	50.0	50.0	11.0	37.0		19.0	19.0	19.0	40.0	40.0	40.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	5.5	5.5		6.0	6.0
Act Effct Green (s)	42.9	36.3	36.3	26.0	19.9		13.2	13.2	13.2		9.5	9.5
Actuated g/C Ratio	0.52	0.44	0.44	0.31	0.24		0.16	0.16	0.16		0.11	0.11
v/c Ratio	0.62	0.58	0.52	0.15	0.64		0.62	0.63	0.08		0.40	0.51
Control Delay (s/veh)	18.4	20.8	14.8	13.4	32.3		48.5	48.6	0.4		43.4	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	18.4	20.8	14.8	13.4	32.3		48.5	48.6	0.4		43.4	11.3
LOS	B	C	B	B	C		D	D	A		D	B
Approach Delay (s/veh)		18.9			30.9			44.0			21.6	
Approach LOS		B			C			D			C	

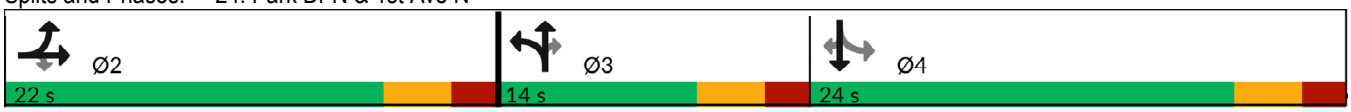
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 82.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 25.0		Intersection LOS: C	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			
Description: Central Ave/River Dr S/1st Ave N			

Splits and Phases: 23: River Dr N & 1st Ave N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	631	198	0	0	0	119	8	9	2	42	377
Future Volume (vph)	34	631	198	0	0	0	119	8	9	2	42	377
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		200	0		0	0		100	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3253	1458	0	0	0	1462	1489	1488	1662	1750	1473
Flt Permitted		0.997					0.950	0.958		0.704		
Satd. Flow (perm)	0	3253	1458	0	0	0	1462	1489	1488	1232	1750	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239						127			454
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		943			369			832			390	
Travel Time (s)		21.4			8.4			18.9			8.9	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	8%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	801	239	0	0	0	76	77	11	2	51	454
Turn Type	Split	NA	Perm				Split	NA	Perm	Perm	NA	Perm
Protected Phases	2	2					3	3			4	
Permitted Phases			2						3	4		4
Total Split (s)	22.0	22.0	22.0				14.0	14.0	14.0	24.0	24.0	24.0
Total Lost Time (s)		5.0	5.0				5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)		17.1	17.1				7.6	7.6	7.6	10.0	10.0	10.0
Actuated g/C Ratio		0.36	0.36				0.16	0.16	0.16	0.21	0.21	0.21
v/c Ratio		0.67	0.35				0.32	0.32	0.03	0.00	0.13	0.67
Control Delay (s/veh)		19.6	4.4				24.3	24.2	0.2	15.0	16.9	7.9
Queue Delay		0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		19.6	4.4				24.3	24.2	0.2	15.0	16.9	7.9
LOS		B	A				C	C	A	B	B	A
Approach Delay (s/veh)		16.1						22.7			8.9	
Approach LOS		B						C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 47.3			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 14.6		Intersection LOS: B	
Intersection Capacity Utilization 42.5%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 1st Ave N/Park Dr			

Splits and Phases: 24: Park Dr N & 1st Ave N



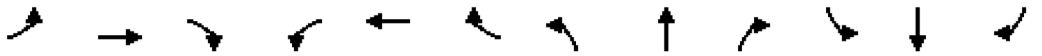
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	8	16	26	72	0	0	0	0	74	51
Future Vol, veh/h	10	0	8	16	26	72	0	0	0	0	74	51
Conflicting Peds, #/hr	8	0	0	0	0	8	0	0	0	0	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	0	-	100	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	10	0	0	0	4	8	0	0	0	0	8	2
Mvmt Flow	13	0	11	21	34	95	0	0	0	0	97	67

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	164	-	90	49	172	-			-	-	0
Stage 1	139	-	-	0	0	-			-	-	-
Stage 2	25	-	-	49	172	-			-	-	-
Critical Hdwy	7.7	-	6.9	7.5	6.58	-			-	-	-
Critical Hdwy Stg 1	6.7	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.58	-			-	-	-
Follow-up Hdwy	3.6	-	3.3	3.5	4.04	-			-	-	-
Pot Cap-1 Maneuver	763	0	956	952	715	0			0	-	-
Stage 1	827	0	-	-	-	0			0	-	-
Stage 2	-	0	-	964	750	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	716	-	949	941	710	-			-	-	-
Mov Cap-2 Maneuver	716	-	-	941	710	-			-	-	-
Stage 1	821	-	-	-	-	-			-	-	-
Stage 2	-	-	-	954	744	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	9.55	9.79	0
HCM LOS	A	A	

Minor Lane/Major Mvmt	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBT	SBR
Capacity (veh/h)	716	949	941	710	-	-	-
HCM Lane V/C Ratio	0.018	0.011	0.022	0.048	-	-	-
HCM Control Delay (s/veh)	10.1	8.8	8.9	10.3	0	-	-
HCM Lane LOS	B	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	0	0.1	0.2	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	86	539	36	62	207	0	0	326	49
Future Volume (veh/h)	0	0	0	86	539	36	62	207	0	0	326	49
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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				1575	1563	1501	1575	1526	0	0	1563	1550
Adj Flow Rate, veh/h				102	642	43	74	246	0	0	388	58
Peak Hour Factor				0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %				0	1	6	0	4	0	0	1	2
Cap, veh/h				186	1168	78	210	593	0	0	516	77
Arrive On Green				0.47	0.47	0.47	0.39	0.39	0.00	0.00	0.39	0.39
Sat Flow, veh/h				399	2508	168	795	1526	0	0	1328	199
Grp Volume(v), veh/h				395	0	392	74	246	0	0	0	446
Grp Sat Flow(s),veh/h/ln				1543	0	1532	795	1526	0	0	0	1527
Q Serve(g_s), s				13.0	0.0	13.0	6.3	8.3	0.0	0.0	0.0	17.8
Cycle Q Clear(g_c), s				13.0	0.0	13.0	24.0	8.3	0.0	0.0	0.0	17.8
Prop In Lane				0.26		0.11	1.00		0.00	0.00		0.13
Lane Grp Cap(c), veh/h				718	0	713	210	593	0	0	0	593
V/C Ratio(X)				0.55	0.00	0.55	0.35	0.42	0.00	0.00	0.00	0.75
Avail Cap(c_a), veh/h				718	0	713	318	799	0	0	0	800
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	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				13.5	0.0	13.5	29.0	15.7	0.0	0.0	0.0	18.6
Incr Delay (d2), s/veh				3.0	0.0	3.0	1.0	0.5	0.0	0.0	0.0	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
%ile BackOfQ(50%),veh/ln				4.6	0.0	4.6	1.2	2.7	0.0	0.0	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				16.5	0.0	16.6	30.0	16.2	0.0	0.0	0.0	21.4
LnGrp LOS				B		B	C	B				C
Approach Vol, veh/h					787			320			446	
Approach Delay, s/veh					16.6			19.4			21.4	
Approach LOS					B			B			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		38.0		32.5				32.5				
Change Period (Y+Rc), s		5.2		5.1				5.1				
Max Green Setting (Gmax), s		32.8		36.9				36.9				
Max Q Clear Time (g_c+I1), s		2.0		26.0				19.8				
Green Ext Time (p_c), s		5.6		1.4				2.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			18.5									
HCM 7th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	361	100	0	0	0	0	238	51	52	361	0
Future Volume (veh/h)	38	361	100	0	0	0	0	238	51	52	361	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1538	1563	1575				0	1550	1550	1550	1563	0
Adj Flow Rate, veh/h	40	384	106				0	253	54	55	384	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	1	0				0	2	2	2	1	0
Cap, veh/h	192	1832	489				0	436	367	220	440	0
Arrive On Green	0.57	0.57	0.57				0.00	0.28	0.28	0.28	0.28	0.00
Sat Flow, veh/h	334	3188	852				0	1550	1304	886	1563	0
Grp Volume(v), veh/h	185	170	175				0	253	54	55	384	0
Grp Sat Flow(s),veh/h/ln	1546	1422	1405				0	1550	1304	886	1563	0
Q Serve(g_s), s	4.4	4.4	4.6				0.0	10.6	2.3	4.3	17.7	0.0
Cycle Q Clear(g_c), s	4.4	4.4	4.6				0.0	10.6	2.3	14.9	17.7	0.0
Prop In Lane	0.22		0.61				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	888	817	807				0	436	367	220	440	0
V/C Ratio(X)	0.21	0.21	0.22				0.00	0.58	0.15	0.25	0.87	0.00
Avail Cap(c_a), veh/h	888	817	807				0	524	441	270	528	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	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.8	7.8	7.8				0.0	23.4	20.4	29.8	25.9	0.0
Incr Delay (d2), s/veh	0.5	0.6	0.6				0.0	1.2	0.2	0.6	13.1	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	1.4	1.3	1.4				0.0	3.8	0.7	0.9	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	8.4	8.4				0.0	24.6	20.6	30.3	39.0	0.0
LnGrp LOS	A	A	A					C	C	C	D	
Approach Vol, veh/h		530						307			439	
Approach Delay, s/veh		8.4						23.9			37.9	
Approach LOS		A						C			D	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	49.0	26.7	26.7
Change Period (Y+Rc), s	5.5	5.4	5.4
Max Green Setting (Gmax), s	43.5	25.6	25.6
Max Q Clear Time (g_c+I1), s	6.4	19.7	12.6
Green Ext Time (p_c), s	3.5	1.3	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	22.3
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	49	12	91	100	65	25	231	46	69	361	29
Future Volume (veh/h)	13	49	12	91	100	65	25	231	46	69	361	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1526	1575	1563	1514	1550	1575	1526	1575	1575	1563	1538
Adj Flow Rate, veh/h	14	53	13	99	109	71	27	251	50	75	392	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	0	1	5	2	0	4	0	0	1	3
Cap, veh/h	320	158	39	381	296	253	281	430	479	389	497	435
Arrive On Green	0.02	0.13	0.13	0.08	0.20	0.20	0.03	0.28	0.28	0.07	0.32	0.32
Sat Flow, veh/h	1500	1177	289	1488	1514	1294	1500	1526	1325	1500	1563	1295
Grp Volume(v), veh/h	14	0	66	99	109	71	27	251	50	75	392	32
Grp Sat Flow(s),veh/h/ln	1500	0	1466	1488	1514	1294	1500	1526	1325	1500	1563	1295
Q Serve(g_s), s	0.4	0.0	1.8	2.5	2.8	2.1	0.6	6.3	1.1	1.5	10.2	0.8
Cycle Q Clear(g_c), s	0.4	0.0	1.8	2.5	2.8	2.1	0.6	6.3	1.1	1.5	10.2	0.8
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	320	0	197	381	296	253	281	430	479	389	497	435
V/C Ratio(X)	0.04	0.00	0.33	0.26	0.37	0.28	0.10	0.58	0.10	0.19	0.79	0.07
Avail Cap(c_a), veh/h	527	0	794	496	820	701	467	752	759	522	770	662
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	17.6	14.3	15.6	15.4	11.6	13.8	9.5	10.5	13.9	10.2
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.4	0.8	0.6	0.1	1.3	0.1	0.2	3.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	0.7	0.9	0.6	0.2	2.0	0.3	0.4	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.3	0.0	18.6	14.7	16.4	16.0	11.8	15.1	9.6	10.7	17.0	10.2
LnGrp LOS	B		B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		80			279			328			499	
Approach Delay, s/veh		18.2			15.7			14.0			15.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	14.5	7.0	18.5	7.5	11.7	5.4	20.1
Change Period (Y+Rc), s	4.0	5.7	4.0	5.9	4.0	5.7	4.0	5.9
Max Green Setting (Gmax), s	7.0	24.3	7.0	22.1	7.0	24.3	7.0	22.1
Max Q Clear Time (g_c+I1), s	2.4	4.8	3.5	8.3	4.5	3.8	2.6	12.2
Green Ext Time (p_c), s	0.0	0.7	0.0	1.3	0.0	0.3	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	15.3
HCM 7th LOS	B

Notes

User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	15	85	17	61	285	0	0	351	129
Future Volume (veh/h)	0	0	0	15	85	17	61	285	0	0	351	129
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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				1654	1750	1586	1723	1723	0	0	1736	1723
Adj Flow Rate, veh/h				17	99	20	71	331	0	0	408	150
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				7	0	12	2	2	0	0	1	2
Cap, veh/h				65	376	73	582	1233	0	0	1019	857
Arrive On Green				0.10	0.10	0.10	0.06	0.72	0.00	0.00	0.59	0.59
Sat Flow, veh/h				624	3609	699	1641	1723	0	0	1736	1460
Grp Volume(v), veh/h				47	43	46	71	331	0	0	408	150
Grp Sat Flow(s),veh/h/ln				1719	1593	1620	1641	1723	0	0	1736	1460
Q Serve(g_s), s				1.6	1.5	1.6	0.9	4.2	0.0	0.0	7.9	2.9
Cycle Q Clear(g_c), s				1.6	1.5	1.6	0.9	4.2	0.0	0.0	7.9	2.9
Prop In Lane				0.36		0.43	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				179	166	169	582	1233	0	0	1019	857
V/C Ratio(X)				0.26	0.26	0.27	0.12	0.27	0.00	0.00	0.40	0.18
Avail Cap(c_a), veh/h				672	622	633	635	1233	0	0	1019	857
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.6	25.6	25.7	4.1	3.1	0.0	0.0	6.9	5.9
Incr Delay (d2), s/veh				0.8	0.8	0.9	0.1	0.5	0.0	0.0	1.2	0.4
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.6	0.6	0.6	0.2	1.0	0.0	0.0	2.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				26.4	26.4	26.5	4.2	3.6	0.0	0.0	8.1	6.4
LnGrp LOS				C	C	C	A	A			A	A
Approach Vol, veh/h					136			402			558	
Approach Delay, s/veh					26.5			3.7			7.6	
Approach LOS					C			A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.0	42.0		12.2		50.0
Change Period (Y+Rc), s	4.0	5.5		5.7		5.5
Max Green Setting (Gmax), s	6.0	34.5		24.3		44.5
Max Q Clear Time (g_c+I1), s	2.9	9.9		3.5		6.2
Green Ext Time (p_c), s	0.0	3.1		0.6		2.2

Intersection Summary	
HCM 7th Control Delay, s/veh	8.5
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	33	18	0	0	0	0	340	24	13	348	0
Future Volume (veh/h)	20	33	18	0	0	0	0	340	24	13	348	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
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	1682	1709	1750				0	1723	1750	1750	1736	0
Adj Flow Rate, veh/h	23	38	20				0	386	27	15	395	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	3	0				0	2	0	0	1	0
Cap, veh/h	79	128	66				0	1192	83	724	1301	0
Arrive On Green	0.08	0.08	0.08				0.00	0.75	0.75	0.75	0.75	0.00
Sat Flow, veh/h	939	1513	779				0	1591	111	910	1736	0
Grp Volume(v), veh/h	41	0	40				0	0	413	15	395	0
Grp Sat Flow(s),veh/h/ln	1662	0	1569				0	0	1702	910	1736	0
Q Serve(g_s), s	1.4	0.0	1.5				0.0	0.0	5.0	0.3	4.6	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.5				0.0	0.0	5.0	5.4	4.6	0.0
Prop In Lane	0.57		0.50				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	140	0	133				0	0	1276	724	1301	0
V/C Ratio(X)	0.29	0.00	0.30				0.00	0.00	0.32	0.02	0.30	0.00
Avail Cap(c_a), veh/h	603	0	569				0	0	1276	724	1301	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.9	0.0	26.9				0.0	0.0	2.6	3.5	2.5	0.0
Incr Delay (d2), s/veh	1.1	0.0	1.3				0.0	0.0	0.7	0.1	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
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.6				0.0	0.0	1.0	0.1	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.0	0.0	28.2				0.0	0.0	3.3	3.5	3.1	0.0
LnGrp LOS	C		C						A	A	A	
Approach Vol, veh/h		81						413			410	
Approach Delay, s/veh		28.1						3.3			3.2	
Approach LOS		C						A			A	

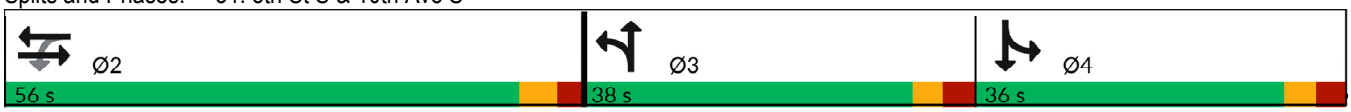
Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	52.0	10.6	52.0
Change Period (Y+Rc), s	5.1	5.3	5.1
Max Green Setting (Gmax), s	46.9	22.7	46.9
Max Q Clear Time (g_c+I1), s	7.4	2.0	7.0
Green Ext Time (p_c), s	2.8	0.3	2.9

Intersection Summary	
HCM 7th Control Delay, s/veh	5.4
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1465	9	18	945	0	43	0	14	71	25	49
Future Volume (vph)	0	1465	9	18	945	0	43	0	14	71	25	49
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	100		0	0		0	0		300
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	4587	0	1662	4594	0	0	1601	0	3101	1518	0
Flt Permitted				0.089				0.964		0.950		
Satd. Flow (perm)	0	4587	0	156	4594	0	0	1597	0	3094	1518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1						76			60	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			444			415			561	
Travel Time (s)		8.9			10.1			9.4			12.8	
Confl. Peds. (#/hr)	1		1	1		1	3		2	2		3
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	4%	11%	0%	4%	0%	2%	0%	0%	4%	0%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1798	0	22	1152	0	0	69	0	87	90	0
Turn Type		NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		3	3		4	4	
Permitted Phases				2								
Total Split (s)		56.0		56.0	56.0		38.0	38.0		36.0	36.0	
Total Lost Time (s)		6.0		6.0	6.0			6.0		6.0	6.0	
Act Effct Green (s)		50.9		50.9	50.9			8.1		8.0	8.0	
Actuated g/C Ratio		0.62		0.62	0.62			0.10		0.10	0.10	
v/c Ratio		0.63		0.22	0.40			0.30		0.28	0.44	
Control Delay (s/veh)		11.9		16.1	9.2			12.2		37.6	23.1	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)		11.9		16.1	9.2			12.2		37.6	23.1	
LOS		B		B	A			B		D	C	
Approach Delay (s/veh)		12.0			9.4			12.2			30.3	
Approach LOS		B			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 81.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay (s/veh): 12.0		Intersection LOS: B	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 10th Ave S/5th St S			

Splits and Phases: 31: 5th St S & 10th Ave S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1128	86	79	1015	144	68	70	53	120	110	83
Future Volume (veh/h)	96	1128	86	79	1015	144	68	70	53	120	110	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1695	1695	1709	1723	1736	1695	1736	1668	1750	1736	1736
Adj Flow Rate, veh/h	120	1410	108	99	1269	180	85	88	66	150	138	104
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	3	4	4	3	2	1	4	1	6	0	1	1
Cap, veh/h	266	2038	718	242	2040	780	296	129	97	309	309	352
Arrive On Green	0.06	0.44	0.44	0.06	0.43	0.43	0.06	0.14	0.14	0.10	0.18	0.18
Sat Flow, veh/h	1628	4628	1435	1628	4703	1470	1615	919	689	1667	1736	1467
Grp Volume(v), veh/h	120	1410	108	99	1269	180	85	0	154	150	138	104
Grp Sat Flow(s),veh/h/ln	1628	1543	1435	1628	1568	1470	1615	0	1609	1667	1736	1467
Q Serve(g_s), s	3.2	19.6	3.3	2.6	16.7	5.2	3.6	0.0	7.3	5.9	5.7	4.6
Cycle Q Clear(g_c), s	3.2	19.6	3.3	2.6	16.7	5.2	3.6	0.0	7.3	5.9	5.7	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	266	2038	718	242	2040	780	296	0	226	309	309	352
V/C Ratio(X)	0.45	0.69	0.15	0.41	0.62	0.23	0.29	0.00	0.68	0.49	0.45	0.30
Avail Cap(c_a), veh/h	384	3013	1020	369	3061	1099	422	0	705	377	761	734
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	18.0	10.8	14.4	17.5	10.0	27.0	0.0	32.6	25.2	29.3	24.8
Incr Delay (d2), s/veh	1.2	0.4	0.1	1.1	0.3	0.1	0.5	0.0	3.6	1.2	1.0	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	1.2	6.5	1.0	1.0	5.7	1.6	1.4	0.0	3.0	2.4	2.4	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.9	18.4	10.9	15.5	17.8	10.2	27.5	0.0	36.2	26.4	30.3	25.3
LnGrp LOS	B	B	B	B	B	B	C		D	C	C	C
Approach Vol, veh/h		1638			1548			239			392	
Approach Delay, s/veh		17.7			16.8			33.1			27.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	41.2	11.7	17.2	10.3	40.7	8.8	20.2
Change Period (Y+Rc), s	5.3	6.0	4.0	6.0	5.3	6.0	4.0	6.0
Max Green Setting (Gmax), s	10.7	52.0	11.0	35.0	10.7	52.0	11.0	35.0
Max Q Clear Time (g_c+I1), s	4.6	21.6	7.9	9.3	5.2	18.7	5.6	7.7
Green Ext Time (p_c), s	0.1	13.6	0.1	0.9	0.1	12.7	0.1	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	19.3
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1142	54	22	1212	64	54	46	53	79	56	34
Future Volume (veh/h)	16	1142	54	22	1212	64	54	46	53	79	56	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1709	1695	1750	1723	1750	1723	1750	1723	1709	1750	1709
Adj Flow Rate, veh/h	18	1313	62	25	1393	74	62	53	61	91	64	39
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	3	4	0	2	0	2	0	2	3	0	3
Cap, veh/h	298	2808	133	317	2812	149	309	103	118	156	48	24
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.62	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	338	4565	216	369	4571	243	1189	740	852	341	347	173
Grp Volume(v), veh/h	18	895	480	25	956	511	62	0	114	194	0	0
Grp Sat Flow(s),veh/h/ln	338	1555	1670	369	1568	1678	1189	0	1592	860	0	0
Q Serve(g_s), s	1.5	7.6	7.6	1.9	8.2	8.2	0.0	0.0	3.2	3.5	0.0	0.0
Cycle Q Clear(g_c), s	9.7	7.6	7.6	9.5	8.2	8.2	2.4	0.0	3.2	6.8	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.14	1.00		0.54	0.47		0.20
Lane Grp Cap(c), veh/h	298	1913	1027	317	1929	1032	309	0	221	228	0	0
V/C Ratio(X)	0.06	0.47	0.47	0.08	0.50	0.50	0.20	0.00	0.52	0.85	0.00	0.00
Avail Cap(c_a), veh/h	686	5485	2944	741	5529	2960	924	0	1045	949	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.9	5.1	5.1	7.6	5.2	5.2	19.1	0.0	19.5	22.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.3	0.1	0.2	0.4	0.3	0.0	1.9	8.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.5	1.7	0.1	1.6	1.8	0.6	0.0	1.2	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.0	5.2	5.4	7.7	5.4	5.6	19.4	0.0	21.3	31.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B		C	C		
Approach Vol, veh/h		1393			1492			176			194	
Approach Delay, s/veh		5.3			5.5			20.7			31.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	36.0	12.8	36.0	12.8
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	86.0	32.0	86.0	32.0
Max Q Clear Time (g_c+I1), s	11.7	5.2	11.5	0.0
Green Ext Time (p_c), s	15.2	0.9	17.3	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	7.8
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1194	94	35	1265	8	88	19	54	19	25	15
Future Volume (veh/h)	9	1194	94	35	1265	8	88	19	54	19	25	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1709	1736	1750	1723	1573	1750	1750	1695	1600	1750	1750
Adj Flow Rate, veh/h	10	1327	104	39	1406	9	98	21	60	21	28	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	1	0	2	13	0	0	4	11	0	0
Cap, veh/h	312	2729	214	307	2983	19	295	42	192	130	105	48
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.62	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	355	4411	346	350	4822	31	1191	315	1430	240	781	354
Grp Volume(v), veh/h	10	936	495	39	914	501	119	0	60	66	0	0
Grp Sat Flow(s),veh/h/ln	355	1555	1646	350	1568	1717	1506	0	1430	1375	0	0
Q Serve(g_s), s	0.8	8.0	8.0	3.3	7.6	7.6	0.0	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.4	8.0	8.0	11.3	7.6	7.6	3.2	0.0	1.8	3.2	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.02	0.82		1.00	0.32		0.26
Lane Grp Cap(c), veh/h	312	1924	1019	307	1940	1062	338	0	192	283	0	0
V/C Ratio(X)	0.03	0.49	0.49	0.13	0.47	0.47	0.35	0.00	0.31	0.23	0.00	0.00
Avail Cap(c_a), veh/h	721	5503	2913	710	5547	3038	1036	0	942	1058	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	5.1	5.1	8.1	5.0	5.0	19.6	0.0	19.0	19.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.2	0.2	0.3	0.6	0.0	0.9	0.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.6	1.7	0.2	1.5	1.7	1.2	0.0	0.6	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.3	5.2	5.4	8.3	5.2	5.3	20.2	0.0	19.9	19.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C		B	B		
Approach Vol, veh/h		1441			1454			179			66	
Approach Delay, s/veh		5.3			5.3			20.1			19.4	
Approach LOS		A			A			C			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	36.1	12.5	36.1	12.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	86.0	32.0	86.0	32.0
Max Q Clear Time (g_c+I1), s	10.4	5.2	13.3	5.2
Green Ext Time (p_c), s	16.0	0.8	16.8	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	6.5
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	983	352	123	1004	42	172	123	109	0	0	0
Future Volume (veh/h)	99	983	352	123	1004	42	172	123	109	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1736	1695	1723	1695	1723	1750	1695	1723	1709			
Adj Flow Rate, veh/h	112	1117	400	140	1141	48	153	199	124			
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88			
Percent Heavy Veh, %	1	4	2	4	2	0	4	2	3			
Cap, veh/h	324	1631	978	300	1633	69	264	331	196			
Arrive On Green	0.07	0.51	0.51	0.07	0.51	0.51	0.16	0.16	0.16			
Sat Flow, veh/h	1654	3221	1459	1615	3200	135	1615	2024	1200			
Grp Volume(v), veh/h	112	1117	400	140	583	606	153	168	155			
Grp Sat Flow(s),veh/h/ln	1654	1611	1459	1615	1637	1698	1615	1723	1502			
Q Serve(g_s), s	2.0	17.2	8.2	2.6	17.8	17.8	5.7	5.9	6.3			
Cycle Q Clear(g_c), s	2.0	17.2	8.2	2.6	17.8	17.8	5.7	5.9	6.3			
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.80			
Lane Grp Cap(c), veh/h	324	1631	978	300	835	867	264	282	246			
V/C Ratio(X)	0.35	0.68	0.41	0.47	0.70	0.70	0.58	0.60	0.63			
Avail Cap(c_a), veh/h	492	3443	1798	457	1749	1815	789	842	734			
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	9.6	12.2	4.9	10.5	12.2	12.2	25.3	25.4	25.5			
Incr Delay (d2), s/veh	0.6	0.5	0.3	1.1	1.1	1.0	2.0	2.0	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			
%ile BackOfQ(50%),veh/ln	0.6	5.3	9.7	0.8	5.7	5.9	2.2	2.4	2.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.2	12.7	5.2	11.6	13.3	13.2	27.3	27.4	28.2			
LnGrp LOS	B	B	A	B	B	B	C	C	C			
Approach Vol, veh/h		1629			1329			476				
Approach Delay, s/veh		10.7			13.1			27.6				
Approach LOS		B			B			C				

Timer - Assigned Phs	1	2		4	5	6			
Phs Duration (G+Y+Rc), s	9.6	39.2		16.7	9.3	39.4			
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0			
Max Green Setting (Gmax), s	11.0	70.0		32.0	11.0	70.0			
Max Q Clear Time (g_c+I1), s	4.6	19.2		8.3	4.0	19.8			
Green Ext Time (p_c), s	0.2	14.0		2.4	0.1	10.9			

Intersection Summary		
HCM 7th Control Delay, s/veh	14.0	
HCM 7th LOS	B	

Notes

User approved volume balancing among the lanes for turning movement.

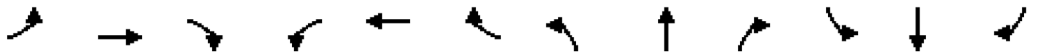
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	846	179	85	1166	5	4	0	47	0	0	14
Future Vol, veh/h	16	846	179	85	1166	5	4	0	47	0	0	14
Conflicting Peds, #/hr	1	0	0	0	0	1	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	4	2	7	2	20	0	0	2	0	0	0
Mvmt Flow	18	972	206	98	1340	6	5	0	54	0	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1347	0	0	1178	0	0	1978	2654	589	2062	2754	674
Stage 1	-	-	-	-	-	-	1112	1112	-	1540	1540	-
Stage 2	-	-	-	-	-	-	866	1542	-	523	1215	-
Critical Hdwy	4.1	-	-	4.24	-	-	7.5	6.5	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.27	-	-	3.5	4	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	518	-	-	561	-	-	38	23	451	32	20	402
Stage 1	-	-	-	-	-	-	226	287	-	123	179	-
Stage 2	-	-	-	-	-	-	319	178	-	510	256	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	517	-	-	561	-	-	29	18	451	23	16	401
Mov Cap-2 Maneuver	-	-	-	-	-	-	29	18	-	23	16	-
Stage 1	-	-	-	-	-	-	218	276	-	102	148	-
Stage 2	-	-	-	-	-	-	253	147	-	433	247	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.19	0.86	28.69	14.34
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	210	517	-	-	561	-	-	401
HCM Lane V/C Ratio	0.279	0.036	-	-	0.174	-	-	0.04
HCM Control Delay (s/veh)	28.7	12.2	-	-	12.8	-	-	14.3
HCM Lane LOS	D	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.6	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	800	15	37	955	62	177	51	19	63	70	106
Future Volume (veh/h)	44	800	15	37	955	62	177	51	19	63	70	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1682	1654	1709	1709	1723	1723	1750	1682	1723	1750	1750
Adj Flow Rate, veh/h	49	889	17	41	1061	69	197	57	21	70	78	118
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	5	7	3	3	2	2	0	5	2	0	0
Cap, veh/h	241	1363	26	293	1300	85	303	79	24	272	271	520
Arrive On Green	0.05	0.42	0.42	0.04	0.42	0.42	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1641	3207	61	1628	3095	201	677	260	77	619	889	1483
Grp Volume(v), veh/h	49	443	463	41	556	574	275	0	0	148	0	118
Grp Sat Flow(s),veh/h/ln	1641	1598	1671	1628	1624	1673	1015	0	0	1507	0	1483
Q Serve(g_s), s	1.1	14.1	14.1	0.9	19.4	19.4	12.7	0.0	0.0	0.0	0.0	3.6
Cycle Q Clear(g_c), s	1.1	14.1	14.1	0.9	19.4	19.4	17.2	0.0	0.0	4.5	0.0	3.6
Prop In Lane	1.00		0.04	1.00		0.12	0.72		0.08	0.47		1.00
Lane Grp Cap(c), veh/h	241	679	710	293	682	702	406	0	0	543	0	520
V/C Ratio(X)	0.20	0.65	0.65	0.14	0.82	0.82	0.68	0.00	0.00	0.27	0.00	0.23
Avail Cap(c_a), veh/h	725	1210	1265	370	819	844	438	0	0	581	0	558
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	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.7	14.7	14.7	11.2	16.4	16.4	22.8	0.0	0.0	17.0	0.0	14.7
Incr Delay (d2), s/veh	0.4	1.1	1.0	0.2	5.5	5.3	3.8	0.0	0.0	0.3	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.7	4.9	0.3	7.3	7.5	4.1	0.0	0.0	1.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.1	15.7	15.7	11.4	21.9	21.7	26.6	0.0	0.0	17.2	0.0	14.9
LnGrp LOS	B	B	B	B	C	C	C			B		B
Approach Vol, veh/h		955			1171			275			266	
Approach Delay, s/veh		15.6			21.4			26.6			16.2	
Approach LOS		B			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	32.5		25.3	6.5	32.2		25.3				
Change Period (Y+Rc), s	3.6	5.3		5.8	3.6	5.3		5.8				
Max Green Setting (Gmax), s	5.6	48.5		21.2	21.8	32.3		21.2				
Max Q Clear Time (g_c+I1), s	2.9	16.1		6.5	3.1	21.4		19.2				
Green Ext Time (p_c), s	0.0	6.8		1.0	0.1	5.5		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			19.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	38	26	13	34	69	11	249	36	96	179	29
Future Vol, veh/h	9	38	26	13	34	69	11	249	36	96	179	29
Conflicting Peds, #/hr	1	0	1	1	0	1	9	0	2	2	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	11	0	0	0	0	1	0	2	3	1	3	3
Mvmt Flow	12	49	34	17	44	90	14	323	47	125	232	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	723	910	145	769	906	188	279	0	0	372	0	0
Stage 1	510	510	-	377	377	-	-	-	-	-	-	-
Stage 2	213	401	-	391	528	-	-	-	-	-	-	-
Critical Hdwy	7.72	6.5	6.9	7.5	6.5	6.92	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.61	4	3.3	3.5	4	3.31	2.2	-	-	2.21	-	-
Pot Cap-1 Maneuver	297	276	882	294	278	825	1295	-	-	1190	-	-
Stage 1	492	541	-	622	619	-	-	-	-	-	-	-
Stage 2	744	605	-	610	531	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	192	239	874	201	241	823	1284	-	-	1188	-	-
Mov Cap-2 Maneuver	192	239	-	201	241	-	-	-	-	-	-	-
Stage 1	432	475	-	613	610	-	-	-	-	-	-	-
Stage 2	607	596	-	465	466	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	21.63	19.3	0.37	2.92
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	114	-	-	310	401	951	-	-
HCM Lane V/C Ratio	0.011	-	-	0.306	0.376	0.105	-	-
HCM Control Delay (s/veh)	7.8	0.1	-	21.6	19.3	8.4	0.5	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	1.7	0.4	-	-

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	91	121	34	70	66
Future Vol, veh/h	11	91	121	34	70	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	3	1	0	0	3
Mvmt Flow	14	112	149	42	86	81

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	425	170	0	0	191	0
Stage 1	170	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.4	6.23	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.2	-
Pot Cap-1 Maneuver	590	871	-	-	1394	-
Stage 1	864	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	554	871	-	-	1394	-
Mov Cap-2 Maneuver	554	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	744	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.95	0	3.99
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	554	871	1394	-
HCM Lane V/C Ratio	-	-	0.025	0.129	0.062	-
HCM Control Delay (s/veh)	-	-	11.7	9.7	7.8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0.2	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	123	21	3	153	1	113	5	2	4	3	71
Future Vol, veh/h	32	123	21	3	153	1	113	5	2	4	3	71
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	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	24	14	0	8	100	3	20	0	0	33	0
Mvmt Flow	36	138	24	3	172	1	127	6	2	4	3	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	162	0	0	316	402	81	323	413	87
Stage 1	-	-	-	-	-	-	222	222	-	179	179	-
Stage 2	-	-	-	-	-	-	94	180	-	144	234	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.56	6.9	6.9	7.5	7.16	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.9	-	6.5	6.16	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.9	-	6.5	6.16	-
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.53	4.2	3.3	3.5	4.33	3.3
Pot Cap-1 Maneuver	1394	-	-	1429	-	-	610	497	969	611	464	961
Stage 1	-	-	-	-	-	-	757	676	-	811	680	-
Stage 2	-	-	-	-	-	-	899	708	-	850	639	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1394	-	-	1429	-	-	540	483	969	586	451	961
Mov Cap-2 Maneuver	-	-	-	-	-	-	540	483	-	586	451	-
Stage 1	-	-	-	-	-	-	738	659	-	809	679	-
Stage 2	-	-	-	-	-	-	818	706	-	819	623	-

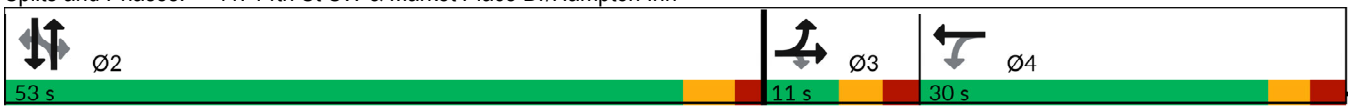
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.39	0.14	13.84	9.47
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	541	1394	-	-	1429	-	-	893
HCM Lane V/C Ratio	0.249	0.026	-	-	0.002	-	-	0.098
HCM Control Delay (s/veh)	13.8	7.7	-	-	7.5	-	-	9.5
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1	0.1	-	-	0	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	0	25	0	0	4	38	314	0	3	128	89
Future Volume (vph)	75	0	25	0	0	4	38	314	0	3	128	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	0		0	100		0	250		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1490	1490	1430	0	1514	0	1662	3292	0	1662	1581	0
Flt Permitted	0.950	0.950					0.607			0.540		
Satd. Flow (perm)	1490	1490	1390	0	1514	0	1061	3292	0	944	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		413						54	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		289			368			392			897	
Travel Time (s)		6.6			8.4			8.9			20.4	
Confl. Peds. (#/hr)			1	1			1		1	1		1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	0%	4%	0%	0%	0%	0%	1%	0%	0%	3%	3%
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	42	42	28	0	4	0	43	353	0	3	244	0
Turn Type	Split	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases	3	3			4			2			2	
Permitted Phases			3	4			2			2		
Total Split (s)	11.0	11.0	11.0	30.0	30.0		53.0	53.0		53.0	53.0	
Total Lost Time (s)	5.5	5.5	5.5		5.5		5.4	5.4		5.4	5.4	
Act Effct Green (s)	5.6	5.6	5.6		6.1		22.2	22.2		22.2	22.2	
Actuated g/C Ratio	0.17	0.17	0.17		0.18		0.65	0.65		0.65	0.65	
v/c Ratio	0.17	0.17	0.09		0.00		0.06	0.16		0.00	0.23	
Control Delay (s/veh)	15.8	15.8	0.6		0.0		7.1	5.8		7.3	6.0	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	15.8	15.8	0.6		0.0		7.1	5.8		7.3	6.0	
LOS	B	B	A		A		A	A		A	A	
Approach Delay (s/veh)		12.0						6.0			6.0	
Approach LOS		B						A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 94			
Actuated Cycle Length: 33.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.23			
Intersection Signal Delay (s/veh): 6.9		Intersection LOS: A	
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 14th SW/Market Place Dr			

Splits and Phases: 41: 14th St SW & Market Place Dr/Hampton Inn



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	85	0	44	31	10	3	57	236	71	183	122
Future Volume (veh/h)	28	85	0	44	31	10	3	57	236	71	183	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1668	1750	1654	1750	1477	1300	1682	1750	1668	1709	1668
Adj Flow Rate, veh/h	34	102	0	53	37	12	4	69	284	86	220	147
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	11	6	0	7	0	20	33	5	0	6	3	6
Cap, veh/h	448	297	264	483	242	173	363	460	494	468	467	445
Arrive On Green	0.04	0.18	0.00	0.06	0.14	0.14	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1524	1668	1483	1576	1750	1252	705	1682	1483	917	1709	1414
Grp Volume(v), veh/h	34	102	0	53	37	12	4	69	284	86	220	147
Grp Sat Flow(s),veh/h/ln	1524	1668	1483	1576	1750	1252	705	1682	1483	917	1709	1414
Q Serve(g_s), s	0.5	1.6	0.0	0.8	0.5	0.2	0.1	0.9	4.6	2.3	3.1	2.3
Cycle Q Clear(g_c), s	0.5	1.6	0.0	0.8	0.5	0.2	3.3	0.9	4.6	3.2	3.1	2.3
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	448	297	264	483	242	173	363	460	494	468	467	445
V/C Ratio(X)	0.08	0.34	0.00	0.11	0.15	0.07	0.01	0.15	0.57	0.18	0.47	0.33
Avail Cap(c_a), veh/h	870	1386	1232	981	1454	1040	903	1748	1630	1171	1776	1528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.1	10.5	0.0	9.7	11.1	11.0	10.2	8.1	8.0	9.3	8.9	7.7
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.1	0.3	0.2	0.0	0.1	1.1	0.2	0.7	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	0.1	0.5	0.0	0.2	0.2	0.1	0.0	0.2	1.0	0.3	0.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.1	11.2	0.0	9.8	11.4	11.1	10.2	8.2	9.1	9.5	9.6	8.1
LnGrp LOS	B	B		A	B	B	B	A	A	A	A	A
Approach Vol, veh/h		136			102			357			453	
Approach Delay, s/veh		10.9			10.5			8.9			9.1	
Approach LOS		B			B			A			A	

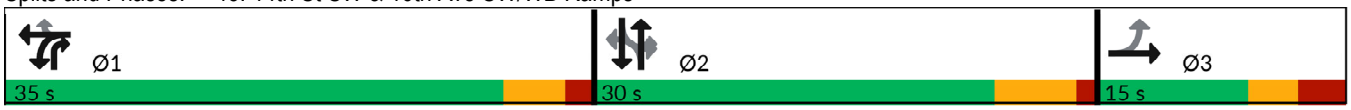
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	12.6	6.9	9.7	12.6	5.7	10.9
Change Period (Y+Rc), s	4.6	5.7	5.7	4.6	4.0	5.7
Max Green Setting (Gmax), s	30.4	9.3	24.3	30.4	11.0	24.3
Max Q Clear Time (g_c+I1), s	5.2	2.5	2.5	6.6	2.8	3.6
Green Ext Time (p_c), s	2.3	0.0	0.1	1.4	0.0	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	9.4
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	10	268	3	35	5	26	58	17	91	0
Future Volume (vph)	0	4	10	268	3	35	5	26	58	17	91	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	0		100	100		250	100		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1584	0	0	1604	1365	1662	1562	1365	1568	1651	0
Flt Permitted					0.953		0.685			0.736		
Satd. Flow (perm)	0	1584	0	0	1604	1365	1199	1562	1365	1215	1651	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				120			71			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		388			530			1071			1047	
Travel Time (s)		8.8			12.0			24.3			23.8	
Peak Hour Factor	0.82	0.82	0.82	0.85	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	4%	0%	9%	0%	12%	9%	6%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	319	43	6	32	71	21	111	0
Turn Type		NA		Split	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		3		1	1			2	1		2	
Permitted Phases	3					1	2		2	2		
Total Split (s)	15.0	15.0		35.0	35.0	35.0	30.0	30.0	35.0	30.0	30.0	
Total Lost Time (s)		5.8			5.2	5.2	6.0	6.0	5.2	6.0	6.0	
Act Effct Green (s)		6.7			13.2	13.2	9.2	9.2	34.1	9.2	9.2	
Actuated g/C Ratio		0.19			0.36	0.36	0.25	0.25	0.94	0.25	0.25	
v/c Ratio		0.05			0.54	0.07	0.01	0.08	0.05	0.06	0.26	
Control Delay (s/veh)		13.5			13.9	0.2	15.0	14.8	0.7	15.1	15.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		13.5			13.9	0.2	15.0	14.8	0.7	15.1	15.8	
LOS		B			B	A	B	B	A	B	B	
Approach Delay (s/veh)		13.6			12.3			5.6			15.8	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 36.2			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay (s/veh): 11.9		Intersection LOS: B	
Intersection Capacity Utilization 40.0%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 14th St SW/WB Ramps/16th Ave SW			

Splits and Phases: 43: 14th St SW & 16th Ave SW/WB Ramps



Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	62	34	2	0	31	2	13	0	5	0
Future Vol, veh/h	1	0	62	34	2	0	31	2	13	0	5	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	41	23	1	0	21	1	9	0	3	0
Mvmt Flow	1	0	70	38	2	0	35	2	15	0	6	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	70	0	0	119	116	35	82	151	2
Stage 1	-	-	-	-	-	-	37	37	-	79	79	-
Stage 2	-	-	-	-	-	-	81	79	-	3	72	-
Critical Hdwy	4.1	-	-	4.33	-	-	7.31	6.51	6.29	7.1	6.53	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.31	5.51	-	6.1	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.31	5.51	-	6.1	5.53	-
Follow-up Hdwy	2.2	-	-	2.407	-	-	3.689	4.009	3.381	3.5	4.027	3.3
Pot Cap-1 Maneuver	1633	-	-	1408	-	-	815	776	1018	910	739	1088
Stage 1	-	-	-	-	-	-	932	866	-	935	828	-
Stage 2	-	-	-	-	-	-	882	832	-	1024	833	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1633	-	-	1408	-	-	786	755	1018	870	719	1088
Mov Cap-2 Maneuver	-	-	-	-	-	-	786	755	-	870	719	-
Stage 1	-	-	-	-	-	-	931	865	-	910	805	-
Stage 2	-	-	-	-	-	-	852	809	-	1006	833	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.11	7.2	9.58	10.05
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	839	24	-	-	1406	-	-	719
HCM Lane V/C Ratio	0.062	0.001	-	-	0.027	-	-	0.008
HCM Control Delay (s/veh)	9.6	7.2	0	-	7.6	0	-	10
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	162	63	597	671	85
Future Vol, veh/h	22	162	63	597	671	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	5	5	7	7
Mvmt Flow	25	184	72	678	763	97

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1293	430	859	0	-	0
Stage 1	811	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	154	574	759	-	-	-
Stage 1	398	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	140	574	759	-	-	-
Mov Cap-2 Maneuver	262	-	-	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	587	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.92	0.98	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	759	-	262	574	-	-
HCM Lane V/C Ratio	0.094	-	0.095	0.321	-	-
HCM Control Delay (s/veh)	10.2	-	20.2	14.2	-	-
HCM Lane LOS	B	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1.4	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	36	1	69	4	1	0	15	84	2	0	191	49
Future Vol, veh/h	36	1	69	4	1	0	15	84	2	0	191	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	3	0
Mvmt Flow	41	1	79	5	1	0	17	97	2	0	220	56

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	379	381	248	352	408	98	276	0	0	99	0	0
Stage 1	248	248	-	132	132	-	-	-	-	-	-	-
Stage 2	132	133	-	220	276	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	582	555	796	606	536	964	1299	-	-	1507	-	-
Stage 1	761	705	-	876	791	-	-	-	-	-	-	-
Stage 2	877	790	-	787	686	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	573	547	796	537	528	964	1299	-	-	1507	-	-
Mov Cap-2 Maneuver	573	547	-	537	528	-	-	-	-	-	-	-
Stage 1	761	705	-	864	780	-	-	-	-	-	-	-
Stage 2	863	779	-	707	686	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.22	11.8	1.16	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	266	-	-	700	535	1507	-	-
HCM Lane V/C Ratio	0.013	-	-	0.174	0.011	-	-	-
HCM Control Delay (s/veh)	7.8	0	-	11.2	11.8	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	2	13	36	4	22
Future Vol, veh/h	60	2	13	36	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	0	0	0	0	5
Mvmt Flow	67	2	15	40	4	25

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	69	35	0	0	55	0
Stage 1	35	-	-	-	-	-
Stage 2	34	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	936	1044	-	-	1563	-
Stage 1	988	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	934	1044	-	-	1563	-
Mov Cap-2 Maneuver	934	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.15	0	1.12
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	937	277	-
HCM Lane V/C Ratio	-	-	0.074	0.003	-
HCM Control Delay (s/veh)	-	-	9.2	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	3	9	62	4	5
Future Vol, veh/h	36	3	9	62	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	39	3	10	67	4	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	42	0	126	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	86	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1580	-	873	1037
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1580	-	868	1037
Mov Cap-2 Maneuver	-	-	-	-	868	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	936	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.92	8.81
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	954	-	-	228	-
HCM Lane V/C Ratio	0.01	-	-	0.006	-
HCM Control Delay (s/veh)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	6	2	3	10	1	2	65	2	1	194	57
Future Vol, veh/h	33	6	2	3	10	1	2	65	2	1	194	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	2	2
Mvmt Flow	37	7	2	3	11	1	2	72	2	1	216	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	332	328	247	299	359	73	279	0	0	74	0	0
Stage 1	249	249	-	78	78	-	-	-	-	-	-	-
Stage 2	82	79	-	221	281	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	626	594	796	657	571	994	1295	-	-	1538	-	-
Stage 1	759	704	-	936	834	-	-	-	-	-	-	-
Stage 2	931	833	-	786	682	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	611	592	796	646	569	994	1295	-	-	1538	-	-
Mov Cap-2 Maneuver	611	592	-	646	569	-	-	-	-	-	-	-
Stage 1	758	703	-	934	833	-	-	-	-	-	-	-
Stage 2	916	832	-	776	681	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.32	11.13	0.23	0.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	52	-	-	615	603	7	-	-
HCM Lane V/C Ratio	0.002	-	-	0.074	0.026	0.001	-	-
HCM Control Delay (s/veh)	7.8	0	-	11.3	11.1	7.3	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

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	1	7	4	7	5	2	1	21	2	0	50	3
Future Vol, veh/h	1	7	4	7	5	2	1	21	2	0	50	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	0	0
Mvmt Flow	1	8	4	8	5	2	1	23	2	0	54	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	84	83	56	84	84	24	58	0	0	25	0	0
Stage 1	56	56	-	26	26	-	-	-	-	-	-	-
Stage 2	28	27	-	58	58	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	908	811	1016	907	810	1058	1560	-	-	1603	-	-
Stage 1	961	852	-	997	877	-	-	-	-	-	-	-
Stage 2	995	877	-	959	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	899	810	1016	894	810	1058	1560	-	-	1603	-	-
Mov Cap-2 Maneuver	899	810	-	894	810	-	-	-	-	-	-	-
Stage 1	961	852	-	996	877	-	-	-	-	-	-	-
Stage 2	986	876	-	946	851	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.17	9.16	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	74	-	-	877	881	1603	-	-
HCM Lane V/C Ratio	0.001	-	-	0.015	0.017	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	9.2	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	15	1	0	26	0	3	1	1	1	1	0
Future Vol, veh/h	0	15	1	0	26	0	3	1	1	1	1	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	19	1	0	34	0	4	1	1	1	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	34	0	0	21	0	0	55	54	20	54	55	34
Stage 1	-	-	-	-	-	-	20	20	-	34	34	-
Stage 2	-	-	-	-	-	-	34	34	-	20	21	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1591	-	-	1608	-	-	948	841	1063	949	841	1045
Stage 1	-	-	-	-	-	-	1004	883	-	987	871	-
Stage 2	-	-	-	-	-	-	987	871	-	1004	882	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1591	-	-	1608	-	-	947	841	1063	947	841	1045
Mov Cap-2 Maneuver	-	-	-	-	-	-	947	841	-	947	841	-
Stage 1	-	-	-	-	-	-	1004	883	-	987	871	-
Stage 2	-	-	-	-	-	-	985	871	-	1001	882	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	8.84	9.05
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	944	1591	-	-	1608	-	-	890
HCM Lane V/C Ratio	0.007	-	-	-	-	-	-	0.003
HCM Control Delay (s/veh)	8.8	0	-	-	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	12	1	97	174	1
Future Vol, veh/h	4	12	1	97	174	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	4	3	0
Mvmt Flow	5	16	1	131	235	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	370	236	236	0	-	0
Stage 1	236	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	635	808	1343	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	634	808	1343	-	-	-
Mov Cap-2 Maneuver	634	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.9	0.08	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	18	-	756	-	-
HCM Lane V/C Ratio	0.001	-	0.029	-	-
HCM Control Delay (s/veh)	7.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	7	10	55	1	12	2	30	35	41	105	1
Future Vol, veh/h	0	7	10	55	1	12	2	30	35	41	105	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	2	0	25	0	0	3	0	2	0
Mvmt Flow	0	8	11	63	1	14	2	34	40	47	119	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	252	291	120	275	272	54	120	0	0	74	0	0
Stage 1	213	213	-	59	59	-	-	-	-	-	-	-
Stage 2	39	78	-	216	214	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.5	6.45	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4	3.525	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	705	622	937	677	638	952	1480	-	-	1539	-	-
Stage 1	794	730	-	953	850	-	-	-	-	-	-	-
Stage 2	981	834	-	786	729	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	670	601	937	638	616	952	1480	-	-	1539	-	-
Mov Cap-2 Maneuver	670	601	-	638	616	-	-	-	-	-	-	-
Stage 1	768	706	-	952	849	-	-	-	-	-	-	-
Stage 2	964	832	-	743	706	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.85	11	0.22	2.07
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	49	-	-	762	677	501	-	-
HCM Lane V/C Ratio	0.002	-	-	0.025	0.114	0.03	-	-
HCM Control Delay (s/veh)	7.4	0	-	9.8	11	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	11	18	82	0	20
Future Vol, veh/h	134	11	18	82	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	1	0	0	7	0	5
Mvmt Flow	189	15	25	115	0	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	204	0	363	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	-	-	4.1	-	6.4	6.25
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.345
Pot Cap-1 Maneuver	-	-	1379	-	641	837
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1379	-	628	837
Mov Cap-2 Maneuver	-	-	-	-	628	-
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	851	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.38	9.45
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	837	-	-	324	-
HCM Lane V/C Ratio	0.034	-	-	0.018	-
HCM Control Delay (s/veh)	9.4	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	196	14	45	84	2	10	14	51	5	37	9
Future Vol, veh/h	2	196	14	45	84	2	10	14	51	5	37	9
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	1	7	4	7	0	20	0	0	0	3	11
Mvmt Flow	3	258	18	59	111	3	13	18	67	7	49	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	113	0	0	276	0	0	526	504	267	503	512	112
Stage 1	-	-	-	-	-	-	272	272	-	230	230	-
Stage 2	-	-	-	-	-	-	253	232	-	272	282	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.3	6.5	6.2	7.1	6.53	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.53	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.68	4	3.3	3.5	4.027	3.399
Pot Cap-1 Maneuver	1489	-	-	1275	-	-	436	473	776	483	464	917
Stage 1	-	-	-	-	-	-	696	688	-	777	712	-
Stage 2	-	-	-	-	-	-	713	717	-	738	676	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1489	-	-	1275	-	-	365	449	776	402	440	917
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	449	-	402	440	-
Stage 1	-	-	-	-	-	-	694	687	-	739	677	-
Stage 2	-	-	-	-	-	-	621	681	-	655	675	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.07	2.73	12.13	13.72
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	603	17	-	-	615	-	-	480
HCM Lane V/C Ratio	0.164	0.002	-	-	0.046	-	-	0.14
HCM Control Delay (s/veh)	12.1	7.4	0	-	8	0	-	13.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	297	86	30	139	46
Future Vol, veh/h	28	297	86	30	139	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	1	12	7	0	7
Mvmt Flow	35	371	108	38	174	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	455	203	231	0	-	0
Stage 1	203	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.22	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.308	-	-	-
Pot Cap-1 Maneuver	559	841	1280	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	512	841	1280	-	-	-
Mov Cap-2 Maneuver	512	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	785	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.62	5.98	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1280	-	512	841	-	-
HCM Lane V/C Ratio	0.084	-	0.068	0.442	-	-
HCM Control Delay (s/veh)	8.1	-	12.5	12.6	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	2.3	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	62	23	22	116	0
Future Vol, veh/h	0	62	23	22	116	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	4	9	2	0
Mvmt Flow	0	69	26	24	129	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	204	129	129	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.4	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	789	921	1445	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	775	921	1445	-	-	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.22	3.85	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1445	-	921	-	-
HCM Lane V/C Ratio	0.018	-	0.075	-	-
HCM Control Delay (s/veh)	7.5	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	3	4	9	2
Future Vol, veh/h	0	5	3	4	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	20	0	0	0	50
Mvmt Flow	0	6	4	5	11	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	24	12	13	0	-	0
Stage 1	12	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.4	6.4	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.48	2.2	-	-	-
Pot Cap-1 Maneuver	997	1018	1618	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1016	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	994	1018	1618	-	-	-
Mov Cap-2 Maneuver	994	-	-	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	1016	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.56	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	771	-	1018	-	-
HCM Lane V/C Ratio	0.002	-	0.006	-	-
HCM Control Delay (s/veh)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	36	64	12	10	56
Future Vol, veh/h	4	36	64	12	10	56
Conflicting Peds, #/hr	0	6	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	6	50	89	17	14	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	203	103	0	0	106	0
Stage 1	97	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	790	957	-	-	1498	-
Stage 1	932	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	783	952	-	-	1498	-
Mov Cap-2 Maneuver	783	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	915	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.06	0	1.13
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	783	952	1498	-
HCM Lane V/C Ratio	-	-	0.007	0.053	0.009	-
HCM Control Delay (s/veh)	-	-	9.6	9	7.4	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0	-

Lanes, Volumes, Timings
60: 15th St N & River Dr N

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	390	78	13	144	258	108	301	49	405	278	9
Future Volume (vph)	17	390	78	13	144	258	108	301	49	405	278	9
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	100		500	250		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1484	1651	1473	1080	1535	1403	1446	3138	0	0	3115	0
Flt Permitted	0.612			0.228			0.950				0.972	
Satd. Flow (perm)	956	1651	1473	259	1535	1403	1446	3138	0	0	3115	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92			137		14			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		526			805			584			552	
Travel Time (s)		12.0			18.3			13.3			12.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	12%	6%	1%	54%	14%	6%	15%	4%	2%	4%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	459	92	15	169	304	127	412	0	0	814	0
Turn Type	Perm	NA	Perm	Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases		8			4	4 2	1	1		2	2	
Permitted Phases	8		8	4								
Total Split (s)	46.0	46.0	46.0	46.0	46.0		32.0	32.0		42.0	42.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0			5.0	
Act Effct Green (s)	33.2	33.2	33.2	33.2	33.2	71.4	19.3	19.3			33.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.71	0.19	0.19			0.33	
v/c Ratio	0.06	0.84	0.16	0.17	0.33	0.29	0.46	0.67			0.91dl	
Control Delay (s/veh)	26.2	48.3	6.4	33.0	29.1	3.8	44.8	44.2			39.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay (s/veh)	26.2	48.3	6.4	33.0	29.1	3.8	44.8	44.2			39.5	
LOS	C	D	A	C	C	A	D	D			D	
Approach Delay (s/veh)		40.9			13.5			44.4			39.6	
Approach LOS		D			B			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 101.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 35.7 Intersection LOS: D

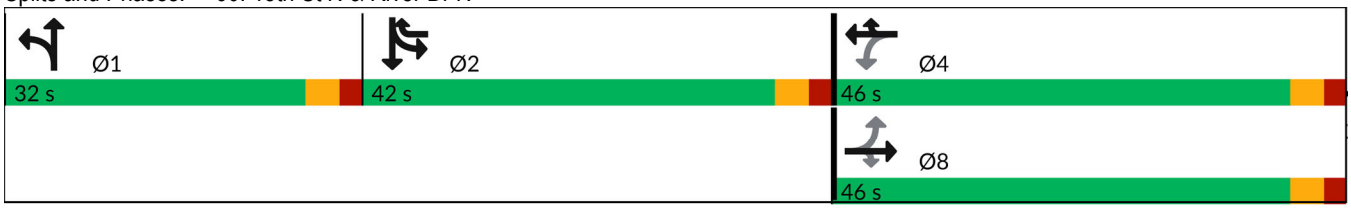
Intersection Capacity Utilization 69.9% ICU Level of Service C

Analysis Period (min) 15

Description: 15th St N/River Dr N

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 60: 15th St N & River Dr N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	377	0	0	0	0	0	433	71	0	0	0
Future Volume (veh/h)	42	377	0	0	0	0	0	433	71	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1654	1736	0				0	1723	1750			
Adj Flow Rate, veh/h	50	449	0				0	515	85			
Peak Hour Factor	0.84	0.84	0.84				0.84	0.84	0.84			
Percent Heavy Veh, %	7	1	0				0	2	0			
Cap, veh/h	112	1009	0				0	945	155			
Arrive On Green	0.33	0.33	0.00				0.00	0.34	0.34			
Sat Flow, veh/h	337	3119	0				0	2900	462			
Grp Volume(v), veh/h	255	244	0				0	299	301			
Grp Sat Flow(s),veh/h/ln	1719	1650	0				0	1637	1639			
Q Serve(g_s), s	3.4	3.4	0.0				0.0	4.4	4.4			
Cycle Q Clear(g_c), s	3.4	3.4	0.0				0.0	4.4	4.4			
Prop In Lane	0.20		0.00				0.00		0.28			
Lane Grp Cap(c), veh/h	572	549	0				0	550	551			
V/C Ratio(X)	0.45	0.44	0.00				0.00	0.54	0.55			
Avail Cap(c_a), veh/h	2274	2182	0				0	1168	1170			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	7.7	7.7	0.0				0.0	8.0	8.0			
Incr Delay (d2), s/veh	0.5	0.6	0.0				0.0	0.8	0.9			
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	0.8	0.0				0.0	1.1	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	8.3	0.0				0.0	8.8	8.8			
LnGrp LOS	A	A						A	A			
Approach Vol, veh/h		499						600				
Approach Delay, s/veh		8.3						8.8				
Approach LOS		A						A				

Timer - Assigned Phs	2	4
Phs Duration (G+Y+Rc), s	14.7	14.8
Change Period (Y+Rc), s	4.9	4.9
Max Green Setting (Gmax), s	39.1	21.1
Max Q Clear Time (g_c+I1), s	5.4	6.4
Green Ext Time (p_c), s	3.2	3.2

Intersection Summary	
HCM 7th Control Delay, s/veh	8.6
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	33.6

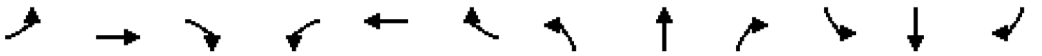
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	1274	35	45	1197	69	4	9	48	14	11	40
Future Vol, veh/h	34	1274	35	45	1197	69	4	9	48	14	11	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	4	4	4
Mvmt Flow	39	1448	40	51	1360	78	5	10	55	16	13	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1439	0	0	1488	0	0	2198	3086	744	2163	3066	719
Stage 1	-	-	-	-	-	-	1545	1545	-	1502	1502	-
Stage 2	-	-	-	-	-	-	653	1541	-	661	1565	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.4	6.5	7.1	6.48	6.58	7.18
Critical Hdwy Stg 1	-	-	-	-	-	-	7.3	5.5	-	7.38	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.78	5.58	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.8	4	3.9	3.84	4.04	3.94
Pot Cap-1 Maneuver	239	-	-	226	-	-	49	12	310	49	~ 12	314
Stage 1	-	-	-	-	-	-	84	178	-	87	180	-
Stage 2	-	-	-	-	-	-	389	179	-	376	167	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	239	-	-	226	-	-	27	~ 8	310	26	~ 8	314
Mov Cap-2 Maneuver	-	-	-	-	-	-	27	~ 8	-	26	~ 8	-
Stage 1	-	-	-	-	-	-	70	149	-	67	139	-
Stage 2	-	-	-	-	-	-	234	138	-	242	140	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.58	0.88	$ 524.61	$ 914.97
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	42	239	-	-	226	-	-	31
HCM Lane V/C Ratio	1.643	0.162	-	-	0.226	-	-	2.406
HCM Control Delay (s/veh)	$ 524.6	22.9	-	-	25.5	-	-	$ 915
HCM Lane LOS	F	C	-	-	D	-	-	F
HCM 95th %tile Q(veh)	7.1	0.6	-	-	0.8	-	-	8.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	235	79	35	284	70	45	147	50	86	191	42
Future Volume (veh/h)	6	235	79	35	284	70	45	147	50	86	191	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	7	270	91	40	326	80	52	169	57	99	220	48
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	413	708	233	430	765	185	202	372	111	254	356	69
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	915	2455	809	953	2653	642	175	1109	331	298	1061	205
Grp Volume(v), veh/h	7	181	180	40	203	203	278	0	0	367	0	0
Grp Sat Flow(s),veh/h/ln	915	1663	1601	953	1663	1632	1614	0	0	1564	0	0
Q Serve(g_s), s	0.2	2.6	2.7	1.0	2.9	3.0	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	3.2	2.6	2.7	3.7	2.9	3.0	3.9	0.0	0.0	5.7	0.0	0.0
Prop In Lane	1.00		0.51	1.00		0.39	0.19		0.21	0.27		0.13
Lane Grp Cap(c), veh/h	413	479	462	430	479	470	686	0	0	679	0	0
V/C Ratio(X)	0.02	0.38	0.39	0.09	0.42	0.43	0.41	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	1309	2109	2031	1365	2109	2070	3756	0	0	3682	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.9	8.5	8.5	10.0	8.6	8.6	7.9	0.0	0.0	8.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.1	0.6	0.6	0.4	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.7	0.2	0.8	0.8	0.9	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.9	9.0	9.0	10.1	9.2	9.3	8.3	0.0	0.0	9.1	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A			A		
Approach Vol, veh/h		368			446			278			367	
Approach Delay, s/veh		9.0			9.3			8.3			9.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.8		16.0		13.8		16.0				
Change Period (Y+Rc), s		5.2		6.0		5.2		6.0				
Max Green Setting (Gmax), s		37.8		71.0		37.8		71.0				
Max Q Clear Time (g_c+I1), s		5.2		7.7		5.7		5.9				
Green Ext Time (p_c), s		2.3		2.7		2.8		2.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.0									
HCM 7th LOS			A									

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

PM PEAK PERIOD

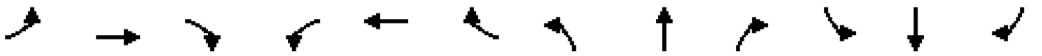
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	72	18	29	9	10	19	11	214	4	32	373	106
Future Vol, veh/h	72	18	29	9	10	19	11	214	4	32	373	106
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	0	3	0	10	0	0	3	25	3	1	1
Mvmt Flow	80	20	32	10	11	21	12	238	4	36	414	118

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	812	812	473	761	869	241	532	0	0	243	0	0
Stage 1	544	544	-	265	265	-	-	-	-	-	-	-
Stage 2	268	268	-	496	603	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.23	7.1	6.6	6.2	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.327	3.5	4.09	3.3	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	295	315	589	325	282	803	1046	-	-	1317	-	-
Stage 1	519	522	-	744	675	-	-	-	-	-	-	-
Stage 2	733	691	-	560	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	262	299	589	272	267	802	1046	-	-	1316	-	-
Mov Cap-2 Maneuver	262	299	-	272	267	-	-	-	-	-	-	-
Stage 1	499	502	-	734	665	-	-	-	-	-	-	-
Stage 2	693	681	-	488	457	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	25.06	14.97	0.41	0.49
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	86	-	-	309	403	108	-	-
HCM Lane V/C Ratio	0.012	-	-	0.428	0.105	0.027	-	-
HCM Control Delay (s/veh)	8.5	0	-	25.1	15	7.8	0	-
HCM Lane LOS	A	A	-	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.1	0.3	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	626	59	546	876	0	52	151	254	151	357	334
Future Volume (veh/h)	189	626	59	546	876	0	52	151	254	151	357	334
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1682	1682	1750	1723	1750	1723	1736	1750	1750	1736	1723
Adj Flow Rate, veh/h	201	666	63	581	932	0	55	161	270	161	380	355
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	5	5	0	2	0	2	1	0	0	1	2
Cap, veh/h	212	811	558	588	1006	456	0	607	541	250	543	426
Arrive On Green	0.13	0.25	0.25	0.18	0.31	0.00	0.14	0.18	0.18	0.15	0.16	0.16
Sat Flow, veh/h	1654	3195	1425	3233	3273	1483	0	3299	1476	1667	3299	1452
Grp Volume(v), veh/h	201	666	63	581	932	0	0	161	270	161	380	355
Grp Sat Flow(s),veh/h/ln	1654	1598	1425	1617	1637	1483	0	1650	1476	1667	1650	1452
Q Serve(g_s), s	11.3	18.4	1.1	16.7	25.8	0.0	0.0	3.9	13.3	8.5	10.2	11.4
Cycle Q Clear(g_c), s	11.3	18.4	1.1	16.7	25.8	0.0	0.0	3.9	13.3	8.5	10.2	11.4
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	212	811	558	588	1006	456	0	607	541	250	543	426
V/C Ratio(X)	0.95	0.82	0.11	0.99	0.93	0.00	0.00	0.27	0.50	0.64	0.70	0.83
Avail Cap(c_a), veh/h	212	1180	722	588	1384	627	0	1236	823	749	1236	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	32.8	5.5	38.1	31.3	0.0	0.0	32.7	23.0	37.4	36.8	11.3
Incr Delay (d2), s/veh	46.2	2.0	0.0	33.7	7.3	0.0	0.0	0.2	0.7	1.0	0.6	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	7.1	6.9	0.5	9.0	10.4	0.0	0.0	1.6	4.7	3.4	4.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	86.6	34.8	5.6	71.8	38.6	0.0	0.0	32.9	23.7	38.4	37.5	12.9
LnGrp LOS	F	C	A	E	D			C	C	D	D	B
Approach Vol, veh/h		930			1513			431			896	
Approach Delay, s/veh		44.0			51.4			27.1			27.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	30.2	18.8	21.4	18.0	35.2	17.0	23.2
Change Period (Y+Rc), s	6.0	6.5	6.0	6.0	6.0	6.5	3.0	6.0
Max Green Setting (Gmax), s	17.0	34.5	39.0	35.0	12.0	39.5	42.0	35.0
Max Q Clear Time (g_c+I1), s	18.7	20.4	0.0	13.4	13.3	27.8	10.5	15.3
Green Ext Time (p_c), s	0.0	0.7	0.0	0.4	0.0	1.0	0.0	1.9

Intersection Summary	
HCM 7th Control Delay, s/veh	41.2
HCM 7th LOS	D

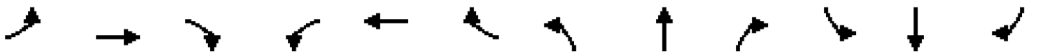
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	16	70	2	1	6	460	197	6	749	19
Future Vol, veh/h	4	1	16	70	2	1	6	460	197	6	749	19
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	1	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	0	0	0	2	3	17	1	0
Mvmt Flow	4	1	16	72	2	1	6	474	203	6	772	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1049	1489	400	988	1397	340	796	0	0	678	0	0
Stage 1	798	798	-	589	589	-	-	-	-	-	-	-
Stage 2	251	691	-	399	808	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.9	4.1	-	-	4.44	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.3	2.2	-	-	2.37	-	-
Pot Cap-1 Maneuver	185	125	605	203	142	662	835	-	-	816	-	-
Stage 1	350	401	-	464	499	-	-	-	-	-	-	-
Stage 2	737	449	-	601	397	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	123	603	193	139	661	832	-	-	815	-	-
Mov Cap-2 Maneuver	178	123	-	193	139	-	-	-	-	-	-	-
Stage 1	346	396	-	460	494	-	-	-	-	-	-	-
Stage 2	728	445	-	579	392	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.41	35.25	0.08	0.07
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	832	-	-	368	192	815	-	-
HCM Lane V/C Ratio	0.007	-	-	0.059	0.391	0.008	-	-
HCM Control Delay (s/veh)	9.4	-	-	15.4	35.2	9.5	-	-
HCM Lane LOS	A	-	-	C	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.7	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	476	4	12	612	90	7	15	11	74	20	43
Future Volume (veh/h)	48	476	4	12	612	90	7	15	11	74	20	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1682	1750	1750	1695	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	53	529	4	13	680	100	8	17	12	82	22	48
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	5	0	0	4	0	0	0	0	0	0	0
Cap, veh/h	418	1374	10	519	1191	175	195	170	98	328	63	86
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	638	3250	25	815	2817	414	174	899	515	648	333	453
Grp Volume(v), veh/h	53	260	273	13	388	392	37	0	0	152	0	0
Grp Sat Flow(s),veh/h/ln	638	1598	1677	815	1611	1620	1588	0	0	1433	0	0
Q Serve(g_s), s	1.9	3.0	3.0	0.3	5.0	5.0	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	6.8	3.0	3.0	3.3	5.0	5.0	0.5	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.26	0.22		0.32	0.54		0.32
Lane Grp Cap(c), veh/h	418	675	709	519	681	685	463	0	0	476	0	0
V/C Ratio(X)	0.13	0.39	0.39	0.03	0.57	0.57	0.08	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	1067	2302	2416	1348	2320	2334	1891	0	0	1785	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.6	5.4	5.4	6.5	5.9	6.0	9.1	0.0	0.0	9.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.0	0.3	0.3	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.5	0.0	0.8	0.8	0.1	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.6	5.5	5.5	6.5	6.2	6.2	9.1	0.0	0.0	10.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A			B		
Approach Vol, veh/h		586			793			37			152	
Approach Delay, s/veh		5.8			6.2			9.1			10.0	
Approach LOS		A			A			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.4		10.6		16.4		10.6				
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5				
Max Green Setting (Gmax), s		39.0		30.5		39.0		30.5				
Max Q Clear Time (g_c+I1), s		8.8		2.5		7.0		4.5				
Green Ext Time (p_c), s		2.5		0.1		3.5		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			6.5									
HCM 7th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	439	67	375	610	62	87	265	83	93	315	29
Future Volume (veh/h)	45	439	67	375	610	62	87	265	83	93	315	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		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	1750	1668	1750	1723	1709	1709	1682	1736	1695	1723	1736	1709
Adj Flow Rate, veh/h	47	457	70	391	635	65	91	276	86	97	328	30
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	2	3	3	5	1	4	2	1	3
Cap, veh/h	315	640	98	461	1083	111	299	446	136	300	559	51
Arrive On Green	0.04	0.23	0.23	0.17	0.36	0.36	0.06	0.18	0.18	0.07	0.18	0.18
Sat Flow, veh/h	1667	2756	420	1641	2973	304	1602	2488	759	1641	3057	278
Grp Volume(v), veh/h	47	262	265	391	346	354	91	181	181	97	176	182
Grp Sat Flow(s),veh/h/ln	1667	1585	1591	1641	1624	1654	1602	1650	1598	1641	1650	1686
Q Serve(g_s), s	1.3	9.0	9.1	10.0	10.2	10.3	2.7	6.0	6.2	2.8	5.8	5.9
Cycle Q Clear(g_c), s	1.3	9.0	9.1	10.0	10.2	10.3	2.7	6.0	6.2	2.8	5.8	5.9
Prop In Lane	1.00		0.26	1.00		0.18	1.00		0.48	1.00		0.16
Lane Grp Cap(c), veh/h	315	368	370	461	592	603	299	296	286	300	302	308
V/C Ratio(X)	0.15	0.71	0.72	0.85	0.59	0.59	0.30	0.61	0.63	0.32	0.58	0.59
Avail Cap(c_a), veh/h	1573	2228	2237	461	1271	1295	603	847	821	605	847	866
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	21.0	21.0	14.6	15.3	15.3	18.4	22.5	22.6	18.3	22.2	22.2
Incr Delay (d2), s/veh	0.2	1.0	1.0	13.6	0.9	0.9	0.4	2.1	2.3	0.6	1.8	1.8
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	0.5	3.2	3.2	5.0	3.5	3.6	1.0	2.3	2.4	1.0	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.6	21.9	22.0	28.2	16.2	16.2	18.8	24.5	24.9	18.9	24.0	24.0
LnGrp LOS	B	C	C	C	B	B	B	C	C	B	C	C
Approach Vol, veh/h		574			1091			453			455	
Approach Delay, s/veh		21.5			20.5			23.5			22.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	19.3	8.7	16.4	7.2	27.1	9.0	16.1
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5
Max Green Setting (Gmax), s	10.0	83.5	15.0	30.5	47.0	46.5	15.0	30.5
Max Q Clear Time (g_c+I1), s	12.0	11.1	4.7	7.9	3.3	12.3	4.8	8.2
Green Ext Time (p_c), s	0.0	2.2	0.1	2.1	0.1	2.2	0.1	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	21.7
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	581	7	67	845	650	6	98	116	512	48	255
Future Volume (veh/h)	126	581	7	67	845	650	6	98	116	512	48	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1627	1709	1750	1750	1723	1736	1750	1736	1709	1736	1750	1709
Adj Flow Rate, veh/h	133	612	7	71	889	684	6	103	122	539	51	268
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	3	0	0	2	1	0	1	3	1	0	3
Cap, veh/h	228	1617	18	399	1526	684	242	187	156	609	267	220
Arrive On Green	0.06	0.49	0.49	0.04	0.47	0.47	0.14	0.11	0.11	0.19	0.15	0.15
Sat Flow, veh/h	1550	3288	38	1667	3273	1468	1667	1736	1444	3208	1750	1445
Grp Volume(v), veh/h	133	302	317	71	889	684	6	103	122	539	51	268
Grp Sat Flow(s),veh/h/ln	1550	1624	1702	1667	1637	1468	1667	1736	1444	1604	1750	1445
Q Serve(g_s), s	5.6	14.6	14.6	2.8	25.0	58.5	0.4	7.1	10.3	20.5	3.2	15.8
Cycle Q Clear(g_c), s	5.6	14.6	14.6	2.8	25.0	58.5	0.4	7.1	10.3	20.5	3.2	15.8
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	798	837	399	1526	684	242	187	156	609	267	220
V/C Ratio(X)	0.58	0.38	0.38	0.18	0.58	1.00	0.02	0.55	0.78	0.89	0.19	1.22
Avail Cap(c_a), veh/h	318	798	837	539	1526	684	458	477	397	767	418	346
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	20.0	19.9	19.9	16.8	24.5	33.5	46.0	53.1	54.6	49.5	46.4	36.2
Incr Delay (d2), s/veh	2.4	0.3	0.3	0.2	0.6	34.3	0.0	2.5	8.4	10.2	0.3	121.1
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	2.1	5.6	5.8	1.1	9.7	26.6	0.2	3.2	4.1	9.1	1.4	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.4	20.2	20.2	17.1	25.1	67.8	46.1	55.6	63.0	59.7	46.8	157.2
LnGrp LOS	C	C	C	B	C	E	D	E	E	E	D	F
Approach Vol, veh/h		752			1644			231			858	
Approach Delay, s/veh		20.6			42.5			59.3			89.4	
Approach LOS		C			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	67.2	23.7	25.1	12.7	64.0	29.8	19.0
Change Period (Y+Rc), s	5.0	5.5	5.5	6.0	5.0	5.5	6.0	5.5
Max Green Setting (Gmax), s	15.0	58.5	34.5	30.0	15.0	58.5	30.0	34.5
Max Q Clear Time (g_c+I1), s	4.8	16.6	2.4	17.8	7.6	60.5	22.5	12.3
Green Ext Time (p_c), s	0.1	4.3	0.0	0.9	0.2	0.0	1.3	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	50.4
HCM 7th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	327	36	198	547	28	36	198	169	44	180	74
Future Volume (veh/h)	62	327	36	198	547	28	36	198	169	44	180	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1668	1668	1723	1723	1750	1709	1736	1736	1750	1736	1750
Adj Flow Rate, veh/h	64	337	37	204	564	29	37	204	174	45	186	76
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	6	6	2	2	0	3	1	1	0	1	0
Cap, veh/h	387	744	81	510	1026	53	285	464	390	314	312	128
Arrive On Green	0.06	0.26	0.26	0.13	0.32	0.32	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1628	2882	314	1641	3167	163	1016	1736	1458	936	1168	477
Grp Volume(v), veh/h	64	184	190	204	291	302	37	204	174	45	0	262
Grp Sat Flow(s),veh/h/ln	1628	1585	1612	1641	1637	1693	1016	1736	1458	936	0	1645
Q Serve(g_s), s	1.3	4.5	4.6	4.1	6.8	6.8	1.5	4.5	4.6	2.0	0.0	6.5
Cycle Q Clear(g_c), s	1.3	4.5	4.6	4.1	6.8	6.8	8.0	4.5	4.6	6.5	0.0	6.5
Prop In Lane	1.00		0.19	1.00		0.10	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	387	409	416	510	530	549	285	464	390	314	0	440
V/C Ratio(X)	0.17	0.45	0.46	0.40	0.55	0.55	0.13	0.44	0.45	0.14	0.00	0.60
Avail Cap(c_a), veh/h	708	1533	1559	726	1584	1639	643	1075	903	643	0	1019
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	0.00	1.00
Uniform Delay (d), s/veh	11.4	14.5	14.5	10.3	12.9	12.9	18.3	14.1	14.2	16.8	0.0	14.9
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.5	0.9	0.9	0.2	0.7	0.8	0.2	0.0	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	0.4	1.5	1.5	1.2	2.2	2.3	0.3	1.6	1.4	0.4	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.6	15.3	15.3	10.8	13.8	13.8	18.5	14.8	15.0	17.0	0.0	16.1
LnGrp LOS	B	B	B	B	B	B	B	B	B	B		B
Approach Vol, veh/h		438			797			415			307	
Approach Delay, s/veh		14.7			13.0			15.2			16.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	17.0		18.6	7.8	20.1		18.6				
Change Period (Y+Rc), s	5.0	5.0		6.2	5.0	5.0		6.2				
Max Green Setting (Gmax), s	12.0	45.0		28.8	12.0	45.0		28.8				
Max Q Clear Time (g_c+I1), s	6.1	6.6		8.5	3.3	8.8		10.0				
Green Ext Time (p_c), s	0.3	2.4		1.8	0.1	4.0		1.8				

Intersection Summary		
HCM 7th Control Delay, s/veh	14.4	
HCM 7th LOS	B	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	347	140	227	603	576	465
Future Volume (veh/h)	347	140	227	603	576	465
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1682	1750	1750	1736	1736	1709
Adj Flow Rate, veh/h	271	279	252	670	640	517
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	0	0	1	1	3
Cap, veh/h	345	319	404	2162	1671	1045
Arrive On Green	0.22	0.22	0.09	0.66	0.51	0.51
Sat Flow, veh/h	1602	1483	1667	3386	3386	1448
Grp Volume(v), veh/h	271	279	252	670	640	517
Grp Sat Flow(s),veh/h/ln	1602	1483	1667	1650	1650	1448
Q Serve(g_s), s	15.1	17.1	6.4	8.3	11.2	14.6
Cycle Q Clear(g_c), s	15.1	17.1	6.4	8.3	11.2	14.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	345	319	404	2162	1671	1045
V/C Ratio(X)	0.79	0.87	0.62	0.31	0.38	0.49
Avail Cap(c_a), veh/h	442	409	438	2162	1671	1045
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.0	35.8	10.2	7.0	14.3	5.7
Incr Delay (d2), s/veh	7.1	15.5	2.4	0.4	0.1	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	7.4	2.4	2.7	4.0	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	42.0	51.2	12.6	7.4	14.4	6.0
LnGrp LOS	D	D	B	A	B	A
Approach Vol, veh/h	550			922	1157	
Approach Delay, s/veh	46.7			8.8	10.7	
Approach LOS	D			A	B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.1	53.9			68.0	26.3
Change Period (Y+Rc), s	5.5	6.2			6.2	6.0
Max Green Setting (Gmax), s	10.5	45.8			61.8	26.0
Max Q Clear Time (g_c+I1), s	8.4	16.6			10.3	19.1
Green Ext Time (p_c), s	0.2	7.3			5.5	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	17.6
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	11	97	30	10	3	159	752	29	13	912	60
Future Volume (veh/h)	151	11	97	30	10	3	159	752	29	13	912	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1736	1750	1750	1750	1750	1709	1750	1750	1723	1750
Adj Flow Rate, veh/h	159	12	102	32	11	3	167	792	31	14	960	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0	0	3	0	0	2	0
Cap, veh/h	275	25	213	184	209	57	402	2277	89	460	1913	126
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.06	0.71	0.71	0.61	0.61	0.61
Sat Flow, veh/h	1310	159	1349	1196	1324	361	1667	3186	125	622	3118	205
Grp Volume(v), veh/h	159	0	114	32	0	14	167	404	419	14	504	519
Grp Sat Flow(s),veh/h/ln	1310	0	1507	1196	0	1685	1667	1624	1687	622	1637	1686
Q Serve(g_s), s	10.9	0.0	6.4	2.3	0.0	0.7	3.2	8.7	8.7	0.8	15.9	15.9
Cycle Q Clear(g_c), s	11.5	0.0	6.4	8.7	0.0	0.7	3.2	8.7	8.7	0.8	15.9	15.9
Prop In Lane	1.00		0.89	1.00		0.21	1.00		0.07	1.00		0.12
Lane Grp Cap(c), veh/h	275	0	238	184	0	266	402	1161	1206	460	1004	1034
V/C Ratio(X)	0.58	0.00	0.48	0.17	0.00	0.05	0.41	0.35	0.35	0.03	0.50	0.50
Avail Cap(c_a), veh/h	521	0	521	409	0	582	576	1161	1206	460	1004	1034
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	38.0	0.0	35.5	39.5	0.0	33.1	7.4	5.0	5.0	7.1	10.0	10.0
Incr Delay (d2), s/veh	1.9	0.0	1.5	0.4	0.0	0.1	0.7	0.8	0.8	0.0	0.4	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	3.6	0.0	2.4	0.7	0.0	0.3	1.0	2.6	2.7	0.1	5.2	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.9	0.0	37.0	39.9	0.0	33.2	8.1	5.8	5.8	7.1	10.4	10.4
LnGrp LOS	D		D	D		C	A	A	A	A	B	B
Approach Vol, veh/h		273			46			990			1037	
Approach Delay, s/veh		38.7			37.9			6.2			10.3	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.4	62.6		20.6		72.0		20.6				
Change Period (Y+Rc), s	4.0	5.8		6.0		5.8		6.0				
Max Green Setting (Gmax), s	15.6	47.2		32.0		66.2		32.0				
Max Q Clear Time (g_c+I1), s	5.2	17.9		10.7		10.7		13.5				
Green Ext Time (p_c), s	0.3	8.0		0.1		6.3		1.1				

Intersection Summary		
HCM 7th Control Delay, s/veh	12.4	
HCM 7th LOS	B	

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	1	44	50	0	48	0	776	40	13	877	0
Future Vol, veh/h	28	1	44	50	0	48	0	776	40	13	877	0
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	4	0	3	10	8	2	0
Mvmt Flow	29	1	46	52	0	50	0	808	42	14	914	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1347	1791	457	1314	1770	427	914	0	0	850	0	0
Stage 1	941	941	-	829	829	-	-	-	-	-	-	-
Stage 2	406	850	-	484	941	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.26	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.28	-	-
Pot Cap-1 Maneuver	112	82	556	118	84	570	754	-	-	747	-	-
Stage 1	287	345	-	335	388	-	-	-	-	-	-	-
Stage 2	598	380	-	538	345	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	80	556	105	83	569	754	-	-	747	-	-
Mov Cap-2 Maneuver	100	80	-	105	83	-	-	-	-	-	-	-
Stage 1	282	338	-	335	388	-	-	-	-	-	-	-
Stage 2	544	380	-	483	338	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	34.55	51.04	0	0.14
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	754	-	-	196	175	747	-	-
HCM Lane V/C Ratio	-	-	-	0.388	0.584	0.018	-	-
HCM Control Delay (s/veh)	0	-	-	34.5	51	9.9	-	-
HCM Lane LOS	A	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.7	3.1	0.1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	1	93	137	688	897	11
Future Vol, veh/h	1	93	137	688	897	11
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	4	2	9
Mvmt Flow	1	97	143	717	934	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1585	474	947	0	-	0
Stage 1	941	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	101	542	733	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	81	542	732	-	-	-
Mov Cap-2 Maneuver	81	-	-	-	-	-
Stage 1	277	-	-	-	-	-
Stage 2	490	-	-	-	-	-

Approach	SB	NE	SW
HCM Control Delay, s/v	13.71	1.84	0
HCM LOS	B		

Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	732	-	511	-	-
HCM Lane V/C Ratio	0.195	-	0.192	-	-
HCM Control Delay (s/veh)	11.1	-	13.7	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.7	-	0.7	-	-

Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	265	8	0	698	834	336
Future Volume (veh/h)	265	8	0	698	834	336
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1750	1750	0	1695	1723	1750
Adj Flow Rate, veh/h	282	9	0	743	887	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	4	2	0
Cap, veh/h	368	328	0	1578	1604	
Arrive On Green	0.22	0.22	0.00	0.49	0.49	0.00
Sat Flow, veh/h	1667	1483	0	3391	3359	1483
Grp Volume(v), veh/h	282	9	0	743	887	0
Grp Sat Flow(s),veh/h/ln	1667	1483	0	1611	1637	1483
Q Serve(g_s), s	6.5	0.2	0.0	6.2	7.7	0.0
Cycle Q Clear(g_c), s	6.5	0.2	0.0	6.2	7.7	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	368	328	0	1578	1604	
V/C Ratio(X)	0.77	0.03	0.00	0.47	0.55	
Avail Cap(c_a), veh/h	1919	1707	0	4040	4105	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.9	12.5	0.0	6.9	7.3	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.0	0.2	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	2.4	0.1	0.0	1.5	1.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	18.2	12.5	0.0	7.1	7.6	0.0
LnGrp LOS	B	B		A	A	
Approach Vol, veh/h	291			743	887	
Approach Delay, s/veh	18.1			7.1	7.6	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		25.8		15.0		25.8
Change Period (Y+Rc), s		5.8		6.0		5.8
Max Green Setting (Gmax), s		51.2		47.0		51.2
Max Q Clear Time (g_c+I1), s		8.2		8.5		9.7
Green Ext Time (p_c), s		6.2		0.9		7.7

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
13: Smelter Ave NE & 6th St NE

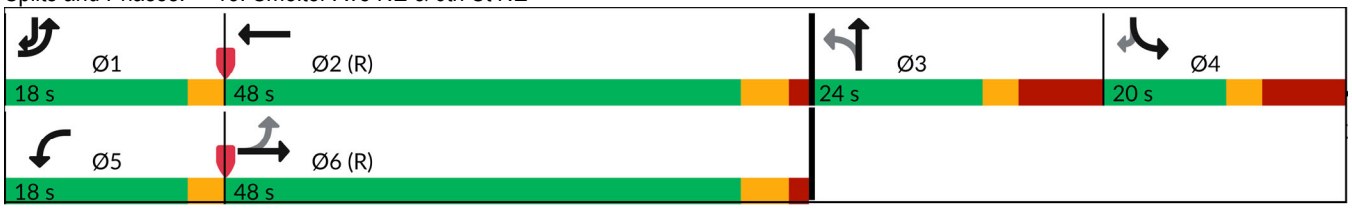
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	917	0	0	1179	35	0	0	0	59	0	58
Future Volume (vph)	40	917	0	0	1179	35	0	0	0	59	0	58
Ideal Flow (vphpl)	1750	1750	1900	1900	1750	1750	1900	1900	1900	1750	1900	1750
Storage Length (ft)	100		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1662	3197	0	1863	3089	0	0	1863	0	1646	0	1473
Flt Permitted	0.163									0.950		
Satd. Flow (perm)	285	3197	0	1863	3089	0	0	1863	0	1646	0	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3							123
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		801			175			190			247	
Travel Time (s)		18.2			4.0			4.3			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	2%	7%	14%	2%	2%	2%	1%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	997	0	0	1320	0	0	0	0	64	0	63
Turn Type	pm+pt	NA		Prot	NA					Prot		pm+ov
Protected Phases	1	6		5	2			3		4		1
Permitted Phases	6						3					4
Total Split (s)	18.0	48.0		18.0	48.0		24.0	24.0		20.0		18.0
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8		9.8		3.0
Act Effct Green (s)	90.7	89.2			81.8					9.6		22.4
Actuated g/C Ratio	0.82	0.81			0.74					0.09		0.20
v/c Ratio	0.13	0.38			0.57					0.44		0.15
Control Delay (s/veh)	3.7	4.4			10.9					56.5		0.8
Queue Delay	0.0	0.0			0.2					9.7		0.0
Total Delay (s/veh)	3.7	4.4			11.1					66.3		0.8
LOS	A	A			B					E		A
Approach Delay (s/veh)		4.4			11.1						33.8	
Approach LOS		A			B						C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 18 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay (s/veh): 9.5 Intersection LOS: A
Intersection Capacity Utilization 48.8% ICU Level of Service A
Analysis Period (min) 15
Description: Smelter Ave NE/6th St NE (1)

Splits and Phases: 13: Smelter Ave NE & 6th St NE



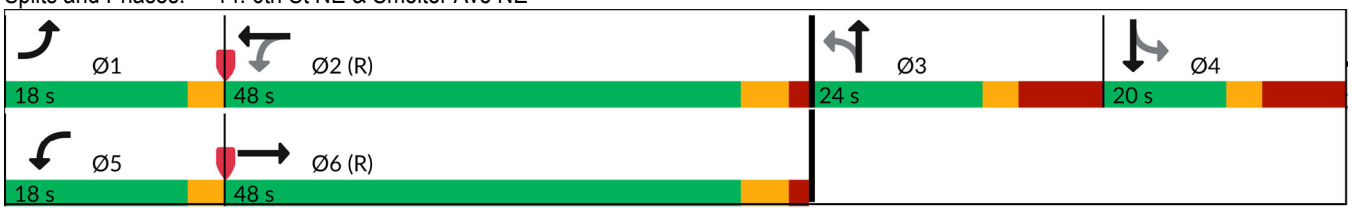
Lanes, Volumes, Timings
14: 6th St NE & Smelter Ave NE

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	922	28	43	1156	0	63	0	73	0	0	0
Future Volume (vph)	0	922	28	43	1156	0	63	0	73	0	0	0
Ideal Flow (vphpl)	1900	1750	1750	1750	1750	1900	1750	1900	1750	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1900	3216	0	1599	3260	0	0	1700	0	0	1900	0
Flt Permitted				0.230				0.950				
Satd. Flow (perm)	1900	3216	0	387	3260	0	0	1653	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						153				
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		175			675			200			159	
Travel Time (s)		4.0			15.3			5.5			3.6	
Confl. Peds. (#/hr)			2	2					1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	3%	0%	4%	2%	0%	0%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1021	0	46	1243	0	0	146	0	0	0	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA				
Protected Phases	1	6		5	2			3			4	
Permitted Phases				2			3			4		
Total Split (s)	18.0	48.0		18.0	48.0		24.0	24.0		20.0	20.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8			9.8	
Act Effct Green (s)		72.5		82.7	80.1			14.5				
Actuated g/C Ratio		0.66		0.75	0.73			0.13				
v/c Ratio		0.48		0.12	0.52			0.41				
Control Delay (s/veh)		7.7		4.3	7.5			10.2				
Queue Delay		0.2		0.0	0.1			0.1				
Total Delay (s/veh)		8.0		4.3	7.7			10.3				
LOS		A		A	A			B				
Approach Delay (s/veh)		8.0			7.7			10.3				
Approach LOS		A			A			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 4 (4%), Referenced to phase 2:WBTL and 6:EBT, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay (s/veh): 8.0		Intersection LOS: A	
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			
Description: Smelter Ave NE/6th St NE (2)			

Splits and Phases: 14: 6th St NE & Smelter Ave NE



Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	51	42	56	117	5	64	198	21	3	282	25
Future Vol, veh/h	8	51	42	56	117	5	64	198	21	3	282	25
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	100	100	-	150	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	7	2	100	0	17	10	0	5	0
Mvmt Flow	9	59	48	64	134	6	74	228	24	3	324	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	675	744	176	585	747	127	353	0	0	252	0	0
Stage 1	345	345	-	387	387	-	-	-	-	-	-	-
Stage 2	329	399	-	198	360	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.64	6.54	8.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.64	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.64	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.57	4.02	4.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	344	345	842	384	340	659	1217	-	-	1325	-	-
Stage 1	649	639	-	595	608	-	-	-	-	-	-	-
Stage 2	663	606	-	771	625	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	189	323	842	281	319	659	1217	-	-	1325	-	-
Mov Cap-2 Maneuver	189	323	-	281	319	-	-	-	-	-	-	-
Stage 1	647	638	-	559	571	-	-	-	-	-	-	-
Stage 2	472	569	-	658	623	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.12	23.06	1.84	0.09
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	295	842	281	319	659	31	-	-
HCM Lane V/C Ratio	0.06	-	-	0.23	0.057	0.229	0.422	0.009	0.003	-	-
HCM Control Delay (s/veh)	8.1	-	-	20.8	9.5	21.6	24.3	10.5	7.7	0	-
HCM Lane LOS	A	-	-	C	A	C	C	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.2	0.9	2	0	0	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	242	2	0	1	436	183	0	0	302	30
Future Vol, veh/h	4	0	242	2	0	1	436	183	0	0	302	30
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	-	-	Yield
Storage Length	-	-	-	-	-	-	250	-	-	50	-	350
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	0	0	0	1	5	0	0	8	0
Mvmt Flow	4	0	257	2	0	1	464	195	0	0	321	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1346	1444	321	1444	1444	97	321	0	0	195	0	0
Stage 1	321	321	-	1122	1122	-	-	-	-	-	-	-
Stage 2	1025	1122	-	321	321	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.23	7.3	6.5	6.9	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.319	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	120	133	719	102	133	946	1243	-	-	1390	-	-
Stage 1	695	655	-	223	284	-	-	-	-	-	-	-
Stage 2	255	284	-	695	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	84	719	41	84	946	1243	-	-	1390	-	-
Mov Cap-2 Maneuver	75	84	-	41	84	-	-	-	-	-	-	-
Stage 1	695	655	-	140	178	-	-	-	-	-	-	-
Stage 2	160	178	-	446	655	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.69	67.76	6.77	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1243	-	-	631	61	1390	-	-
HCM Lane V/C Ratio	0.373	-	-	0.415	0.053	-	-	-
HCM Control Delay (s/veh)	9.6	-	-	14.7	67.8	0	-	-
HCM Lane LOS	A	-	-	B	F	A	-	-
HCM 95th %tile Q(veh)	1.8	-	-	2	0.2	0	-	-

Intersection	
Int Delay, s/veh	18.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	25	80	82	40	20	101	447	79	19	306	7
Future Vol, veh/h	2	25	80	82	40	20	101	447	79	19	306	7
Conflicting Peds, #/hr	1	0	1	1	0	1	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	100	-	0	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	4	0	5	3	5	1	1	6	0	2	14
Mvmt Flow	2	28	90	92	45	22	113	502	89	21	344	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	892	1208	177	1003	1168	297	352	0	0	591	0	0
Stage 1	390	390	-	774	774	-	-	-	-	-	-	-
Stage 2	502	818	-	230	394	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.58	6.9	7.6	6.56	7	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.58	-	6.6	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.58	-	6.6	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.04	3.3	3.55	4.03	3.35	2.21	-	-	2.2	-	-
Pot Cap-1 Maneuver	240	179	842	192	191	691	1211	-	-	995	-	-
Stage 1	611	601	-	351	404	-	-	-	-	-	-	-
Stage 2	525	383	-	744	601	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	156	159	841	128	169	690	1211	-	-	995	-	-
Mov Cap-2 Maneuver	156	159	-	128	169	-	-	-	-	-	-	-
Stage 1	598	588	-	318	366	-	-	-	-	-	-	-
Stage 2	404	347	-	618	588	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.45	135.5	1.33	0.5
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1211	-	-	156	159	841	156	995	-	-
HCM Lane V/C Ratio	0.094	-	-	0.014	0.177	0.107	1.02	0.021	-	-
HCM Control Delay (s/veh)	8.3	-	-	28.5	32.5	9.8	135.5	8.7	-	-
HCM Lane LOS	A	-	-	D	D	A	F	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0	0.6	0.4	7.9	0.1	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	560	293	54	699	115	38
Future Vol, veh/h	560	293	54	699	115	38
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	175	50	-	0	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	1	7	2	4	0
Mvmt Flow	589	308	57	736	121	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	590	0	1440	590
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	849	-
Critical Hdwy	-	-	4.17	-	6.44	6.2
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.263	-	3.536	3.3
Pot Cap-1 Maneuver	-	-	961	-	145	511
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	416	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	960	-	136	510
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	391	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.64	87.74
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	136	510	-	-	960	-
HCM Lane V/C Ratio	0.89	0.078	-	-	0.059	-
HCM Control Delay (s/veh)	112.5	12.7	-	-	9	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	5.9	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	55	9	73	7	4	1	51	353	10	5	361	34
Future Vol, veh/h	55	9	73	7	4	1	51	353	10	5	361	34
Conflicting Peds, #/hr	0	0	1	1	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	0	6	1	0	0	1	3
Mvmt Flow	63	10	83	8	5	1	58	401	11	6	410	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	964	975	435	952	989	409	453	0	0	415	0	0
Stage 1	445	445	-	525	525	-	-	-	-	-	-	-
Stage 2	519	530	-	428	464	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	237	253	619	241	249	647	1087	-	-	1155	-	-
Stage 1	596	578	-	540	533	-	-	-	-	-	-	-
Stage 2	543	530	-	609	567	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	214	233	616	184	229	646	1083	-	-	1153	-	-
Mov Cap-2 Maneuver	214	233	-	184	229	-	-	-	-	-	-	-
Stage 1	590	572	-	501	495	-	-	-	-	-	-	-
Stage 2	500	492	-	514	561	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	25.24	23.28	1.05	0.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	221	-	-	330	211	22	-	-
HCM Lane V/C Ratio	0.054	-	-	0.471	0.065	0.005	-	-
HCM Control Delay (s/veh)	8.5	0	-	25.2	23.3	8.1	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.4	0.2	0	-	-

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	78	117	28	56	21	30	306	31	29	260	30
Future Vol, veh/h	40	78	117	28	56	21	30	306	31	29	260	30
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	5	3	0	0	4	10	0	0	0	0	0	0
Mvmt Flow	43	83	124	30	60	22	32	326	33	31	277	32
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	13.2	11.1	16.8	15
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	17%	27%	9%
Vol Thru, %	83%	33%	53%	82%
Vol Right, %	8%	50%	20%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	367	235	105	319
LT Vol	30	40	28	29
Through Vol	306	78	56	260
RT Vol	31	117	21	30
Lane Flow Rate	390	250	112	339
Geometry Grp	1	1	1	1
Degree of Util (X)	0.602	0.413	0.202	0.531
Departure Headway (Hd)	5.552	5.948	6.506	5.628
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	644	600	555	635
Service Time	3.64	4.046	4.506	3.72
HCM Lane V/C Ratio	0.606	0.417	0.202	0.534
HCM Control Delay, s/veh	16.8	13.2	11.1	15
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	4	2	0.7	3.1

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	7	9	45	3	40	13	320	43	65	319	13
Future Vol, veh/h	1	7	9	45	3	40	13	320	43	65	319	13
Conflicting Peds, #/hr	1	0	3	3	0	1	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	8	10	49	3	44	14	352	47	71	351	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	885	932	363	906	916	378	367	0	0	401	0	0
Stage 1	503	503	-	406	406	-	-	-	-	-	-	-
Stage 2	383	429	-	500	510	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	268	269	687	259	275	673	1203	-	-	1169	-	-
Stage 1	555	545	-	626	601	-	-	-	-	-	-	-
Stage 2	644	587	-	556	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	224	243	683	224	249	671	1201	-	-	1166	-	-
Mov Cap-2 Maneuver	224	243	-	224	249	-	-	-	-	-	-	-
Stage 1	511	502	-	615	591	-	-	-	-	-	-	-
Stage 2	589	577	-	497	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.36	20.83	0.28	1.36
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	61	-	-	366	323	292	-	-
HCM Lane V/C Ratio	0.012	-	-	0.051	0.299	0.061	-	-
HCM Control Delay (s/veh)	8	0	-	15.4	20.8	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.2	0.2	-	-

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	27	5	39	14	4	12	46	412	17	4	511	57
Future Vol, veh/h	27	5	39	14	4	12	46	412	17	4	511	57
Conflicting Peds, #/hr	0	0	1	1	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	8	14	0	17	4	5	18	0	1	0
Mvmt Flow	31	6	44	16	5	14	52	468	19	5	581	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	963	1214	324	886	1237	244	645	0	0	488	0	0
Stage 1	622	622	-	582	582	-	-	-	-	-	-	-
Stage 2	341	592	-	303	655	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.06	7.78	6.5	7.24	4.18	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.78	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.78	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.38	3.64	4	3.47	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	213	183	655	221	177	713	922	-	-	1086	-	-
Stage 1	446	482	-	437	502	-	-	-	-	-	-	-
Stage 2	653	497	-	649	466	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	191	172	654	187	167	713	922	-	-	1086	-	-
Mov Cap-2 Maneuver	191	172	-	187	167	-	-	-	-	-	-	-
Stage 1	444	480	-	412	474	-	-	-	-	-	-	-
Stage 2	598	469	-	595	464	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	20.73	20.96	0.88	0.06
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	922	-	-	309	259	1086	-	-
HCM Lane V/C Ratio	0.057	-	-	0.261	0.131	0.004	-	-
HCM Control Delay (s/veh)	9.1	-	-	20.7	21	8.3	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1	0.4	0	-	-

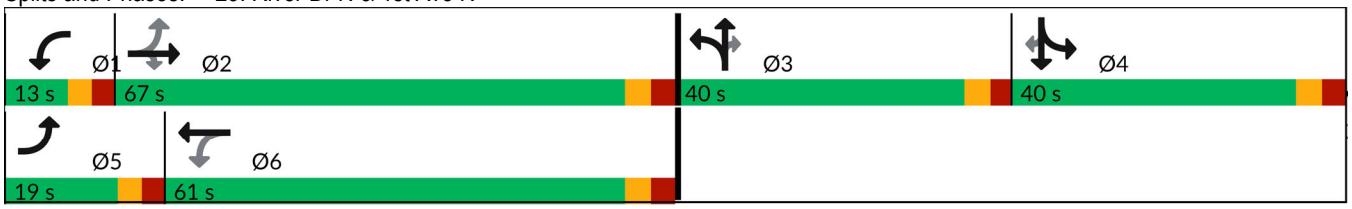
Lanes, Volumes, Timings
23: River Dr N & 1st Ave N

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	718	321	31	872	10	389	81	84	29	108	339
Future Volume (vph)	129	718	321	31	872	10	389	81	84	29	108	339
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	125		50	100		0	230		230	0		150
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1511	3325	1473	1662	3277	0	1564	1593	1488	0	1692	1444
Flt Permitted	0.101			0.272			0.950	0.968			0.989	
Satd. Flow (perm)	161	3325	1425	474	3277	0	1564	1593	1468	0	1692	1444
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		1				136			133
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1798			943			577			569	
Travel Time (s)		40.9			21.4			13.1			12.9	
Confl. Peds. (#/hr)	3		6	6		3			1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	10%	0%	1%	0%	1%	20%	1%	1%	0%	7%	1%	3%
Shared Lane Traffic (%)							40%					
Lane Group Flow (vph)	140	780	349	34	959	0	254	257	91	0	149	368
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6					3			4
Total Split (s)	19.0	67.0	67.0	13.0	61.0		40.0	40.0	40.0	40.0	40.0	40.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	5.5	5.5		6.0	6.0
Act Effct Green (s)	66.8	56.9	56.9	54.9	47.5		28.2	28.2	28.2		29.5	29.5
Actuated g/C Ratio	0.47	0.40	0.40	0.39	0.33		0.20	0.20	0.20		0.21	0.21
v/c Ratio	0.70	0.58	0.55	0.14	0.87		0.81	0.81	0.22		0.42	0.90
Control Delay (s/veh)	46.0	37.7	29.5	24.6	55.1		77.8	76.8	2.7		55.7	63.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	46.0	37.7	29.5	24.6	55.1		77.8	76.8	2.7		55.7	63.1
LOS	D	D	C	C	E		E	E	A		E	E
Approach Delay (s/veh)		36.4			54.1			66.1			61.0	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 142			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 50.7		Intersection LOS: D	
Intersection Capacity Utilization 77.9%		ICU Level of Service D	
Analysis Period (min) 15			
Description: Central Ave/River Dr S/1st Ave N			

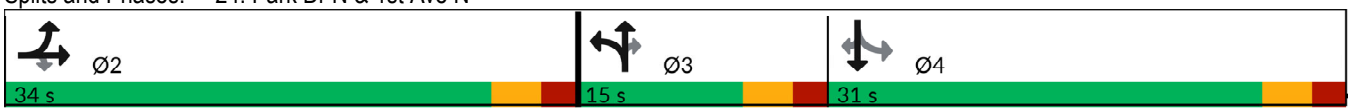
Splits and Phases: 23: River Dr N & 1st Ave N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	651	148	0	0	0	345	18	24	13	45	605
Future Volume (vph)	58	651	148	0	0	0	345	18	24	13	45	605
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		200	0		0	0		100	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3306	1444	0	0	0	1548	1563	1488	1539	1750	1473
Flt Permitted		0.996					0.950	0.957		0.621		
Satd. Flow (perm)	0	3304	1420	0	0	0	1547	1561	1466	1005	1750	1453
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			170						95			695
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		943			369			832			390	
Travel Time (s)		21.4			8.4			18.9			8.9	
Confl. Peds. (#/hr)	4		3	3		4	1		1	1		1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	0%	3%	0%	0%	0%	2%	0%	0%	8%	0%	1%
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	815	170	0	0	0	210	208	28	15	52	695
Turn Type	Split	NA	Perm				Split	NA	Perm	Perm	NA	Perm
Protected Phases	2	2					3	3			4	
Permitted Phases			2						3	4		4
Total Split (s)	34.0	34.0	34.0				15.0	15.0	15.0	31.0	31.0	31.0
Total Lost Time (s)		5.0	5.0				5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)		22.3	22.3				10.4	10.4	10.4	12.5	12.5	12.5
Actuated g/C Ratio		0.37	0.37				0.17	0.17	0.17	0.21	0.21	0.21
v/c Ratio		0.67	0.27				0.79	0.77	0.08	0.07	0.14	0.81
Control Delay (s/veh)		20.1	4.3				53.6	51.9	0.5	20.4	20.8	11.0
Queue Delay		0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		20.1	4.3				53.6	51.9	0.5	20.4	20.8	11.0
LOS		C	A				D	D	A	C	C	B
Approach Delay (s/veh)		17.4						49.5			11.9	
Approach LOS		B						D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 60.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay (s/veh): 22.0		Intersection LOS: C	
Intersection Capacity Utilization 60.0%		ICU Level of Service B	
Analysis Period (min) 15			
Description: 1st Ave N/Park Dr			

Splits and Phases: 24: Park Dr N & 1st Ave N



Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	0	24	22	16	195	0	0	0	0	97	17
Future Vol, veh/h	69	0	24	22	16	195	0	0	0	0	97	17
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	0	-	100	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	3	0
Mvmt Flow	106	0	37	34	25	300	0	0	0	0	149	26

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	176	-	89	75	176	-			-	-	0
Stage 1	163	-	-	0	0	-			-	-	-
Stage 2	12	-	-	75	176	-			-	-	-
Critical Hdwy	7.5	-	6.9	7.5	6.5	-			-	-	-
Critical Hdwy Stg 1	6.5	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-			-	-	-
Follow-up Hdwy	3.5	-	3.3	3.5	4	-			-	-	-
Pot Cap-1 Maneuver	776	0	958	913	721	0			0	-	-
Stage 1	828	0	-	-	-	0			0	-	-
Stage 2	-	0	-	932	757	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	749	-	957	878	720	-			-	-	-
Mov Cap-2 Maneuver	749	-	-	878	720	-			-	-	-
Stage 1	828	-	-	-	-	-			-	-	-
Stage 2	-	-	-	896	756	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	10.16	9.65	0
HCM LOS	B	A	

Minor Lane/Major Mvmt	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBT	SBR
Capacity (veh/h)	749	957	878	720	-	-	-
HCM Lane V/C Ratio	0.142	0.039	0.039	0.034	-	-	-
HCM Control Delay (s/veh)	10.6	8.9	9.3	10.2	0	-	-
HCM Lane LOS	B	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.5	0.1	0.1	0.1	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	75	423	48	78	450	0	0	352	27
Future Volume (veh/h)	0	0	0	75	423	48	78	450	0	0	352	27
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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				1575	1563	1550	1575	1550	0	0	1563	1526
Adj Flow Rate, veh/h				84	475	54	88	506	0	0	396	30
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				0	1	2	0	2	0	0	1	4
Cap, veh/h				183	1033	117	258	640	0	0	592	45
Arrive On Green				0.44	0.44	0.44	0.41	0.41	0.00	0.00	0.41	0.41
Sat Flow, veh/h				419	2367	269	809	1550	0	0	1434	109
Grp Volume(v), veh/h				309	0	304	88	506	0	0	0	426
Grp Sat Flow(s),veh/h/ln				1542	0	1513	809	1550	0	0	0	1543
Q Serve(g_s), s				9.6	0.0	9.7	6.8	19.4	0.0	0.0	0.0	15.3
Cycle Q Clear(g_c), s				9.6	0.0	9.7	22.1	19.4	0.0	0.0	0.0	15.3
Prop In Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lane Grp Cap(c), veh/h				673	0	660	258	640	0	0	0	637
V/C Ratio(X)				0.46	0.00	0.46	0.34	0.79	0.00	0.00	0.00	0.67
Avail Cap(c_a), veh/h				673	0	660	516	1133	0	0	0	1128
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	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				13.6	0.0	13.6	25.2	17.5	0.0	0.0	0.0	16.3
Incr Delay (d2), s/veh				2.2	0.0	2.3	0.8	2.2	0.0	0.0	0.0	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
%ile BackOfQ(50%),veh/ln				3.4	0.0	3.4	1.3	6.6	0.0	0.0	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				15.8	0.0	15.9	26.0	19.7	0.0	0.0	0.0	17.5
LnGrp LOS				B		B	C	B				B
Approach Vol, veh/h					613			594			426	
Approach Delay, s/veh					15.8			20.7			17.5	
Approach LOS					B			C			B	

Timer - Assigned Phs	2		4				8					
Phs Duration (G+Y+Rc), s	35.0		33.3				33.3					
Change Period (Y+Rc), s	5.2		5.1				5.1					
Max Green Setting (Gmax), s	29.8		49.9				49.9					
Max Q Clear Time (g_c+I1), s	2.0		24.1				17.3					
Green Ext Time (p_c), s	4.1		4.1				2.9					

Intersection Summary		
HCM 7th Control Delay, s/veh	18.0	
HCM 7th LOS	B	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	714	86	0	0	0	0	426	58	54	377	0
Future Volume (veh/h)	83	714	86	0	0	0	0	426	58	54	377	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
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	1575	1575	1563				0	1563	1575	1550	1550	0
Adj Flow Rate, veh/h	108	927	112				0	553	75	70	490	0
Peak Hour Factor	0.77	0.77	0.77				0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	0	0	1				0	1	0	2	2	0
Cap, veh/h	204	1751	211				0	618	527	123	613	0
Arrive On Green	0.48	0.48	0.48				0.00	0.40	0.40	0.40	0.40	0.00
Sat Flow, veh/h	422	3622	437				0	1563	1333	661	1550	0
Grp Volume(v), veh/h	398	366	383				0	553	75	70	490	0
Grp Sat Flow(s),veh/h/ln	1554	1433	1494				0	1563	1333	661	1550	0
Q Serve(g_s), s	16.0	16.0	16.0				0.0	29.8	3.2	5.8	25.1	0.0
Cycle Q Clear(g_c), s	16.0	16.0	16.0				0.0	29.8	3.2	35.6	25.1	0.0
Prop In Lane	0.27		0.29				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	751	693	722				0	618	527	123	613	0
V/C Ratio(X)	0.53	0.53	0.53				0.00	0.89	0.14	0.57	0.80	0.00
Avail Cap(c_a), veh/h	751	693	722				0	618	527	123	613	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	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.1	16.1	16.2				0.0	25.4	17.4	43.2	24.0	0.0
Incr Delay (d2), s/veh	2.7	2.9	2.8				0.0	15.5	0.1	6.2	7.4	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
%ile BackOfQ(50%),veh/ln	5.9	5.5	5.7				0.0	13.1	1.0	1.8	10.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.8	19.0	18.9				0.0	41.0	17.5	49.4	31.4	0.0
LnGrp LOS	B	B	B					D	B	D	C	
Approach Vol, veh/h		1147						628			560	
Approach Delay, s/veh		18.9						38.2			33.7	
Approach LOS		B						D			C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	49.0	41.0	41.0
Change Period (Y+Rc), s	5.5	5.4	5.4
Max Green Setting (Gmax), s	43.5	35.6	35.6
Max Q Clear Time (g_c+I1), s	18.0	37.6	31.8
Green Ext Time (p_c), s	8.2	0.0	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	27.6
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	172	43	65	112	44	30	432	42	44	411	41
Future Volume (veh/h)	44	172	43	65	112	44	30	432	42	44	411	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1550	1575	1575	1550	1550	1575	1550	1575	1575	1563	1575
Adj Flow Rate, veh/h	53	207	52	78	135	53	36	520	51	53	495	49
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	0	2	0	0	2	2	0	2	0	0	1	0
Cap, veh/h	348	264	66	260	360	304	225	552	551	210	573	551
Arrive On Green	0.05	0.22	0.22	0.06	0.23	0.23	0.04	0.36	0.36	0.05	0.37	0.37
Sat Flow, veh/h	1500	1195	300	1500	1550	1311	1500	1550	1325	1500	1563	1326
Grp Volume(v), veh/h	53	0	259	78	135	53	36	520	51	53	495	49
Grp Sat Flow(s),veh/h/ln	1500	0	1496	1500	1550	1311	1500	1550	1325	1500	1563	1326
Q Serve(g_s), s	1.7	0.0	10.1	2.5	4.5	2.0	0.9	20.2	1.5	1.4	18.2	1.4
Cycle Q Clear(g_c), s	1.7	0.0	10.1	2.5	4.5	2.0	0.9	20.2	1.5	1.4	18.2	1.4
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	0	330	260	360	304	225	552	551	210	573	551
V/C Ratio(X)	0.15	0.00	0.78	0.30	0.37	0.17	0.16	0.94	0.09	0.25	0.86	0.09
Avail Cap(c_a), veh/h	445	0	826	339	856	724	338	552	551	307	573	551
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	22.8	17.9	20.1	19.1	14.3	19.4	11.0	15.0	18.2	11.0
Incr Delay (d2), s/veh	0.2	0.0	4.1	0.6	0.6	0.3	0.3	24.9	0.1	0.6	12.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.7	0.8	1.6	0.6	0.3	10.3	0.4	0.4	7.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.5	0.0	26.9	18.5	20.7	19.3	14.7	44.3	11.1	15.6	31.1	11.1
LnGrp LOS	B		C	B	C	B	B	D	B	B	C	B
Approach Vol, veh/h		312			266			607			597	
Approach Delay, s/veh		25.3			19.8			39.7			28.1	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	20.1	7.0	28.0	7.7	19.4	6.3	28.7
Change Period (Y+Rc), s	4.0	5.7	4.0	5.9	4.0	5.7	4.0	5.9
Max Green Setting (Gmax), s	7.0	34.3	7.0	22.1	7.0	34.3	7.0	22.1
Max Q Clear Time (g_c+I1), s	3.7	6.5	3.4	22.2	4.5	12.1	2.9	20.2
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	1.5	0.0	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	30.3
HCM 7th LOS	C

Notes

User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	75	18	73	482	0	0	470	55
Future Volume (veh/h)	0	0	0	21	75	18	73	482	0	0	470	55
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1682	1750	1750	1750	1723	0	0	1736	1750
Adj Flow Rate, veh/h				24	87	21	85	560	0	0	547	64
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				5	0	0	0	2	0	0	1	0
Cap, veh/h				91	329	75	545	1284	0	0	1104	941
Arrive On Green				0.10	0.10	0.10	0.05	0.75	0.00	0.00	0.64	0.64
Sat Flow, veh/h				900	3247	745	1667	1723	0	0	1736	1480
Grp Volume(v), veh/h				45	42	45	85	560	0	0	547	64
Grp Sat Flow(s),veh/h/ln				1705	1593	1594	1667	1723	0	0	1736	1480
Q Serve(g_s), s				1.8	1.8	1.9	1.1	9.0	0.0	0.0	12.2	1.2
Cycle Q Clear(g_c), s				1.8	1.8	1.9	1.1	9.0	0.0	0.0	12.2	1.2
Prop In Lane				0.53		0.47	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				173	161	161	545	1284	0	0	1104	941
V/C Ratio(X)				0.26	0.26	0.28	0.16	0.44	0.00	0.00	0.50	0.07
Avail Cap(c_a), veh/h				567	529	530	591	1284	0	0	1104	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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.3	30.3	30.4	4.6	3.5	0.0	0.0	7.1	5.1
Incr Delay (d2), s/veh				0.8	0.8	0.9	0.1	1.1	0.0	0.0	1.6	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				0.8	0.7	0.8	0.3	2.3	0.0	0.0	4.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				31.1	31.2	31.3	4.8	4.6	0.0	0.0	8.7	5.2
LnGrp LOS				C	C	C	A	A			A	A
Approach Vol, veh/h					132			645			611	
Approach Delay, s/veh					31.2			4.6			8.3	
Approach LOS					C			A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.0	52.0		13.1		60.0
Change Period (Y+Rc), s	4.0	5.5		5.7		5.5
Max Green Setting (Gmax), s	6.0	44.5		24.3		54.5
Max Q Clear Time (g_c+I1), s	3.1	14.2		3.8		11.0
Green Ext Time (p_c), s	0.0	4.2		0.6		4.3

Intersection Summary	
HCM 7th Control Delay, s/veh	8.8
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	61	45	0	0	0	0	505	24	11	474	0
Future Volume (veh/h)	42	61	45	0	0	0	0	505	24	11	474	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1723	1750	1750				0	1723	1695	1750	1736	0
Adj Flow Rate, veh/h	49	71	52				0	587	28	13	551	0
Peak Hour Factor	0.86	0.86	0.86				0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	0	0				0	2	4	0	1	0
Cap, veh/h	93	131	93				0	1248	60	573	1329	0
Arrive On Green	0.10	0.10	0.10				0.00	0.77	0.77	0.77	0.77	0.00
Sat Flow, veh/h	955	1347	955				0	1631	78	755	1736	0
Grp Volume(v), veh/h	87	0	85				0	0	615	13	551	0
Grp Sat Flow(s),veh/h/ln	1702	0	1555				0	0	1708	755	1736	0
Q Serve(g_s), s	3.7	0.0	3.9				0.0	0.0	10.0	0.5	8.3	0.0
Cycle Q Clear(g_c), s	3.7	0.0	3.9				0.0	0.0	10.0	10.5	8.3	0.0
Prop In Lane	0.56		0.61				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	166	0	151				0	0	1307	573	1329	0
V/C Ratio(X)	0.53	0.00	0.56				0.00	0.00	0.47	0.02	0.41	0.00
Avail Cap(c_a), veh/h	488	0	446				0	0	1307	573	1329	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.5	0.0	32.6				0.0	0.0	3.3	5.2	3.1	0.0
Incr Delay (d2), s/veh	2.6	0.0	3.2				0.0	0.0	1.2	0.1	1.0	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	1.6	0.0	1.6				0.0	0.0	2.4	0.1	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.1	0.0	35.8				0.0	0.0	4.5	5.3	4.0	0.0
LnGrp LOS	D		D						A	A	A	
Approach Vol, veh/h		172						615			564	
Approach Delay, s/veh		35.4						4.5			4.0	
Approach LOS		D						A			A	

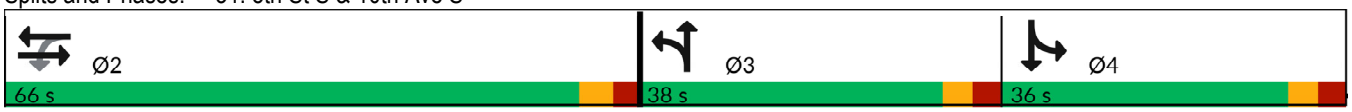
Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	63.0	12.7	63.0
Change Period (Y+Rc), s	5.1	5.3	5.1
Max Green Setting (Gmax), s	57.9	21.7	57.9
Max Q Clear Time (g_c+I1), s	12.5	2.0	12.0
Green Ext Time (p_c), s	4.3	0.9	4.9

Intersection Summary	
HCM 7th Control Delay, s/veh	8.2
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1350	25	17	1666	0	100	0	34	127	40	87
Future Volume (vph)	0	1350	25	17	1666	0	100	0	34	127	40	87
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	100		0	0		0	0		300
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	4671	0	1662	4684	0	0	1600	0	3162	1534	0
Flt Permitted				0.135				0.964		0.950		
Satd. Flow (perm)	0	4671	0	236	4684	0	0	1599	0	3159	1534	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2						70			72	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			444			415			561	
Travel Time (s)		8.9			10.1			9.4			12.8	
Confl. Peds. (#/hr)							1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	2%	0%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1447	0	18	1754	0	0	141	0	134	134	0
Turn Type		NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		3	3		4	4	
Permitted Phases				2								
Total Split (s)		66.0		66.0	66.0		38.0	38.0		36.0	36.0	
Total Lost Time (s)		6.0		6.0	6.0			6.0		6.0	6.0	
Act Effct Green (s)		48.1		48.1	48.1			10.7		10.3	10.3	
Actuated g/C Ratio		0.55		0.55	0.55			0.12		0.12	0.12	
v/c Ratio		0.56		0.13	0.68			0.55		0.36	0.55	
Control Delay (s/veh)		14.0		14.0	16.0			30.4		41.4	29.8	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)		14.0		14.0	16.0			30.4		41.4	29.8	
LOS		B		B	B			C		D	C	
Approach Delay (s/veh)		14.1			16.0			30.5			35.6	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 87.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 17.3		Intersection LOS: B	
Intersection Capacity Utilization 67.6%		ICU Level of Service C	
Analysis Period (min) 15			
Description: 10th Ave S/5th St S			

Splits and Phases: 31: 5th St S & 10th Ave S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1298	147	82	1409	210	154	165	71	190	151	115
Future Volume (veh/h)	110	1298	147	82	1409	210	154	165	71	190	151	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1736	1736	1736	1750	1736	1723	1750	1723	1736	1750
Adj Flow Rate, veh/h	120	1411	160	89	1532	228	167	179	77	207	164	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	1	1	1	0	1	2	0	2	1	0
Cap, veh/h	203	2046	786	204	2005	805	369	223	96	313	374	405
Arrive On Green	0.06	0.44	0.44	0.05	0.42	0.42	0.10	0.20	0.20	0.12	0.22	0.22
Sat Flow, veh/h	1667	4703	1470	1654	4740	1481	1654	1141	491	1641	1736	1477
Grp Volume(v), veh/h	120	1411	160	89	1532	228	167	0	256	207	164	125
Grp Sat Flow(s),veh/h/ln	1667	1568	1470	1654	1580	1481	1654	0	1632	1641	1736	1477
Q Serve(g_s), s	4.2	25.4	6.0	3.2	28.9	8.7	8.3	0.0	15.7	10.3	8.6	7.0
Cycle Q Clear(g_c), s	4.2	25.4	6.0	3.2	28.9	8.7	8.3	0.0	15.7	10.3	8.6	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	203	2046	786	204	2005	805	369	0	319	313	374	405
V/C Ratio(X)	0.59	0.69	0.20	0.44	0.76	0.28	0.45	0.00	0.80	0.66	0.44	0.31
Avail Cap(c_a), veh/h	261	2425	905	280	2444	942	488	0	576	398	613	608
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	23.9	12.7	19.5	25.8	12.9	29.2	0.0	40.2	29.5	35.6	30.2
Incr Delay (d2), s/veh	2.7	0.7	0.1	1.5	1.2	0.2	0.9	0.0	4.7	2.7	0.8	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	9.2	1.9	1.3	10.7	2.8	3.4	0.0	6.6	4.3	3.7	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.9	24.6	12.8	21.0	27.0	13.1	30.0	0.0	44.9	32.2	36.4	30.6
LnGrp LOS	C	C	B	C	C	B	C		D	C	D	C
Approach Vol, veh/h		1691			1849			423			496	
Approach Delay, s/veh		23.5			25.0			39.1			33.2	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	51.6	16.6	26.5	11.4	50.3	14.5	28.6
Change Period (Y+Rc), s	5.3	6.0	4.0	6.0	5.3	6.0	4.0	6.0
Max Green Setting (Gmax), s	9.7	54.0	18.0	37.0	9.7	54.0	18.0	37.0
Max Q Clear Time (g_c+I1), s	5.2	27.4	12.3	17.7	6.2	30.9	10.3	10.6
Green Ext Time (p_c), s	0.1	13.0	0.3	1.4	0.1	13.4	0.3	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	26.6
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1347	57	23	1594	43	166	49	62	71	45	35
Future Volume (veh/h)	25	1347	57	23	1594	43	166	49	62	71	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1695	1750	1736	1750	1736	1750	1750	1736	1750	1709
Adj Flow Rate, veh/h	27	1448	61	25	1714	46	178	53	67	76	48	38
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	4	0	1	0	1	0	0	1	0	3
Cap, veh/h	198	2779	117	238	2850	76	354	160	202	182	109	66
Arrive On Green	0.60	0.60	0.60	0.60	0.60	0.60	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	255	4627	195	325	4746	127	1212	700	884	469	475	289
Grp Volume(v), veh/h	27	981	528	25	1141	619	178	0	120	162	0	0
Grp Sat Flow(s),veh/h/ln	255	1568	1687	325	1580	1713	1212	0	1584	1233	0	0
Q Serve(g_s), s	5.2	12.8	12.8	3.4	15.9	15.9	1.9	0.0	4.4	4.7	0.0	0.0
Cycle Q Clear(g_c), s	21.1	12.8	12.8	16.2	15.9	15.9	11.1	0.0	4.4	9.2	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.56	0.47		0.23
Lane Grp Cap(c), veh/h	198	1883	1013	238	1898	1029	354	0	363	357	0	0
V/C Ratio(X)	0.14	0.52	0.52	0.10	0.60	0.60	0.50	0.00	0.33	0.45	0.00	0.00
Avail Cap(c_a), veh/h	367	3964	2133	454	3995	2166	748	0	877	806	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.4	8.2	8.2	12.9	8.8	8.8	25.3	0.0	22.6	24.6	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.4	0.2	0.3	0.6	1.1	0.0	0.5	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.6	3.9	0.2	4.5	4.9	2.7	0.0	1.6	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.7	8.4	8.6	13.1	9.1	9.4	26.5	0.0	23.2	25.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C		C	C		
Approach Vol, veh/h		1536			1785			298			162	
Approach Delay, s/veh		8.6			9.2			25.1			25.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	48.3	22.1	48.3	22.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	89.0	39.0	89.0	39.0
Max Q Clear Time (g_c+I1), s	23.1	13.1	18.2	0.0
Green Ext Time (p_c), s	18.5	1.4	24.1	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	10.9
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1271	65	56	1523	37	210	47	103	23	46	27
Future Volume (veh/h)	31	1271	65	56	1523	37	210	47	103	23	46	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1723	1750	1736	1750	1736	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	33	1352	69	60	1620	39	223	50	110	24	49	29
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	0	1	0	1	0	0	0	0	0
Cap, veh/h	145	2436	124	182	2531	61	206	33	536	39	68	27
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	281	4582	234	353	4761	115	409	92	1479	0	188	75
Grp Volume(v), veh/h	33	925	496	60	1075	584	273	0	110	102	0	0
Grp Sat Flow(s),veh/h/ln	281	1568	1680	353	1580	1716	501	0	1479	263	0	0
Q Serve(g_s), s	10.7	22.2	22.2	15.4	27.3	27.3	0.0	0.0	5.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	38.0	22.2	22.2	37.6	27.3	27.3	41.0	0.0	5.8	41.0	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.07	0.82		1.00	0.24		0.28
Lane Grp Cap(c), veh/h	145	1667	893	182	1680	912	239	0	536	134	0	0
V/C Ratio(X)	0.23	0.55	0.55	0.33	0.64	0.64	1.14	0.00	0.21	0.76	0.00	0.00
Avail Cap(c_a), veh/h	212	2410	1292	266	2429	1319	239	0	536	134	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.3	17.6	17.6	30.1	18.8	18.8	41.0	0.0	24.9	29.8	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.3	0.5	1.0	0.4	0.8	101.3	0.0	0.2	21.8	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	0.8	7.8	8.5	1.4	9.7	10.7	13.6	0.0	2.1	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	33.1	17.9	18.1	31.1	19.2	19.6	142.3	0.0	25.1	51.6	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	F		C	D		
Approach Vol, veh/h		1454			1719			383			102	
Approach Delay, s/veh		18.3			19.8			108.6			51.6	
Approach LOS		B			B			F			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	66.2	47.0	66.2	47.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	87.0	41.0	87.0	41.0
Max Q Clear Time (g_c+I1), s	40.0	43.0	39.6	43.0
Green Ext Time (p_c), s	15.8	0.0	20.6	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	29.4
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	1258	165	110	1085	67	383	241	122	0	0	0
Future Volume (veh/h)	149	1258	165	110	1085	67	383	241	122	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1736	1723	1723	1750	1723	1723	1736	1736	1750			
Adj Flow Rate, veh/h	157	1324	174	116	1142	71	262	452	128			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	2	2	0	2	2	1	1	0			
Cap, veh/h	287	1679	1094	234	1564	97	392	617	173			
Arrive On Green	0.07	0.51	0.51	0.06	0.50	0.50	0.24	0.24	0.24			
Sat Flow, veh/h	1654	3273	1459	1667	3130	194	1654	2606	732			
Grp Volume(v), veh/h	157	1324	174	116	597	616	262	300	280			
Grp Sat Flow(s),veh/h/ln	1654	1637	1459	1667	1637	1687	1654	1736	1601			
Q Serve(g_s), s	3.9	28.9	3.0	2.9	25.0	25.1	12.5	13.9	14.1			
Cycle Q Clear(g_c), s	3.9	28.9	3.0	2.9	25.0	25.1	12.5	13.9	14.1			
Prop In Lane	1.00		1.00	1.00		0.12	1.00		0.46			
Lane Grp Cap(c), veh/h	287	1679	1094	234	818	843	392	411	379			
V/C Ratio(X)	0.55	0.79	0.16	0.49	0.73	0.73	0.67	0.73	0.74			
Avail Cap(c_a), veh/h	382	2402	1416	524	1370	1412	739	776	716			
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	14.7	17.4	3.1	16.1	17.2	17.2	30.2	30.7	30.8			
Incr Delay (d2), s/veh	1.6	1.2	0.1	1.6	1.3	1.2	2.0	2.5	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			
%ile BackOfQ(50%),veh/ln	1.4	10.2	0.0	1.1	9.0	9.3	5.1	5.9	5.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.3	18.5	3.2	17.7	18.5	18.4	32.2	33.2	33.6			
LnGrp LOS	B	B	A	B	B	B	C	C	C			
Approach Vol, veh/h		1655			1329			842				
Approach Delay, s/veh		16.7			18.4			33.0				
Approach LOS		B			B			C				

Timer - Assigned Phs	1	2		4	5	6			
Phs Duration (G+Y+Rc), s	9.8	50.7		26.7	11.0	49.6			
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0			
Max Green Setting (Gmax), s	20.0	64.0		39.0	11.0	73.0			
Max Q Clear Time (g_c+I1), s	4.9	30.9		16.1	5.9	27.1			
Green Ext Time (p_c), s	0.2	13.9		4.5	0.2	11.2			

Intersection Summary		
HCM 7th Control Delay, s/veh	20.9	
HCM 7th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

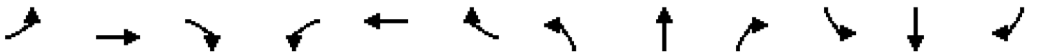
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	1319	40	27	1243	14	6	1	77	0	1	22
Future Vol, veh/h	45	1319	40	27	1243	14	6	1	77	0	1	22
Conflicting Peds, #/hr	0	0	1	1	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	2	3	4	1	0	0	0	0	0	0	0
Mvmt Flow	47	1374	42	28	1295	15	6	1	80	0	1	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1309	0	0	1417	0	0	2194	2855	709	2140	2869	655
Stage 1	-	-	-	-	-	-	1490	1490	-	1358	1358	-
Stage 2	-	-	-	-	-	-	704	1366	-	781	1510	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.24	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	535	-	-	467	-	-	26	17	381	28	17	414
Stage 1	-	-	-	-	-	-	132	189	-	159	219	-
Stage 2	-	-	-	-	-	-	398	217	-	358	185	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	535	-	-	466	-	-	20	15	381	18	14	414
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	15	-	18	14	-
Stage 1	-	-	-	-	-	-	121	172	-	150	206	-
Stage 2	-	-	-	-	-	-	352	204	-	256	168	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.4	0.28	61.39	26.95
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	146	535	-	-	466	-	-	188
HCM Lane V/C Ratio	0.601	0.088	-	-	0.06	-	-	0.128
HCM Control Delay (s/veh)	61.4	12.4	-	-	13.2	-	-	27
HCM Lane LOS	F	B	-	-	B	-	-	D
HCM 95th %tile Q(veh)	3.2	0.3	-	-	0.2	-	-	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1239	25	45	982	45	166	82	60	76	70	74
Future Volume (veh/h)	96	1239	25	45	982	45	166	82	60	76	70	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1736	1750	1750	1736	1736	1750
Adj Flow Rate, veh/h	101	1304	26	47	1034	47	175	86	63	80	74	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	0	2	0	1	0	0	1	1	0
Cap, veh/h	289	1583	32	214	1487	68	213	89	56	237	196	513
Arrive On Green	0.06	0.48	0.48	0.04	0.47	0.47	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1667	3282	65	1667	3188	145	492	307	193	579	677	1483
Grp Volume(v), veh/h	101	650	680	47	531	550	324	0	0	154	0	78
Grp Sat Flow(s),veh/h/ln	1667	1637	1711	1667	1637	1697	992	0	0	1256	0	1483
Q Serve(g_s), s	2.4	26.7	26.8	1.1	20.1	20.1	15.5	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	2.4	26.7	26.8	1.1	20.1	20.1	22.7	0.0	0.0	7.2	0.0	2.8
Prop In Lane	1.00		0.04	1.00		0.09	0.54		0.19	0.52		1.00
Lane Grp Cap(c), veh/h	289	789	825	214	763	791	358	0	0	433	0	513
V/C Ratio(X)	0.35	0.82	0.82	0.22	0.70	0.70	0.91	0.00	0.00	0.36	0.00	0.15
Avail Cap(c_a), veh/h	658	981	1025	265	763	791	358	0	0	433	0	513
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	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.7	17.4	17.4	14.5	16.5	16.5	31.3	0.0	0.0	22.1	0.0	17.7
Incr Delay (d2), s/veh	0.7	4.7	4.6	0.5	2.8	2.7	25.7	0.0	0.0	0.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	10.1	10.5	0.4	7.5	7.7	8.6	0.0	0.0	2.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.5	22.2	22.0	15.0	19.3	19.2	57.0	0.0	0.0	22.6	0.0	17.8
LnGrp LOS	B	C	C	B	B	B	E			C		B
Approach Vol, veh/h		1431			1128			324			232	
Approach Delay, s/veh		21.5			19.1			57.0			21.0	
Approach LOS		C			B			E			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	43.1		28.5	8.0	41.9		28.5				
Change Period (Y+Rc), s	3.6	5.3		5.8	3.6	5.3		5.8				
Max Green Setting (Gmax), s	5.6	47.0		22.7	21.8	30.8		22.7				
Max Q Clear Time (g_c+I1), s	3.1	28.8		9.2	4.4	22.1		24.7				
Green Ext Time (p_c), s	0.0	9.0		0.9	0.2	4.5		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			24.3									
HCM 7th LOS			C									

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	30	16	20	39	160	31	341	11	46	213	13
Future Vol, veh/h	24	30	16	20	39	160	31	341	11	46	213	13
Conflicting Peds, #/hr	1	0	3	3	0	1	6	0	3	3	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	5	0	0	0	2	0	0	2	0
Mvmt Flow	26	32	17	21	41	170	33	363	12	49	227	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	606	781	129	668	782	191	246	0	0	377	0	0
Stage 1	337	337	-	438	438	-	-	-	-	-	-	-
Stage 2	269	443	-	230	344	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.6	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.6	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.6	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.55	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	385	329	903	338	328	824	1331	-	-	1192	-	-
Stage 1	656	645	-	560	582	-	-	-	-	-	-	-
Stage 2	719	579	-	743	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	245	303	895	276	302	821	1324	-	-	1189	-	-
Mov Cap-2 Maneuver	245	303	-	276	302	-	-	-	-	-	-	-
Stage 1	624	613	-	543	565	-	-	-	-	-	-	-
Stage 2	513	561	-	659	608	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.28	16.17	0.79	1.58
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	279	-	-	326	553	563	-	-
HCM Lane V/C Ratio	0.025	-	-	0.228	0.421	0.041	-	-
HCM Control Delay (s/veh)	7.8	0.2	-	19.3	16.2	8.2	0.3	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	2.1	0.1	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	129	96	13	119	170
Future Vol, veh/h	25	129	96	13	119	170
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	29	150	112	15	138	198

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	595	120	0	0	128	0
Stage 1	120	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	471	937	-	-	1464	-
Stage 1	910	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	426	936	-	-	1463	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.31	0	3.18
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	426	936	1463	-
HCM Lane V/C Ratio	-	-	0.068	0.16	0.095	-
HCM Control Delay (s/veh)	-	-	14.1	9.6	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.6	0.3	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	202	106	3	177	2	50	1	7	1	2	36
Future Vol, veh/h	67	202	106	3	177	2	50	1	7	1	2	36
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	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	8	1	0	12	0	10	0	14	0	50	3
Mvmt Flow	73	220	115	3	192	2	54	1	8	1	2	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	195	0	0	335	0	0	527	624	167	456	680	97
Stage 1	-	-	-	-	-	-	423	423	-	200	200	-
Stage 2	-	-	-	-	-	-	104	201	-	256	480	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.7	6.5	7.18	7.5	7.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.7	5.5	-	6.5	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.5	6.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.6	4	3.44	3.5	4.5	3.33
Pot Cap-1 Maneuver	1376	-	-	1236	-	-	417	404	811	492	288	937
Stage 1	-	-	-	-	-	-	558	591	-	789	630	-
Stage 2	-	-	-	-	-	-	868	739	-	732	447	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1376	-	-	1236	-	-	375	382	811	460	272	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	375	382	-	460	272	-
Stage 1	-	-	-	-	-	-	529	560	-	787	628	-
Stage 2	-	-	-	-	-	-	827	737	-	685	423	-

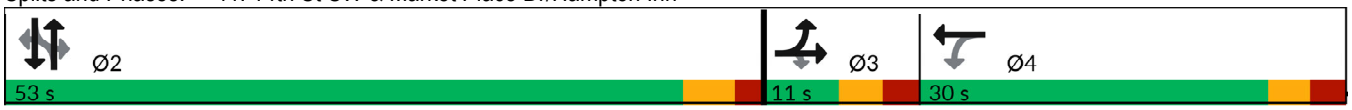
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.39	0.13	15.65	9.67
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	401	1376	-	-	1236	-	-	813
HCM Lane V/C Ratio	0.157	0.053	-	-	0.003	-	-	0.052
HCM Control Delay (s/veh)	15.7	7.8	-	-	7.9	-	-	9.7
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	2	106	1	0	3	75	146	1	6	284	167
Future Volume (vph)	151	2	106	1	0	3	75	146	1	6	284	167
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	0		0	100		0	250		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1579	1584	1473	0	1554	0	1662	3289	0	1662	1638	0
Flt Permitted	0.950	0.953					0.397			0.649		
Satd. Flow (perm)	1579	1584	1406	0	1571	0	694	3289	0	1136	1638	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		92			1			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		289			368			392			897	
Travel Time (s)		6.6			8.4			8.9			20.4	
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	86	84	118	0	4	0	83	163	0	7	502	0
Turn Type	Split	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	3			4			2			2	
Permitted Phases			3	4			2			2		
Total Split (s)	11.0	11.0	11.0	30.0	30.0		53.0	53.0		53.0	53.0	
Total Lost Time (s)	5.5	5.5	5.5		5.5		5.4	5.4		5.4	5.4	
Act Effct Green (s)	5.9	5.9	5.9		6.4		20.6	20.6		20.6	20.6	
Actuated g/C Ratio	0.15	0.15	0.15		0.16		0.52	0.52		0.52	0.52	
v/c Ratio	0.36	0.35	0.38		0.01		0.23	0.09		0.01	0.57	
Control Delay (s/veh)	25.1	24.7	9.7		0.0		7.8	5.4		5.5	9.4	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	25.1	24.7	9.7		0.0		7.8	5.4		5.5	9.4	
LOS	C	C	A		A		A	A		A	A	
Approach Delay (s/veh)		18.7						6.3			9.4	
Approach LOS		B						A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 94			
Actuated Cycle Length: 39.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 11.2		Intersection LOS: B	
Intersection Capacity Utilization 62.2%		ICU Level of Service B	
Analysis Period (min) 15			
Description: 14th SW/Market Place Dr			

Splits and Phases: 41: 14th St SW & Market Place Dr/Hampton Inn



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	165	3	71	36	14	3	67	221	88	339	184
Future Volume (veh/h)	95	165	3	71	36	14	3	67	221	88	339	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1723	1709	1354	1300	1750	1736	1682	1736	1736
Adj Flow Rate, veh/h	98	170	3	73	37	14	3	69	228	91	349	190
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	2	3	29	33	0	1	5	1	1
Cap, veh/h	495	345	292	446	229	154	298	569	585	494	565	607
Arrive On Green	0.09	0.20	0.20	0.07	0.13	0.13	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1667	1750	1483	1641	1709	1148	602	1750	1471	973	1736	1471
Grp Volume(v), veh/h	98	170	3	73	37	14	3	69	228	91	349	190
Grp Sat Flow(s),veh/h/ln	1667	1750	1483	1641	1709	1148	602	1750	1471	973	1736	1471
Q Serve(g_s), s	1.7	3.0	0.1	1.3	0.7	0.4	0.1	1.0	3.9	2.6	6.0	3.1
Cycle Q Clear(g_c), s	1.7	3.0	0.1	1.3	0.7	0.4	6.1	1.0	3.9	3.5	6.0	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	495	345	292	446	229	154	298	569	585	494	565	607
V/C Ratio(X)	0.20	0.49	0.01	0.16	0.16	0.09	0.01	0.12	0.39	0.18	0.62	0.31
Avail Cap(c_a), veh/h	1024	1105	937	1071	1080	725	808	2052	1832	1318	2036	1854
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	11.4	12.6	11.4	11.6	13.5	13.4	12.6	8.4	7.6	9.6	10.1	7.0
Incr Delay (d2), s/veh	0.2	1.1	0.0	0.2	0.3	0.3	0.0	0.1	0.4	0.2	1.1	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	0.5	1.0	0.0	0.4	0.2	0.1	0.0	0.3	0.9	0.4	1.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.6	13.7	11.4	11.8	13.9	13.7	12.7	8.5	8.0	9.8	11.2	7.3
LnGrp LOS	B	B	B	B	B	B	B	A	A	A	B	A
Approach Vol, veh/h		271			124			300			630	
Approach Delay, s/veh		12.9			12.6			8.2			9.8	
Approach LOS		B			B			A			A	

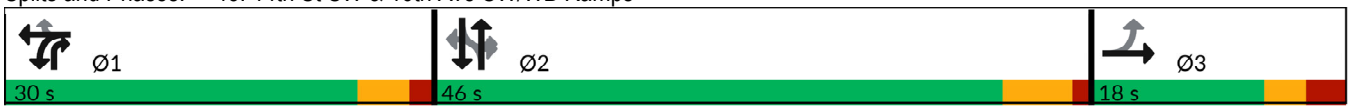
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	16.1	8.8	10.4	16.1	6.6	12.7
Change Period (Y+Rc), s	4.6	5.7	5.7	4.6	4.0	5.7
Max Green Setting (Gmax), s	41.4	14.3	22.3	41.4	16.0	22.3
Max Q Clear Time (g_c+I1), s	8.0	3.7	2.7	8.1	3.3	5.0
Green Ext Time (p_c), s	3.5	0.1	0.1	1.2	0.1	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	10.3
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	7	13	455	15	119	6	50	113	14	111	0
Future Volume (vph)	0	7	13	455	15	119	6	50	113	14	111	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	0		100	100		250	100		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1600	0	0	1654	1430	1662	1620	1488	1554	1699	0
Flt Permitted					0.954		0.678			0.720		
Satd. Flow (perm)	0	1600	0	0	1654	1430	1186	1620	1488	1178	1699	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				102			126			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		388			530			1071			1047	
Travel Time (s)		8.8			12.0			24.3			23.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	1%	0%	4%	0%	8%	0%	7%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	523	132	7	56	126	16	123	0
Turn Type		NA		Split	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		3		1	1			2	1		2	
Permitted Phases	3					1	2		2	2		
Total Split (s)	18.0	18.0		30.0	30.0	30.0	46.0	46.0	30.0	46.0	46.0	
Total Lost Time (s)		5.8			5.2	5.2	6.0	6.0	5.2	6.0	6.0	
Act Effct Green (s)		6.4			25.3	25.3	9.1	9.1	45.0	9.1	9.1	
Actuated g/C Ratio		0.13			0.53	0.53	0.19	0.19	0.94	0.19	0.19	
v/c Ratio		0.09			0.59	0.16	0.03	0.18	0.08	0.07	0.38	
Control Delay (s/veh)		15.9			14.3	4.1	17.6	18.8	0.6	18.0	21.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		15.9			14.3	4.1	17.6	18.8	0.6	18.0	21.6	
LOS		B			B	A	B	B	A	B	C	
Approach Delay (s/veh)		16.0			12.3			6.7			21.2	
Approach LOS		B			B			A			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 94			
Actuated Cycle Length: 47.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay (s/veh): 12.5		Intersection LOS: B	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 14th St SW/WB Ramps/16th Ave SW			

Splits and Phases: 43: 14th St SW & 16th Ave SW/WB Ramps



Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	47	51	2	0	91	5	46	0	4	0
Future Vol, veh/h	0	2	47	51	2	0	91	5	46	0	4	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	2	0	0	0	0	9	0	0	0
Mvmt Flow	0	2	52	57	2	0	101	6	51	0	4	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	54	0	0	146	144	28	121	170	2
Stage 1	-	-	-	-	-	-	28	28	-	116	116	-
Stage 2	-	-	-	-	-	-	118	116	-	5	54	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.29	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.381	3.5	4	3.3
Pot Cap-1 Maneuver	1633	-	-	1551	-	-	827	751	1027	859	727	1088
Stage 1	-	-	-	-	-	-	994	876	-	894	804	-
Stage 2	-	-	-	-	-	-	892	804	-	1022	853	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1633	-	-	1551	-	-	792	724	1027	781	700	1088
Mov Cap-2 Maneuver	-	-	-	-	-	-	792	724	-	781	700	-
Stage 1	-	-	-	-	-	-	994	876	-	861	774	-
Stage 2	-	-	-	-	-	-	854	774	-	965	853	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	7.13	10.18	10.18
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	852	1633	-	-	1549	-	-	700
HCM Lane V/C Ratio	0.185	-	-	-	0.037	-	-	0.006
HCM Control Delay (s/veh)	10.2	0	-	-	7.4	0	-	10.2
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	110	144	841	930	114
Future Vol, veh/h	26	110	144	841	930	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	28	120	157	914	1011	124

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1843	567	1135	0	-	0
Stage 1	1073	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.14	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.22	-	-	-
Pot Cap-1 Maneuver	68	472	611	-	-	-
Stage 1	294	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	51	472	611	-	-	-
Mov Cap-2 Maneuver	152	-	-	-	-	-
Stage 1	219	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.81	1.89	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	611	-	152	472	-	-
HCM Lane V/C Ratio	0.256	-	0.186	0.254	-	-
HCM Control Delay (s/veh)	12.9	-	34	15.2	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	1	-	0.7	1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	1	13	3	2	0	28	206	7	1	95	14
Future Vol, veh/h	22	1	13	3	2	0	28	206	7	1	95	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	3	0
Mvmt Flow	25	1	15	3	2	0	31	231	8	1	107	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	412	419	115	408	423	235	122	0	0	239	0	0
Stage 1	117	117	-	298	298	-	-	-	-	-	-	-
Stage 2	296	302	-	110	125	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	554	528	943	557	526	809	1477	-	-	1339	-	-
Stage 1	893	803	-	715	670	-	-	-	-	-	-	-
Stage 2	717	668	-	901	797	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	537	515	943	534	512	809	1477	-	-	1339	-	-
Mov Cap-2 Maneuver	537	515	-	534	512	-	-	-	-	-	-	-
Stage 1	892	802	-	697	654	-	-	-	-	-	-	-
Stage 2	697	651	-	885	796	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.05	11.93	0.87	0.07
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	208	-	-	635	525	16	-	-
HCM Lane V/C Ratio	0.021	-	-	0.064	0.011	0.001	-	-
HCM Control Delay (s/veh)	7.5	0	-	11.1	11.9	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	7	11	78	6	6
Future Vol, veh/h	52	7	11	78	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	0	0	0	0
Mvmt Flow	74	10	16	111	9	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	97	71	0	0	127	0
Stage 1	71	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	902	997	-	-	1471	-
Stage 1	951	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	897	997	-	-	1471	-
Mov Cap-2 Maneuver	897	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.37	0	3.73
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	908	900	-
HCM Lane V/C Ratio	-	-	0.093	0.006	-
HCM Control Delay (s/veh)	-	-	9.4	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	9	4	55	11	10
Future Vol, veh/h	73	9	4	55	11	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	2	0	0
Mvmt Flow	104	13	6	79	16	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	117	0	201	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	90	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1484	-	792	948
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	939	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1484	-	789	948
Mov Cap-2 Maneuver	-	-	-	-	789	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	935	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.5	9.35
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	858	-	-	122	-
HCM Lane V/C Ratio	0.035	-	-	0.004	-
HCM Control Delay (s/veh)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	14	1	0	10	1	2	161	7	0	94	47
Future Vol, veh/h	63	14	1	0	10	1	2	161	7	0	94	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	2	2
Mvmt Flow	72	16	1	0	11	1	2	183	8	0	107	53

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	327	329	134	306	352	187	160	0	0	191	0	0
Stage 1	134	134	-	191	191	-	-	-	-	-	-	-
Stage 2	193	195	-	115	160	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	630	593	921	650	576	860	1431	-	-	1395	-	-
Stage 1	875	790	-	815	746	-	-	-	-	-	-	-
Stage 2	813	743	-	895	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	616	592	921	631	575	860	1431	-	-	1395	-	-
Mov Cap-2 Maneuver	616	592	-	631	575	-	-	-	-	-	-	-
Stage 1	875	790	-	813	744	-	-	-	-	-	-	-
Stage 2	798	741	-	876	769	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.85	11.2	0.09	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	21	-	-	614	593	1395	-	-
HCM Lane V/C Ratio	0.002	-	-	0.144	0.021	-	-	-
HCM Control Delay (s/veh)	7.5	0	-	11.8	11.2	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-

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	2	5	4	5	7	6	2	57	6	1	25	3
Future Vol, veh/h	2	5	4	5	7	6	2	57	6	1	25	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	6	5	6	8	7	2	69	7	1	30	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	112	115	32	113	113	72	34	0	0	76	0	0
Stage 1	34	34	-	77	77	-	-	-	-	-	-	-
Stage 2	78	81	-	36	36	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	870	779	1048	870	781	995	1591	-	-	1536	-	-
Stage 1	987	870	-	937	835	-	-	-	-	-	-	-
Stage 2	936	832	-	985	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	853	777	1048	857	779	995	1591	-	-	1536	-	-
Mov Cap-2 Maneuver	853	777	-	857	779	-	-	-	-	-	-	-
Stage 1	986	870	-	935	833	-	-	-	-	-	-	-
Stage 2	919	830	-	973	868	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.19	9.28	0.22	0.25
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	54	-	-	873	863	61	-	-
HCM Lane V/C Ratio	0.002	-	-	0.015	0.025	0.001	-	-
HCM Control Delay (s/veh)	7.3	0	-	9.2	9.3	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	22	2	0	4	0	3	1	0	2	1	0
Future Vol, veh/h	0	22	2	0	4	0	3	1	0	2	1	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	23	2	0	4	0	3	1	0	2	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	4	0	0	26	0	0	29	29	24	28	30	4
Stage 1	-	-	-	-	-	-	24	24	-	4	4	-
Stage 2	-	-	-	-	-	-	5	4	-	24	26	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1631	-	-	1602	-	-	985	868	1058	986	867	1085
Stage 1	-	-	-	-	-	-	999	879	-	1023	896	-
Stage 2	-	-	-	-	-	-	1023	896	-	999	878	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1631	-	-	1602	-	-	984	868	1058	985	867	1085
Mov Cap-2 Maneuver	-	-	-	-	-	-	984	868	-	985	867	-
Stage 1	-	-	-	-	-	-	999	879	-	1023	896	-
Stage 2	-	-	-	-	-	-	1021	896	-	998	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	8.8	8.83
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	952	1631	-	-	1602	-	-	942
HCM Lane V/C Ratio	0.004	-	-	-	-	-	-	0.003
HCM Control Delay (s/veh)	8.8	0	-	-	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	13	158	82	2
Future Vol, veh/h	0	5	13	158	82	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	4	0
Mvmt Flow	0	5	14	172	89	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	290	90	91	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	705	973	1516	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	697	973	1516	-	-	-
Mov Cap-2 Maneuver	697	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	838	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.72	0.56	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	137	-	973	-	-
HCM Lane V/C Ratio	0.009	-	0.006	-	-
HCM Control Delay (s/veh)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	4	61	11	31	15	101	45	14	56	2
Future Vol, veh/h	0	2	4	61	11	31	15	101	45	14	56	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	100
Mvmt Flow	0	2	5	71	13	36	17	117	52	16	65	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	258	303	66	277	278	144	67	0	0	170	0	0
Stage 1	99	99	-	178	178	-	-	-	-	-	-	-
Stage 2	159	205	-	99	100	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	700	613	1003	679	633	909	1547	-	-	1420	-	-
Stage 1	912	817	-	828	755	-	-	-	-	-	-	-
Stage 2	848	736	-	912	816	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	642	598	1003	657	618	909	1547	-	-	1420	-	-
Mov Cap-2 Maneuver	642	598	-	657	618	-	-	-	-	-	-	-
Stage 1	902	807	-	818	746	-	-	-	-	-	-	-
Stage 2	791	727	-	895	806	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.44	11.08	0.69	1.47
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	158	-	-	818	712	348	-	-
HCM Lane V/C Ratio	0.011	-	-	0.009	0.168	0.011	-	-
HCM Control Delay (s/veh)	7.4	0	-	9.4	11.1	7.6	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.6	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	3	17	162	8	17
Future Vol, veh/h	84	3	17	162	8	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	94	3	19	182	9	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	98	0	316	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	220	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1508	-	681	966
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	821	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1508	-	671	966
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	847	-	-	171	-
HCM Lane V/C Ratio	0.033	-	-	0.013	-
HCM Control Delay (s/veh)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	13	93	11	32	210	8	32	26	32	3	24	5
Future Vol, veh/h	13	93	11	32	210	8	32	26	32	3	24	5
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	6	0	0	0	4	0
Mvmt Flow	15	108	13	37	244	9	37	30	37	3	28	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	253	0	0	121	0	0	477	473	115	477	474	249
Stage 1	-	-	-	-	-	-	145	145	-	323	323	-
Stage 2	-	-	-	-	-	-	333	328	-	153	151	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.16	6.5	6.2	7.1	6.54	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.54	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.554	4	3.3	3.5	4.036	3.3
Pot Cap-1 Maneuver	1323	-	-	1479	-	-	492	493	943	502	486	795
Stage 1	-	-	-	-	-	-	849	781	-	693	647	-
Stage 2	-	-	-	-	-	-	673	651	-	854	768	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1323	-	-	1479	-	-	441	472	943	434	466	795
Mov Cap-2 Maneuver	-	-	-	-	-	-	441	472	-	434	466	-
Stage 1	-	-	-	-	-	-	838	771	-	673	628	-
Stage 2	-	-	-	-	-	-	619	632	-	778	759	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.86	0.96	12.95	12.87
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	557	196	-	-	229	-	-	494
HCM Lane V/C Ratio	0.188	0.011	-	-	0.025	-	-	0.075
HCM Control Delay (s/veh)	12.9	7.8	0	-	7.5	0	-	12.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	131	334	134	66	14
Future Vol, veh/h	26	131	334	134	66	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	30	149	380	152	75	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	994	83	91	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	274	979	1517	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	205	979	1517	-	-	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12	5.83	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1517	-	205	979	-	-
HCM Lane V/C Ratio	0.25	-	0.144	0.152	-	-
HCM Control Delay (s/veh)	8.2	-	25.4	9.3	-	-
HCM Lane LOS	A	-	D	A	-	-
HCM 95th %tile Q(veh)	1	-	0.5	0.5	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	33	49	103	44	1
Future Vol, veh/h	0	33	49	103	44	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	36	54	113	48	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	270	49	49	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	221	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	724	1025	1570	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	699	1025	1570	-	-	-
Mov Cap-2 Maneuver	699	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	821	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.64	2.38	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	1025	-	-
HCM Lane V/C Ratio	0.034	-	0.035	-	-
HCM Control Delay (s/veh)	7.4	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	6	8	3	2
Future Vol, veh/h	2	9	6	8	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	13	9	12	4	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	35	6	7	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	983	1083	1626	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	977	1083	1626	-	-	-
Mov Cap-2 Maneuver	977	-	-	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	998	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.44	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	771	-	1062	-	-
HCM Lane V/C Ratio	0.005	-	0.015	-	-
HCM Control Delay (s/veh)	7.2	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	136	122	15	47	266
Future Vol, veh/h	22	136	122	15	47	266
Conflicting Peds, #/hr	0	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	1	0	0	0	1
Mvmt Flow	25	153	137	17	53	299

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	152	0	0	157	0
Stage 1	149	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Critical Hdwy	6.4	6.21	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	-	-	2.2	-
Pot Cap-1 Maneuver	498	897	-	-	1435	-
Stage 1	884	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	478	892	-	-	1431	-
Mov Cap-2 Maneuver	478	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	653	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.3	0	1.14
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	478	892	1431	-
HCM Lane V/C Ratio	-	-	0.052	0.171	0.037	-
HCM Control Delay (s/veh)	-	-	12.9	9.9	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.6	0.1	-

Lanes, Volumes, Timings
60: 15th St N & River Dr N

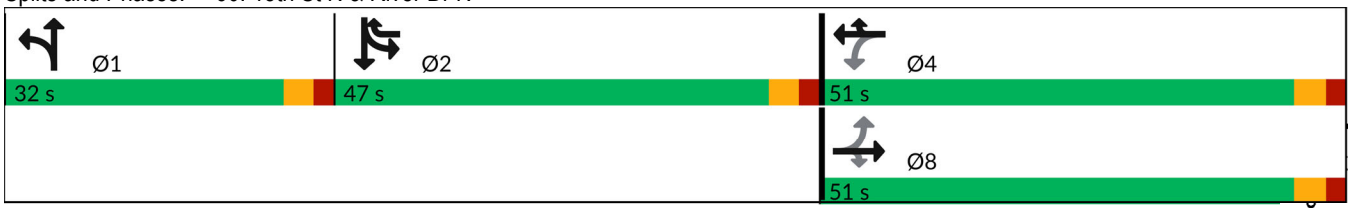
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	349	74	34	343	426	149	566	53	361	276	21
Future Volume (vph)	15	349	74	34	343	426	149	566	53	361	276	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	100		500	250		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1554	1716	1444	1662	1733	1473	1662	3241	0	0	3183	0
Flt Permitted	0.261			0.251			0.950				0.973	
Satd. Flow (perm)	427	1716	1444	439	1733	1473	1662	3241	0	0	3183	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			17		7			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		526			805			584			552	
Travel Time (s)		12.0			18.3			13.3			12.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	2%	3%	0%	1%	1%	0%	1%	4%	1%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	401	85	39	394	490	171	712	0	0	756	0
Turn Type	Perm	NA	Perm	Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases		8			4	4 2	1	1		2	2	
Permitted Phases	8		8	4								
Total Split (s)	51.0	51.0	51.0	51.0	51.0		32.0	32.0		47.0	47.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0			5.0	
Act Effct Green (s)	33.1	33.1	33.1	33.1	33.1	73.4	27.6	27.6			35.2	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.66	0.25	0.25			0.32	
v/c Ratio	0.13	0.78	0.17	0.30	0.76	0.50	0.41	0.87			0.75	
Control Delay (s/veh)	32.1	47.9	6.9	37.8	46.4	10.6	42.9	55.4			39.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay (s/veh)	32.1	47.9	6.9	37.8	46.4	10.6	42.9	55.4			39.9	
LOS	C	D	A	D	D	B	D	E			D	
Approach Delay (s/veh)		40.5			27.1			53.1			40.0	
Approach LOS		D			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 111.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay (s/veh): 39.9 Intersection LOS: D
Intersection Capacity Utilization 81.3% ICU Level of Service D
Analysis Period (min) 15
Description: 15th St N/River Dr N

Splits and Phases: 60: 15th St N & River Dr N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	675	0	0	0	0	0	599	85	0	0	0
Future Volume (veh/h)	67	675	0	0	0	0	0	599	85	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1750	1682	0				0	1723	1736			
Adj Flow Rate, veh/h	92	925	0				0	821	116			
Peak Hour Factor	0.73	0.73	0.73				0.73	0.73	0.73			
Percent Heavy Veh, %	0	5	0				0	2	1			
Cap, veh/h	127	1281	0				0	1081	153			
Arrive On Green	0.43	0.43	0.00				0.00	0.38	0.38			
Sat Flow, veh/h	295	3053	0				0	2965	407			
Grp Volume(v), veh/h	519	498	0				0	467	470			
Grp Sat Flow(s),veh/h/ln	1667	1598	0				0	1637	1649			
Q Serve(g_s), s	13.1	13.1	0.0				0.0	12.6	12.6			
Cycle Q Clear(g_c), s	13.1	13.1	0.0				0.0	12.6	12.6			
Prop In Lane	0.18		0.00				0.00		0.25			
Lane Grp Cap(c), veh/h	719	689	0				0	615	620			
V/C Ratio(X)	0.72	0.72	0.00				0.00	0.76	0.76			
Avail Cap(c_a), veh/h	1153	1105	0				0	809	816			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	11.9	11.9	0.0				0.0	13.8	13.8			
Incr Delay (d2), s/veh	1.4	1.5	0.0				0.0	3.0	3.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.1	4.0	0.0				0.0	4.4	4.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.3	13.4	0.0				0.0	16.9	16.8			
LnGrp LOS	B	B						B	B			
Approach Vol, veh/h		1017						937				
Approach Delay, s/veh		13.3						16.8				
Approach LOS		B						B				

Timer - Assigned Phs	2	4
Phs Duration (G+Y+Rc), s	26.8	24.0
Change Period (Y+Rc), s	4.9	4.9
Max Green Setting (Gmax), s	35.1	25.1
Max Q Clear Time (g_c+I1), s	15.1	14.6
Green Ext Time (p_c), s	6.8	4.4

Intersection Summary	
HCM 7th Control Delay, s/veh	15.0
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	23.5

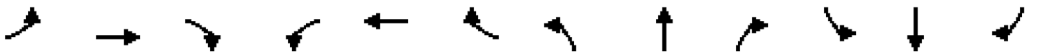
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	1498	57	41	1944	54	5	2	32	2	2	37
Future Vol, veh/h	35	1498	57	41	1944	54	5	2	32	2	2	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	4	4	4	3	3	3
Mvmt Flow	38	1628	62	45	2113	59	5	2	35	2	2	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2172	0	0	1690	0	0	2671	3996	845	2960	3998	1086
Stage 1	-	-	-	-	-	-	1735	1735	-	2232	2232	-
Stage 2	-	-	-	-	-	-	935	2261	-	728	1766	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.48	6.58	7.18	6.46	6.56	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	7.38	5.58	-	7.36	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.78	5.58	-	6.76	5.56	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.84	4.04	3.94	3.83	4.03	3.93
Pot Cap-1 Maneuver	102	-	-	179	-	-	23	3	260	15	3	180
Stage 1	-	-	-	-	-	-	59	137	-	26	77	-
Stage 2	-	-	-	-	-	-	254	74	-	344	134	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	102	-	-	179	-	-	8	~ 1	260	6	~ 1	180
Mov Cap-2 Maneuver	-	-	-	-	-	-	8	~ 1	-	6	~ 1	-
Stage 1	-	-	-	-	-	-	37	86	-	19	58	-
Stage 2	-	-	-	-	-	-	143	55	-	182	84	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.32	0.64	$ 1130.48	$ 971.41
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	17	102	-	-	179	-	-	20
HCM Lane V/C Ratio	2.469	0.372	-	-	0.249	-	-	2.234
HCM Control Delay (s/veh)	$ 1130.5	59.8	-	-	31.6	-	-	$ 971.4
HCM Lane LOS	F	F	-	-	D	-	-	F
HCM 95th %tile Q(veh)	5.9	1.5	-	-	0.9	-	-	5.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	193	88	63	312	87	75	191	49	82	235	47
Future Volume (veh/h)	8	193	88	63	312	87	75	191	49	82	235	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	9	212	97	69	343	96	82	210	54	90	258	52
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	393	668	295	447	766	211	228	387	88	224	402	73
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	888	2243	990	1001	2573	710	253	1101	250	245	1143	207
Grp Volume(v), veh/h	9	155	154	69	220	219	346	0	0	400	0	0
Grp Sat Flow(s),veh/h/ln	888	1663	1570	1001	1663	1621	1604	0	0	1596	0	0
Q Serve(g_s), s	0.3	2.3	2.4	1.8	3.4	3.5	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	3.8	2.3	2.4	4.3	3.4	3.5	5.2	0.0	0.0	6.5	0.0	0.0
Prop In Lane	1.00		0.63	1.00		0.44	0.24		0.16	0.22		0.13
Lane Grp Cap(c), veh/h	393	495	467	447	495	482	703	0	0	699	0	0
V/C Ratio(X)	0.02	0.31	0.33	0.15	0.44	0.45	0.49	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1180	1970	1860	1335	1970	1920	3424	0	0	3488	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.6	8.7	8.7	10.4	9.1	9.1	8.4	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.2	0.6	0.7	0.5	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.6	0.3	0.9	0.9	1.3	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.7	9.0	9.1	10.5	9.7	9.8	9.0	0.0	0.0	9.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		318			508			346			400	
Approach Delay, s/veh		9.1			9.8			9.0			9.5	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.7		17.2		14.7		17.2				
Change Period (Y+Rc), s		5.2		6.0		5.2		6.0				
Max Green Setting (Gmax), s		37.8		71.0		37.8		71.0				
Max Q Clear Time (g_c+I1), s		5.8		8.5		6.3		7.2				
Green Ext Time (p_c), s		2.0		3.0		3.2		2.6				
Intersection Summary												
HCM 7th Control Delay, s/veh			9.4									
HCM 7th LOS			A									

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

APPENDIX F-3:

Projected Intersection Operations

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

AM PEAK PERIOD

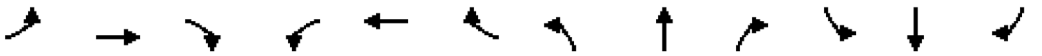
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	8	9	2	7	14	9	408	2	26	124	50
Future Vol, veh/h	85	8	9	2	7	14	9	408	2	26	124	50
Conflicting Peds, #/hr	2	0	2	2	0	2	22	0	10	10	0	22
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	0	0	0	0	0	11	1	0	8	7	6
Mvmt Flow	101	10	11	2	8	17	11	486	2	31	148	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	775	781	201	735	810	499	229	0	0	498	0	0
Stage 1	261	261	-	519	519	-	-	-	-	-	-	-
Stage 2	514	520	-	216	291	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.2	7.1	6.5	6.2	4.21	-	-	4.18	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.3	3.5	4	3.3	2.299	-	-	2.272	-	-
Pot Cap-1 Maneuver	315	329	844	338	316	575	1287	-	-	1035	-	-
Stage 1	744	696	-	544	536	-	-	-	-	-	-	-
Stage 2	544	536	-	790	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	278	304	825	305	293	569	1261	-	-	1026	-	-
Mov Cap-2 Maneuver	278	304	-	305	293	-	-	-	-	-	-	-
Stage 1	703	658	-	532	525	-	-	-	-	-	-	-
Stage 2	512	524	-	741	638	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	25.27	14.22	0.17	1.12
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	39	-	-	297	418	221	-	-
HCM Lane V/C Ratio	0.009	-	-	0.409	0.066	0.03	-	-
HCM Control Delay (s/veh)	7.9	0	-	25.3	14.2	8.6	0	-
HCM Lane LOS	A	A	-	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.9	0.2	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	772	36	148	458	3	43	281	452	197	149	179
Future Volume (veh/h)	213	772	36	148	458	3	43	281	452	197	149	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1709	1750	1736	1682	1750	1682	1709	1750	1736	1709	1682
Adj Flow Rate, veh/h	277	1005	47	193	596	4	56	366	589	257	194	233
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	3	0	1	5	0	5	3	0	1	3	5
Cap, veh/h	219	1050	990	202	807	375	0	894	502	280	248	300
Arrive On Green	0.13	0.32	0.32	0.06	0.25	0.25	0.34	0.28	0.28	0.17	0.08	0.08
Sat Flow, veh/h	1641	3247	1483	3208	3195	1483	0	3247	1483	1654	3247	1425
Grp Volume(v), veh/h	277	1005	47	193	596	4	0	366	589	257	194	233
Grp Sat Flow(s),veh/h/ln	1641	1624	1483	1604	1598	1483	0	1624	1483	1654	1624	1425
Q Serve(g_s), s	17.0	38.5	0.5	7.6	21.8	0.3	0.0	11.7	35.0	19.4	7.5	7.5
Cycle Q Clear(g_c), s	17.0	38.5	0.5	7.6	21.8	0.3	0.0	11.7	35.0	19.4	7.5	7.5
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	1050	990	202	807	375	0	894	502	280	248	300
V/C Ratio(X)	1.26	0.96	0.05	0.96	0.74	0.01	0.00	0.41	1.17	0.92	0.78	0.78
Avail Cap(c_a), veh/h	219	1111	1018	202	867	403	0	894	502	546	894	583
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	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	42.1	1.8	59.4	43.6	35.6	0.0	37.6	42.1	52.0	57.6	18.7
Incr Delay (d2), s/veh	149.3	16.8	0.0	50.3	2.6	0.0	0.0	0.3	97.7	5.1	2.0	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	15.9	17.2	0.2	4.4	8.6	0.1	0.0	4.8	29.3	8.3	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	204.3	58.9	1.8	109.6	46.2	35.6	0.0	37.9	139.8	57.1	59.7	20.3
LnGrp LOS	F	E	A	F	D	D		D	F	E	E	C
Approach Vol, veh/h		1329			793			955			684	
Approach Delay, s/veh		87.2			61.6			100.7			45.3	
Approach LOS		F			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	47.6	49.8	15.7	23.0	38.6	24.5	41.0
Change Period (Y+Rc), s	6.0	6.5	6.0	6.0	6.0	6.5	3.0	6.0
Max Green Setting (Gmax), s	8.0	43.5	39.0	35.0	17.0	34.5	42.0	35.0
Max Q Clear Time (g_c+I1), s	9.6	40.5	0.0	9.5	19.0	23.8	21.4	37.0
Green Ext Time (p_c), s	0.0	0.6	0.0	0.2	0.0	0.6	0.1	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	77.6
HCM 7th LOS	E

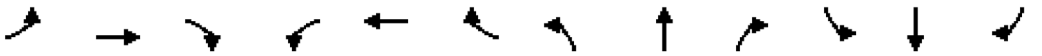
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	7	12	28	1	2	8	401	268	3	509	11
Future Vol, veh/h	5	7	12	28	1	2	8	401	268	3	509	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	20	0	0	0	0	0	13	2	2	0	4	36
Mvmt Flow	7	10	17	40	1	3	11	567	379	4	720	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1043	1705	368	1153	1524	473	736	0	0	946	0	0
Stage 1	736	736	-	779	779	-	-	-	-	-	-	-
Stage 2	307	969	-	373	744	-	-	-	-	-	-	-
Critical Hdwy	7.9	6.5	6.9	7.5	6.5	6.9	4.36	-	-	4.1	-	-
Critical Hdwy Stg 1	6.9	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.9	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.7	4	3.3	3.5	4	3.3	2.33	-	-	2.2	-	-
Pot Cap-1 Maneuver	161	92	635	155	119	543	797	-	-	733	-	-
Stage 1	338	428	-	359	409	-	-	-	-	-	-	-
Stage 2	630	334	-	625	424	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	155	90	635	132	117	543	797	-	-	733	-	-
Mov Cap-2 Maneuver	155	90	-	132	117	-	-	-	-	-	-	-
Stage 1	336	425	-	354	403	-	-	-	-	-	-	-
Stage 2	616	330	-	591	422	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	28.52	42.78	0.11	0.06
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	797	-	-	187	138	733	-	-
HCM Lane V/C Ratio	0.014	-	-	0.182	0.318	0.006	-	-
HCM Control Delay (s/veh)	9.6	-	-	28.5	42.8	9.9	-	-
HCM Lane LOS	A	-	-	D	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	1.3	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	599	3	3	321	41	5	16	13	132	8	33
Future Volume (veh/h)	38	599	3	3	321	41	5	16	13	132	8	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1682	1682	1300	1750	1600	1750	1204	1668	1750	1750	1750	1709
Adj Flow Rate, veh/h	45	708	4	4	380	48	6	19	15	156	9	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	33	0	11	0	40	6	0	0	0	3
Cap, veh/h	529	1277	7	431	1065	134	183	174	118	454	17	53
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	861	3258	18	690	2716	341	114	857	582	1027	83	262
Grp Volume(v), veh/h	45	347	365	4	211	217	40	0	0	204	0	0
Grp Sat Flow(s),veh/h/ln	861	1598	1678	690	1520	1537	1552	0	0	1372	0	0
Q Serve(g_s), s	1.0	4.4	4.4	0.1	2.6	2.6	0.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	3.6	4.4	4.4	4.5	2.6	2.6	0.5	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.22	0.15		0.37	0.76		0.19
Lane Grp Cap(c), veh/h	529	626	658	431	596	603	475	0	0	524	0	0
V/C Ratio(X)	0.09	0.55	0.55	0.01	0.35	0.36	0.08	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	822	1170	1229	666	1113	1125	1917	0	0	1822	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	6.1	6.1	7.9	5.6	5.6	8.5	0.0	0.0	9.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.0	0.4	0.4	0.1	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.9	6.4	6.4	7.9	5.7	5.7	8.5	0.0	0.0	9.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A			A		
Approach Vol, veh/h		757			432			40			204	
Approach Delay, s/veh		6.4			5.7			8.5			9.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.2		10.8		15.2		10.8				
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5				
Max Green Setting (Gmax), s		19.0		30.5		19.0		30.5				
Max Q Clear Time (g_c+I1), s		6.4		2.5		6.5		5.6				
Green Ext Time (p_c), s		2.6		0.1		1.4		0.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			6.8									
HCM 7th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	633	92	183	302	48	83	258	61	103	183	27
Future Volume (veh/h)	48	633	92	183	302	48	83	258	61	103	183	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1682	1709	1654	1627	1668	1695	1736	1723	1695	1723	1695
Adj Flow Rate, veh/h	65	854	124	247	407	65	112	348	82	139	247	36
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	5	3	7	9	6	4	1	2	4	2	4
Cap, veh/h	411	1021	148	263	1081	171	343	497	116	298	585	84
Arrive On Green	0.04	0.36	0.36	0.08	0.40	0.40	0.08	0.19	0.19	0.09	0.20	0.20
Sat Flow, veh/h	1641	2798	406	1576	2672	424	1615	2656	618	1615	2871	413
Grp Volume(v), veh/h	65	488	490	247	234	238	112	214	216	139	139	144
Grp Sat Flow(s),veh/h/ln	1641	1598	1607	1576	1546	1549	1615	1650	1624	1615	1637	1648
Q Serve(g_s), s	1.9	21.1	21.1	6.0	8.1	8.2	4.2	9.2	9.4	5.1	5.6	5.8
Cycle Q Clear(g_c), s	1.9	21.1	21.1	6.0	8.1	8.2	4.2	9.2	9.4	5.1	5.6	5.8
Prop In Lane	1.00		0.25	1.00		0.27	1.00		0.38	1.00		0.25
Lane Grp Cap(c), veh/h	411	583	586	263	625	627	343	309	304	298	333	336
V/C Ratio(X)	0.16	0.84	0.84	0.94	0.37	0.38	0.33	0.69	0.71	0.47	0.42	0.43
Avail Cap(c_a), veh/h	736	1002	1008	263	724	726	542	664	654	469	659	663
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	14.2	22.0	22.0	21.8	15.8	15.9	22.3	28.8	28.9	22.3	26.3	26.3
Incr Delay (d2), s/veh	0.2	1.2	1.2	38.7	0.4	0.4	0.4	2.8	3.1	1.1	0.8	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	0.7	7.6	7.6	5.4	2.7	2.8	1.6	3.7	3.8	2.0	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.4	23.2	23.2	60.5	16.2	16.2	22.7	31.6	31.9	23.4	27.1	27.2
LnGrp LOS	B	C	C	E	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1043			719			542			422	
Approach Delay, s/veh		22.7			31.4			29.9			25.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	33.1	10.7	20.9	8.0	36.1	11.9	19.7
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5
Max Green Setting (Gmax), s	6.0	47.5	15.0	30.5	18.0	35.5	15.0	30.5
Max Q Clear Time (g_c+I1), s	8.0	23.1	6.2	7.8	3.9	10.2	7.1	11.4
Green Ext Time (p_c), s	0.0	4.5	0.1	1.6	0.1	1.4	0.2	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	26.9
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	703	5	40	390	309	6	167	178	493	32	157
Future Volume (veh/h)	118	703	5	40	390	309	6	167	178	493	32	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1682	1695	1477	1709	1614	1695	1518	1709	1723	1736	1668	1573
Adj Flow Rate, veh/h	150	895	6	51	496	393	8	213	227	627	41	200
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	4	20	3	10	4	17	3	2	1	6	13
Cap, veh/h	287	1099	7	173	873	409	389	321	273	723	240	191
Arrive On Green	0.08	0.34	0.34	0.03	0.28	0.28	0.27	0.19	0.19	0.23	0.14	0.14
Sat Flow, veh/h	1602	3280	22	1628	3066	1437	1446	1709	1458	3208	1668	1330
Grp Volume(v), veh/h	150	439	462	51	496	393	8	213	227	627	41	200
Grp Sat Flow(s),veh/h/ln	1602	1611	1691	1628	1533	1437	1446	1709	1458	1604	1668	1330
Q Serve(g_s), s	6.3	25.0	25.0	2.2	13.8	27.0	0.4	11.6	15.0	18.8	2.2	11.2
Cycle Q Clear(g_c), s	6.3	25.0	25.0	2.2	13.8	27.0	0.4	11.6	15.0	18.8	2.2	11.2
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	540	567	173	873	409	389	321	273	723	240	191
V/C Ratio(X)	0.52	0.81	0.81	0.30	0.57	0.96	0.02	0.66	0.83	0.87	0.17	1.05
Avail Cap(c_a), veh/h	314	540	567	283	873	409	426	504	429	961	500	399
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	22.4	30.4	30.4	26.3	30.6	35.3	26.9	37.7	39.1	37.3	37.6	25.8
Incr Delay (d2), s/veh	1.5	9.3	8.9	0.9	0.9	34.4	0.0	2.4	7.6	6.6	0.3	43.0
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	2.5	10.8	11.3	0.9	5.1	13.1	0.1	5.0	5.9	7.9	0.9	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.9	39.8	39.3	27.2	31.4	69.6	26.9	40.1	46.8	44.0	38.0	68.8
LnGrp LOS	C	D	D	C	C	E	C	D	D	D	D	F
Approach Vol, veh/h		1051			940			448			868	
Approach Delay, s/veh		37.3			47.2			43.2			49.4	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	39.1	32.4	20.4	13.3	34.0	28.6	24.3
Change Period (Y+Rc), s	5.0	5.5	5.5	6.0	5.0	5.5	6.0	5.5
Max Green Setting (Gmax), s	10.0	28.5	29.5	30.0	10.0	28.5	30.0	29.5
Max Q Clear Time (g_c+I1), s	4.2	27.0	2.4	13.2	8.3	29.0	20.8	17.0
Green Ext Time (p_c), s	0.0	0.9	0.0	0.8	0.1	0.0	1.7	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	44.1
HCM 7th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	383	39	69	286	19	37	187	112	45	170	60
Future Volume (veh/h)	122	383	39	69	286	19	37	187	112	45	170	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1668	1641	1654	1573	1600	1641	1736	1723	1723	1736	1723
Adj Flow Rate, veh/h	205	643	66	116	480	32	62	314	188	76	286	101
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	6	8	7	13	11	8	1	2	2	1	2
Cap, veh/h	411	896	92	314	747	50	243	590	493	283	416	147
Arrive On Green	0.12	0.31	0.31	0.08	0.26	0.26	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1628	2900	297	1576	2842	189	873	1736	1452	824	1224	432
Grp Volume(v), veh/h	205	351	358	116	252	260	62	314	188	76	0	387
Grp Sat Flow(s),veh/h/ln	1628	1585	1613	1576	1494	1537	873	1736	1452	824	0	1656
Q Serve(g_s), s	5.2	11.5	11.6	3.1	8.8	8.8	3.9	8.5	5.8	4.8	0.0	11.8
Cycle Q Clear(g_c), s	5.2	11.5	11.6	3.1	8.8	8.8	15.7	8.5	5.8	13.3	0.0	11.8
Prop In Lane	1.00		0.18	1.00		0.12	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	411	489	498	314	393	404	243	590	493	283	0	562
V/C Ratio(X)	0.50	0.72	0.72	0.37	0.64	0.64	0.25	0.53	0.38	0.27	0.00	0.69
Avail Cap(c_a), veh/h	492	946	963	465	892	918	376	853	713	408	0	814
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	0.00	1.00
Uniform Delay (d), s/veh	13.6	18.0	18.0	14.7	19.1	19.2	23.4	15.6	14.7	21.0	0.0	16.7
Incr Delay (d2), s/veh	0.9	2.0	2.0	0.7	1.7	1.7	0.5	0.7	0.5	0.5	0.0	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	1.8	4.0	4.1	1.0	3.0	3.1	0.8	3.1	1.8	0.9	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.5	20.0	20.0	15.4	20.9	20.9	24.0	16.3	15.2	21.5	0.0	18.2
LnGrp LOS	B	B	B	B	C	C	C	B	B	C		B
Approach Vol, veh/h		914			628			564			463	
Approach Delay, s/veh		18.7			19.9			16.8			18.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	23.1		26.1	12.1	20.4		26.1				
Change Period (Y+Rc), s	5.0	5.0		6.2	5.0	5.0		6.2				
Max Green Setting (Gmax), s	10.0	35.0		28.8	10.0	35.0		28.8				
Max Q Clear Time (g_c+I1), s	5.1	13.6		15.3	7.2	10.8		17.7				
Green Ext Time (p_c), s	0.1	4.5		2.5	0.2	3.2		2.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	18.6
HCM 7th LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	330	106	91	406	564	263
Future Volume (veh/h)	330	106	91	406	564	263
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1682	1709	1695	1695	1709	1573
Adj Flow Rate, veh/h	283	293	118	526	731	341
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	3	4	4	3	13
Cap, veh/h	355	321	362	2111	1758	1016
Arrive On Green	0.22	0.22	0.06	0.66	0.54	0.54
Sat Flow, veh/h	1602	1448	1615	3306	3333	1333
Grp Volume(v), veh/h	283	293	118	526	731	341
Grp Sat Flow(s),veh/h/ln	1602	1448	1615	1611	1624	1333
Q Serve(g_s), s	16.5	19.5	3.0	6.7	13.2	8.1
Cycle Q Clear(g_c), s	16.5	19.5	3.0	6.7	13.2	8.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	355	321	362	2111	1758	1016
V/C Ratio(X)	0.80	0.91	0.33	0.25	0.42	0.34
Avail Cap(c_a), veh/h	373	337	488	2111	1758	1016
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.4	37.6	9.3	7.0	13.4	3.7
Incr Delay (d2), s/veh	11.1	27.7	0.5	0.3	0.2	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	9.3	1.0	2.2	4.6	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	47.6	65.3	9.8	7.3	13.6	3.9
LnGrp LOS	D	E	A	A	B	A
Approach Vol, veh/h	576			644	1072	
Approach Delay, s/veh	56.6			7.8	10.5	
Approach LOS	E			A	B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.3	59.7			71.0	27.9
Change Period (Y+Rc), s	5.5	6.2			6.2	6.0
Max Green Setting (Gmax), s	13.5	45.8			64.8	23.0
Max Q Clear Time (g_c+I1), s	5.0	15.2			8.7	21.5
Green Ext Time (p_c), s	0.2	7.3			4.1	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	21.3
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	12	110	39	17	40	100	613	50	46	627	84
Future Volume (veh/h)	57	12	110	39	17	40	100	613	50	46	627	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1682	1750	1682	1750	1750	1750	1736	1668	1750	1750	1614	1736
Adj Flow Rate, veh/h	74	15	142	50	22	52	129	791	65	59	809	108
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	5	0	5	0	0	0	1	6	0	0	10	1
Cap, veh/h	218	24	223	149	76	179	420	2127	175	443	1707	228
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.72	0.72	0.63	0.63	0.63
Sat Flow, veh/h	1192	144	1361	1150	462	1092	1654	2965	244	603	2718	363
Grp Volume(v), veh/h	74	0	157	50	0	74	129	423	433	59	456	461
Grp Sat Flow(s),veh/h/ln	1192	0	1505	1150	0	1554	1654	1585	1624	603	1533	1548
Q Serve(g_s), s	5.8	0.0	9.7	4.2	0.0	4.2	2.5	10.2	10.2	4.1	15.6	15.6
Cycle Q Clear(g_c), s	9.9	0.0	9.7	13.9	0.0	4.2	2.5	10.2	10.2	5.5	15.6	15.6
Prop In Lane	1.00		0.90	1.00		0.70	1.00		0.15	1.00		0.23
Lane Grp Cap(c), veh/h	218	0	246	149	0	254	420	1137	1165	443	963	972
V/C Ratio(X)	0.34	0.00	0.64	0.34	0.00	0.29	0.31	0.37	0.37	0.13	0.47	0.47
Avail Cap(c_a), veh/h	347	0	409	273	0	423	572	1137	1165	443	963	972
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	40.8	0.0	38.8	45.2	0.0	36.4	7.0	5.4	5.4	8.2	9.8	9.8
Incr Delay (d2), s/veh	0.9	0.0	2.7	1.3	0.0	0.6	0.4	0.9	0.9	0.1	0.4	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	1.7	0.0	3.7	1.2	0.0	1.6	0.8	3.1	3.2	0.5	4.9	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.7	0.0	41.5	46.6	0.0	37.1	7.4	6.3	6.3	8.3	10.1	10.1
LnGrp LOS	D		D	D		D	A	A	A	A	B	B
Approach Vol, veh/h		231			124			985			976	
Approach Delay, s/veh		41.6			40.9			6.5			10.0	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.9	68.1		22.2		77.0		22.2				
Change Period (Y+Rc), s	4.0	5.8		6.0		5.8		6.0				
Max Green Setting (Gmax), s	4.9	53.2		27.0		71.2		27.0				
Max Q Clear Time (g_c+I1), s	4.5	17.6		15.9		12.2		11.9				
Green Ext Time (p_c), s	0.2	8.0		0.4		6.7		1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	13.3
HCM 7th LOS	B

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	29	2	59	18	0	9	0	631	41	27	647	0
Future Vol, veh/h	29	2	59	18	0	9	0	631	41	27	647	0
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	6	0	0	0	5	5	4	9	0
Mvmt Flow	41	3	84	26	0	13	0	896	58	38	919	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1447	1955	463	1464	1926	479	923	0	0	956	0	0
Stage 1	999	999	-	927	927	-	-	-	-	-	-	-
Stage 2	448	956	-	537	999	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.62	6.5	6.9	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.62	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.62	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.56	4	3.3	2.2	-	-	2.24	-	-
Pot Cap-1 Maneuver	94	65	551	86	67	538	749	-	-	703	-	-
Stage 1	265	324	-	281	350	-	-	-	-	-	-	-
Stage 2	565	339	-	485	324	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	86	61	549	66	63	537	746	-	-	701	-	-
Mov Cap-2 Maneuver	86	61	-	66	63	-	-	-	-	-	-	-
Stage 1	249	305	-	280	349	-	-	-	-	-	-	-
Stage 2	552	338	-	385	305	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	56.5	68.35	0	0.42
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	746	-	-	189	93	701	-	-
HCM Lane V/C Ratio	-	-	-	0.676	0.411	0.055	-	-
HCM Control Delay (s/veh)	0	-	-	56.5	68.3	10.4	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.1	1.7	0.2	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	4	113	55	538	625	1
Future Vol, veh/h	4	113	55	538	625	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	3	2	4	7	0
Mvmt Flow	5	153	74	728	846	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1359	423	847	0	-	0
Stage 1	846	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.8	6.96	4.14	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.33	2.22	-	-	-
Pot Cap-1 Maneuver	142	576	786	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	576	786	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	SB	NE	SW
HCM Control Delay, s/v	15.06	0.93	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	786	-	515	-	-
HCM Lane V/C Ratio	0.095	-	0.307	-	-
HCM Control Delay (s/veh)	10.1	-	15.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.3	-	-

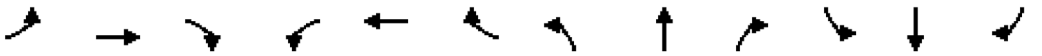
Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	331	5	0	588	611	247
Future Volume (veh/h)	331	5	0	588	611	247
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1723	1682	0	1668	1627	1709
Adj Flow Rate, veh/h	501	8	0	889	924	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	5	0	6	9	3
Cap, veh/h	580	504	0	1353	1320	
Arrive On Green	0.35	0.35	0.00	0.43	0.43	0.00
Sat Flow, veh/h	1641	1425	0	3336	3173	1448
Grp Volume(v), veh/h	501	8	0	889	924	0
Grp Sat Flow(s),veh/h/ln	1641	1425	0	1585	1546	1448
Q Serve(g_s), s	15.3	0.2	0.0	12.0	13.1	0.0
Cycle Q Clear(g_c), s	15.3	0.2	0.0	12.0	13.1	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	580	504	0	1353	1320	
V/C Ratio(X)	0.86	0.02	0.00	0.66	0.70	
Avail Cap(c_a), veh/h	1588	1379	0	2725	2658	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.2	11.3	0.0	12.3	12.6	0.0
Incr Delay (d2), s/veh	4.0	0.0	0.0	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	5.5	0.1	0.0	3.6	3.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	20.2	11.3	0.0	12.8	13.3	0.0
LnGrp LOS	C	B		B	B	
Approach Vol, veh/h	509			889	924	
Approach Delay, s/veh	20.0			12.8	13.3	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		28.7		25.0		28.7
Change Period (Y+Rc), s		5.8		6.0		5.8
Max Green Setting (Gmax), s		46.2		52.0		46.2
Max Q Clear Time (g_c+I1), s		14.0		17.3		15.1
Green Ext Time (p_c), s		7.5		1.7		7.8

Intersection Summary		
HCM 7th Control Delay, s/veh	14.6	
HCM 7th LOS	B	

Notes

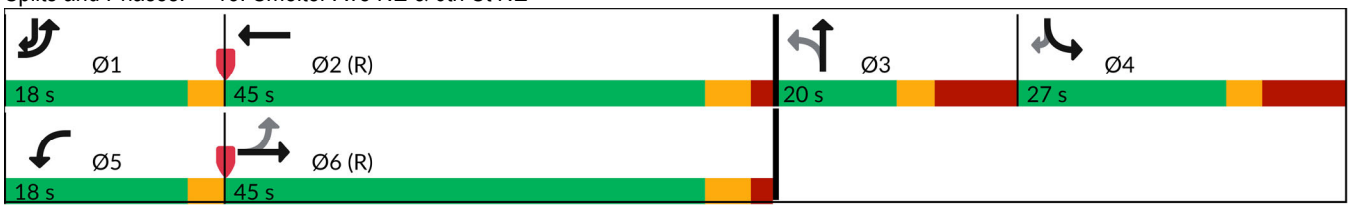
Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	849	0	0	745	29	0	0	0	100	0	142
Future Volume (vph)	35	849	0	0	745	29	0	0	0	100	0	142
Ideal Flow (vphpl)	1750	1750	1900	1900	1750	1750	1900	1900	1900	1750	1900	1750
Storage Length (ft)	100		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1662	3197	0	1863	3081	0	0	1863	0	1646	0	1473
Flt Permitted	0.183									0.950		
Satd. Flow (perm)	320	3197	0	1863	3081	0	0	1863	0	1646	0	1443
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4							213
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		801			175			190			247	
Travel Time (s)		18.2			4.0			4.3			6.7	
Confl. Peds. (#/hr)												8
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Heavy Vehicles (%)	0%	4%	2%	2%	7%	14%	2%	2%	2%	1%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	1274	0	0	1162	0	0	0	0	150	0	213
Turn Type	pm+pt	NA		Prot	NA					Prot		pm+ov
Protected Phases	1	6		5	2			3		4		1
Permitted Phases	6						3					4
Total Split (s)	18.0	45.0		18.0	45.0		20.0	20.0		27.0		18.0
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8		9.8		3.0
Act Effct Green (s)	82.0	79.4			69.9					15.2		28.5
Actuated g/C Ratio	0.75	0.72			0.64					0.14		0.26
v/c Ratio	0.16	0.55			0.59					0.66		0.39
Control Delay (s/veh)	5.6	8.7			17.2					58.4		5.9
Queue Delay	0.0	0.0			0.5					18.9		0.0
Total Delay (s/veh)	5.6	8.7			17.7					77.3		5.9
LOS	A	A			B					E		A
Approach Delay (s/veh)		8.6			17.8						35.4	
Approach LOS		A			B						D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 18 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 15.8		Intersection LOS: B	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			
Description: Smelter Ave NE/6th St NE (1)			

Splits and Phases: 13: Smelter Ave NE & 6th St NE



Lanes, Volumes, Timings
14: 6th St NE & Smelter Ave NE

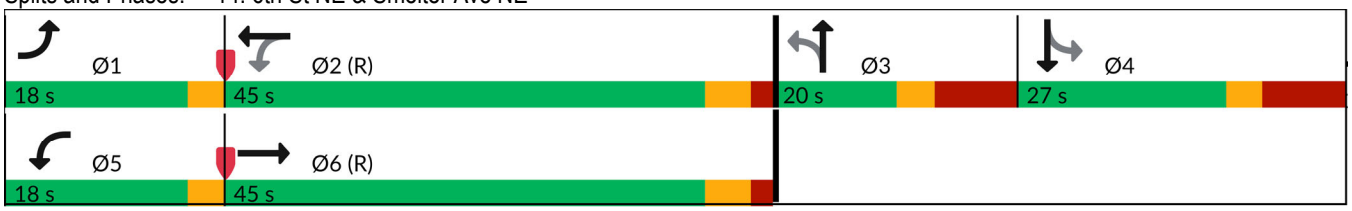
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	925	27	41	758	0	17	0	18	0	0	0
Future Volume (vph)	0	925	27	41	758	0	17	0	18	0	0	0
Ideal Flow (vphpl)	1900	1750	1750	1750	1750	1900	1750	1900	1750	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1900	3158	0	1511	3079	0	0	1629	0	0	1863	0
Flt Permitted				0.150				0.950				
Satd. Flow (perm)	1900	3158	0	239	3079	0	0	1584	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						153				
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		175			675			200			159	
Travel Time (s)		4.0			15.3			5.5			3.6	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	0%	5%	0%	10%	8%	0%	6%	0%	6%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1422	0	61	1132	0	0	52	0	0	0	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA				
Protected Phases	1	6		5	2			3			4	
Permitted Phases				2			3			4		
Total Split (s)	18.0	45.0		18.0	45.0		20.0	20.0		27.0	27.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8			9.8	
Act Effct Green (s)		85.8		94.8	93.3			5.5				
Actuated g/C Ratio		0.78		0.86	0.85			0.05				
v/c Ratio		0.57		0.22	0.43			0.23				
Control Delay (s/veh)		4.9		3.4	3.2			2.4				
Queue Delay		0.2		0.0	0.1			0.1				
Total Delay (s/veh)		5.1		3.4	3.4			2.5				
LOS		A		A	A			A				
Approach Delay (s/veh)		5.2			3.5			2.5				
Approach LOS		A			A			A				

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 2:WBTL and 6:EBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay (s/veh): 4.4 Intersection LOS: A
Intersection Capacity Utilization 59.2% ICU Level of Service B
Analysis Period (min) 15
Description: Smelter Ave NE/6th St NE (2)

Splits and Phases: 14: 6th St NE & Smelter Ave NE



Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	111	37	31	74	3	39	136	27	2	216	9
Future Vol, veh/h	6	111	37	31	74	3	39	136	27	2	216	9
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	100	100	-	150	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	33	13	22	16	8	33	5	12	4	50	8	0
Mvmt Flow	8	139	46	39	93	4	49	170	34	3	270	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	509	582	141	494	571	102	281	0	0	204	0	0
Stage 1	281	281	-	284	284	-	-	-	-	-	-	-
Stage 2	229	301	-	209	286	-	-	-	-	-	-	-
Critical Hdwy	8.16	6.76	7.34	7.82	6.66	7.56	4.2	-	-	5.1	-	-
Critical Hdwy Stg 1	7.16	5.76	-	6.82	5.66	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.16	5.76	-	6.82	5.66	-	-	-	-	-	-	-
Follow-up Hdwy	3.83	4.13	3.52	3.66	4.08	3.63	2.25	-	-	2.7	-	-
Pot Cap-1 Maneuver	384	401	822	428	417	843	1257	-	-	1077	-	-
Stage 1	622	651	-	661	660	-	-	-	-	-	-	-
Stage 2	672	637	-	734	659	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	284	384	822	251	400	843	1257	-	-	1077	-	-
Mov Cap-2 Maneuver	284	384	-	251	400	-	-	-	-	-	-	-
Stage 1	621	649	-	635	634	-	-	-	-	-	-	-
Stage 2	549	612	-	544	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.86	17.99	1.54	0.09
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1257	-	-	377	822	251	400	843	30	-	-
HCM Lane V/C Ratio	0.039	-	-	0.388	0.056	0.154	0.231	0.004	0.002	-	-
HCM Control Delay (s/veh)	8	-	-	20.5	9.6	21.9	16.7	9.3	8.3	0	-
HCM Lane LOS	A	-	-	C	A	C	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	0.2	0.5	0.9	0	0	-	-

Intersection	
Int Delay, s/veh	18.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	438	0	0	0	139	138	5	0	150	7
Future Vol, veh/h	8	0	438	0	0	0	139	138	5	0	150	7
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	-	-	Yield
Storage Length	-	-	-	-	-	-	250	-	-	50	-	350
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	6	17	0	0	15	0
Mvmt Flow	12	0	681	0	0	0	216	214	8	0	233	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	772	887	233	884	884	111	233	0	0	222	0	0
Stage 1	233	233	-	650	650	-	-	-	-	-	-	-
Stage 2	539	654	-	233	233	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.3	6.5	6.9	4.19	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.257	-	-	2.2	-	-
Pot Cap-1 Maneuver	305	285	811	255	287	927	1307	-	-	1359	-	-
Stage 1	774	715	-	429	468	-	-	-	-	-	-	-
Stage 2	499	466	-	774	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	255	238	811	34	239	927	1307	-	-	1359	-	-
Mov Cap-2 Maneuver	255	238	-	34	239	-	-	-	-	-	-	-
Stage 1	774	715	-	358	391	-	-	-	-	-	-	-
Stage 2	417	389	-	124	715	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	34.22	0	4.09	0
HCM LOS	D	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1307	-	-	780	-	1359	-	-
HCM Lane V/C Ratio	0.165	-	-	0.888	-	-	-	-
HCM Control Delay (s/veh)	8.3	-	-	34.2	0	0	-	-
HCM Lane LOS	A	-	-	D	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	11.6	-	0	-	-

Intersection	
Int Delay, s/veh	15.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	13	103	45	25	9	89	191	35	6	382	3
Future Vol, veh/h	2	13	103	45	25	9	89	191	35	6	382	3
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	100	-	0	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	50	0	10	22	24	11	1	7	6	0	3	0
Mvmt Flow	3	20	162	71	39	14	140	301	55	9	602	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1074	1260	303	940	1235	178	607	0	0	356	0	0
Stage 1	623	623	-	609	609	-	-	-	-	-	-	-
Stage 2	451	637	-	330	626	-	-	-	-	-	-	-
Critical Hdwy	8.5	6.5	7.1	7.94	6.98	7.12	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	7.5	5.5	-	6.94	5.98	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	5.5	-	6.94	5.98	-	-	-	-	-	-	-
Follow-up Hdwy	4	4	3.4	3.72	4.24	3.41	2.21	-	-	2.2	-	-
Pot Cap-1 Maneuver	122	172	669	190	147	807	974	-	-	1214	-	-
Stage 1	340	481	-	403	432	-	-	-	-	-	-	-
Stage 2	447	475	-	604	424	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	146	669	108	125	807	974	-	-	1214	-	-
Mov Cap-2 Maneuver	73	146	-	108	125	-	-	-	-	-	-	-
Stage 1	338	477	-	345	370	-	-	-	-	-	-	-
Stage 2	336	406	-	435	421	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.22	145.38	2.63	0.12
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	974	-	-	73	146	669	125	1214	-	-
HCM Lane V/C Ratio	0.144	-	-	0.043	0.14	0.243	0.993	0.008	-	-
HCM Control Delay (s/veh)	9.3	-	-	56.4	33.7	12.1	145.4	8	-	-
HCM Lane LOS	A	-	-	F	D	B	F	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	0.5	0.9	6.8	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	567	286	23	383	76	35
Future Vol, veh/h	567	286	23	383	76	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	175	50	-	0	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	5	6	13	11	7	9
Mvmt Flow	716	361	29	483	96	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	716	0	1257	716
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	-	-	4.23	-	6.47	6.29
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	-	-	2.317	-	3.563	3.381
Pot Cap-1 Maneuver	-	-	836	-	184	419
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	573	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	836	-	178	419
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.54	36.52
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	178	419	-	-	836	-
HCM Lane V/C Ratio	0.539	0.105	-	-	0.035	-
HCM Control Delay (s/veh)	46.6	14.6	-	-	9.5	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	2.8	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	46	2	82	7	10	1	38	270	6	1	162	22
Future Vol, veh/h	46	2	82	7	10	1	38	270	6	1	162	22
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	3	3	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	6	0	0	0	5	3	0	100	8	5
Mvmt Flow	63	3	112	10	14	1	52	370	8	1	222	30

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	722	726	239	707	737	377	254	0	0	381	0	0
Stage 1	242	242	-	481	481	-	-	-	-	-	-	-
Stage 2	481	485	-	226	257	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.1	6.5	6.2	4.15	-	-	5.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.5	4	3.3	2.245	-	-	3.1	-	-
Pot Cap-1 Maneuver	345	353	790	353	348	674	1294	-	-	794	-	-
Stage 1	766	709	-	570	557	-	-	-	-	-	-	-
Stage 2	570	555	-	781	699	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	312	333	789	284	328	672	1291	-	-	792	-	-
Mov Cap-2 Maneuver	312	333	-	284	328	-	-	-	-	-	-	-
Stage 1	763	707	-	539	527	-	-	-	-	-	-	-
Stage 2	526	525	-	666	696	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.95	17.28	0.96	0.05
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	217	-	-	505	318	10	-	-
HCM Lane V/C Ratio	0.04	-	-	0.352	0.078	0.002	-	-
HCM Control Delay (s/veh)	7.9	0	-	16	17.3	9.6	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.6	0.3	0	-	-

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	90	55	34	86	40	62	190	40	45	198	30
Future Vol, veh/h	25	90	55	34	86	40	62	190	40	45	198	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	34	122	75	46	117	54	84	258	54	61	269	41
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	14.7	14.5	21.6	20
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	15%	21%	16%
Vol Thru, %	65%	53%	54%	73%
Vol Right, %	14%	32%	25%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	170	160	273
LT Vol	62	25	34	45
Through Vol	190	90	86	198
RT Vol	40	55	40	30
Lane Flow Rate	396	231	217	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.681	0.428	0.409	0.643
Departure Headway (Hd)	6.186	6.686	6.779	6.244
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	583	535	528	574
Service Time	4.257	4.772	4.865	4.316
HCM Lane V/C Ratio	0.679	0.432	0.411	0.646
HCM Control Delay, s/veh	21.6	14.7	14.5	20
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	5.2	2.1	2	4.6

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	12	14	54	23	78	5	246	90	70	238	1
Future Vol, veh/h	3	12	14	54	23	78	5	246	90	70	238	1
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	22	22	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	8	0	0	0	1	0	2	0	1	1	0
Mvmt Flow	4	17	19	75	32	108	7	339	124	97	328	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	897	1028	335	967	966	424	336	0	0	486	0	0
Stage 1	528	528	-	437	437	-	-	-	-	-	-	-
Stage 2	369	499	-	530	529	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.58	6.2	7.1	6.5	6.21	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.072	3.3	3.5	4	3.309	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	263	229	711	236	256	633	1235	-	-	1083	-	-
Stage 1	537	518	-	602	583	-	-	-	-	-	-	-
Stage 2	655	534	-	536	530	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	166	196	707	183	220	619	1228	-	-	1060	-	-
Mov Cap-2 Maneuver	166	196	-	183	220	-	-	-	-	-	-	-
Stage 1	475	457	-	585	566	-	-	-	-	-	-	-
Stage 2	507	518	-	447	469	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.24	43.74	0.12	1.98
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	25	-	-	293	295	407	-	-
HCM Lane V/C Ratio	0.006	-	-	0.137	0.725	0.091	-	-
HCM Control Delay (s/veh)	7.9	0	-	19.2	43.7	8.7	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	5.2	0.3	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	5	37	10	1	4	42	379	17	6	231	53
Future Vol, veh/h	63	5	37	10	1	4	42	379	17	6	231	53
Conflicting Peds, #/hr	1	0	0	0	0	1	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	11	20	0	0	5	3	12	0	4	6
Mvmt Flow	83	7	49	13	1	5	55	498	22	8	304	70

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	716	986	187	791	1009	261	374	0	0	521	0	0
Stage 1	354	354	-	620	620	-	-	-	-	-	-	-
Stage 2	361	631	-	171	389	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.5	7.12	7.9	6.5	6.9	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.54	5.5	-	6.9	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.5	-	6.9	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4	3.41	3.7	4	3.3	2.25	-	-	2.2	-	-
Pot Cap-1 Maneuver	318	250	796	251	242	743	1160	-	-	1056	-	-
Stage 1	636	634	-	401	483	-	-	-	-	-	-	-
Stage 2	630	477	-	765	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	296	236	796	216	229	743	1160	-	-	1056	-	-
Mov Cap-2 Maneuver	296	236	-	216	229	-	-	-	-	-	-	-
Stage 1	631	629	-	382	460	-	-	-	-	-	-	-
Stage 2	593	455	-	705	607	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	20.12	19.49	0.79	0.17
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1160	-	-	374	268	1056	-	-
HCM Lane V/C Ratio	0.048	-	-	0.369	0.074	0.007	-	-
HCM Control Delay (s/veh)	8.3	-	-	20.1	19.5	8.4	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-

Lanes, Volumes, Timings
23: River Dr N & 1st Ave N

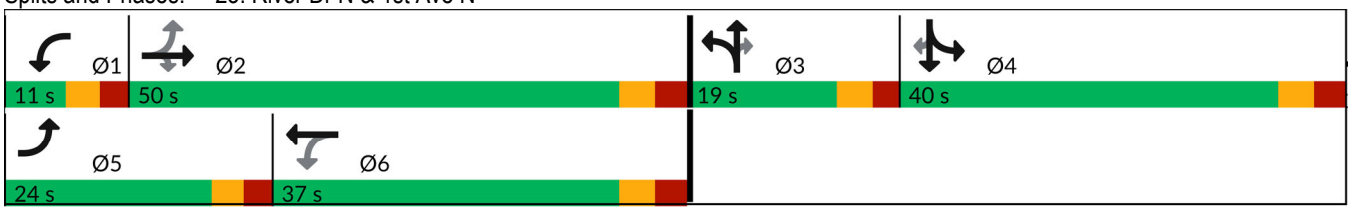
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	662	283	31	373	17	159	85	26	7	51	123
Future Volume (vph)	224	662	283	31	373	17	159	85	26	7	51	123
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	125		50	100		0	230		230	0		150
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1525	3292	1473	1662	3236	0	1533	1579	1488	0	1626	1293
Flt Permitted	0.255			0.289			0.950	0.985			0.994	
Satd. Flow (perm)	408	3292	1430	505	3236	0	1533	1579	1488	0	1626	1293
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		4				182			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1798			943			577			569	
Travel Time (s)		40.9			21.4			13.1			12.9	
Confl. Peds. (#/hr)	5		6	6		5						
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Growth Factor	117%	117%	117%	117%	117%	117%	117%	117%	117%	117%	117%	117%
Heavy Vehicles (%)	9%	1%	1%	0%	2%	0%	3%	4%	0%	0%	8%	15%
Shared Lane Traffic (%)							24%					
Lane Group Flow (vph)	336	993	425	47	586	0	182	185	39	0	88	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6					3			4
Total Split (s)	24.0	50.0	50.0	11.0	37.0		19.0	19.0	19.0	40.0	40.0	40.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	5.5	5.5		6.0	6.0
Act Effct Green (s)	48.8	42.1	42.1	30.0	24.0		13.7	13.7	13.7		10.4	10.4
Actuated g/C Ratio	0.54	0.47	0.47	0.33	0.27		0.15	0.15	0.15		0.12	0.12
v/c Ratio	0.74	0.64	0.57	0.19	0.67		0.78	0.77	0.10		0.47	0.59
Control Delay (s/veh)	24.5	21.8	16.8	13.9	33.5		63.7	61.9	0.5		47.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	24.5	21.8	16.8	13.9	33.5		63.7	61.9	0.5		47.4	14.5
LOS	C	C	B	B	C		E	E	A		D	B
Approach Delay (s/veh)		21.2			32.1			56.9			25.1	
Approach LOS		C			C			E			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay (s/veh): 28.5 Intersection LOS: C
Intersection Capacity Utilization 60.6% ICU Level of Service B
Analysis Period (min) 15
Description: Central Ave/River Dr S/1st Ave N

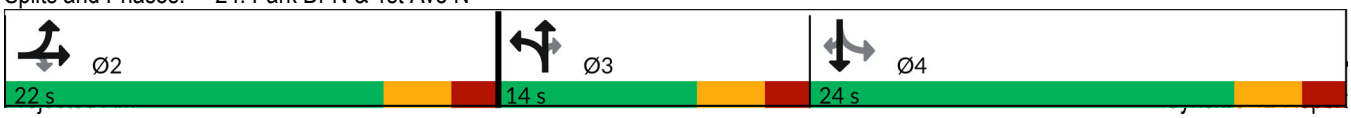
Splits and Phases: 23: River Dr N & 1st Ave N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	631	198	0	0	0	119	8	9	2	42	377
Future Volume (vph)	34	631	198	0	0	0	119	8	9	2	42	377
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		200	0		0	0		100	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3253	1458	0	0	0	1462	1489	1488	1662	1750	1473
Flt Permitted		0.997					0.950	0.958		0.694		
Satd. Flow (perm)	0	3253	1458	0	0	0	1462	1489	1488	1215	1750	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			286						127			545
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		943			369			832			390	
Travel Time (s)		21.4			8.4			18.9			8.9	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	8%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	961	286	0	0	0	91	93	13	3	61	545
Turn Type	Split	NA	Perm				Split	NA	Perm	Perm	NA	Perm
Protected Phases	2	2					3	3			4	
Permitted Phases			2						3	4		4
Total Split (s)	22.0	22.0	22.0				14.0	14.0	14.0	24.0	24.0	24.0
Total Lost Time (s)		5.0	5.0				5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)		17.6	17.6				7.8	7.8	7.8	10.4	10.4	10.4
Actuated g/C Ratio		0.36	0.36				0.16	0.16	0.16	0.21	0.21	0.21
v/c Ratio		0.81	0.40				0.38	0.38	0.03	0.01	0.16	0.73
Control Delay (s/veh)		25.1	4.5				26.0	26.0	0.1	15.0	17.0	8.5
Queue Delay		0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		25.1	4.5				26.0	26.0	0.1	15.0	17.0	8.5
LOS		C	A				C	C	A	B	B	A
Approach Delay (s/veh)		20.4						24.3			9.5	
Approach LOS		C						C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 48.4			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 17.5		Intersection LOS: B	
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 1st Ave N/Park Dr			

Splits and Phases: 24: Park Dr N & 1st Ave N



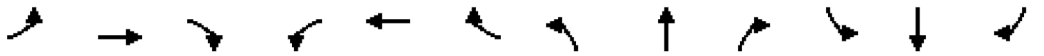
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	8	16	26	72	0	0	0	0	74	51
Future Vol, veh/h	10	0	8	16	26	72	0	0	0	0	74	51
Conflicting Peds, #/hr	8	0	0	0	0	8	0	0	0	0	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	0	-	100	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	10	0	0	0	4	8	0	0	0	0	8	2
Mvmt Flow	15	0	12	24	39	109	0	0	0	0	112	77

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	186	-	103	56	197	-			-	-	0
Stage 1	159	-	-	0	0	-			-	-	-
Stage 2	28	-	-	56	197	-			-	-	-
Critical Hdwy	7.7	-	6.9	7.5	6.58	-			-	-	-
Critical Hdwy Stg 1	6.7	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.58	-			-	-	-
Follow-up Hdwy	3.6	-	3.3	3.5	4.04	-			-	-	-
Pot Cap-1 Maneuver	736	0	939	940	693	0			0	-	-
Stage 1	805	0	-	-	-	0			0	-	-
Stage 2	-	0	-	955	732	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	683	-	932	928	687	-			-	-	-
Mov Cap-2 Maneuver	683	-	-	928	687	-			-	-	-
Stage 1	799	-	-	-	-	-			-	-	-
Stage 2	-	-	-	943	726	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	9.73	9.96	0
HCM LOS	A	A	

Minor Lane/Major Mvmt	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBT	SBR
Capacity (veh/h)	683	932	928	687	-	-	-
HCM Lane V/C Ratio	0.022	0.013	0.026	0.057	-	-	-
HCM Control Delay (s/veh)	10.4	8.9	9	10.6	0	-	-
HCM Lane LOS	B	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	0	0.1	0.2	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	86	539	36	62	207	0	0	326	49
Future Volume (veh/h)	0	0	0	86	539	36	62	207	0	0	326	49
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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				1575	1563	1501	1575	1526	0	0	1563	1550
Adj Flow Rate, veh/h				117	732	49	84	281	0	0	442	66
Peak Hour Factor				0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %				0	1	6	0	4	0	0	1	2
Cap, veh/h				174	1086	73	205	657	0	0	572	85
Arrive On Green				0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				401	2507	168	751	1526	0	0	1328	198
Grp Volume(v), veh/h				451	0	447	84	281	0	0	0	508
Grp Sat Flow(s),veh/h/ln				1543	0	1532	751	1526	0	0	0	1527
Q Serve(g_s), s				17.7	0.0	17.7	8.1	9.7	0.0	0.0	0.0	21.5
Cycle Q Clear(g_c), s				17.7	0.0	17.7	29.6	9.7	0.0	0.0	0.0	21.5
Prop In Lane				0.26		0.11	1.00		0.00	0.00		0.13
Lane Grp Cap(c), veh/h				668	0	664	205	657	0	0	0	658
V/C Ratio(X)				0.67	0.00	0.67	0.41	0.43	0.00	0.00	0.00	0.77
Avail Cap(c_a), veh/h				668	0	664	248	744	0	0	0	744
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	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				17.2	0.0	17.2	31.0	15.0	0.0	0.0	0.0	18.4
Incr Delay (d2), s/veh				5.4	0.0	5.4	1.3	0.4	0.0	0.0	0.0	4.5
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				6.8	0.0	6.7	1.5	3.2	0.0	0.0	0.0	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				22.6	0.0	22.6	32.3	15.5	0.0	0.0	0.0	22.9
LnGrp LOS				C		C	C	B				C
Approach Vol, veh/h					898			365			508	
Approach Delay, s/veh					22.6			19.4			22.9	
Approach LOS					C			B			C	

Timer - Assigned Phs	2		4				8					
Phs Duration (G+Y+Rc), s	38.0		37.7				37.7					
Change Period (Y+Rc), s	5.2		5.1				5.1					
Max Green Setting (Gmax), s	32.8		36.9				36.9					
Max Q Clear Time (g_c+I1), s	2.0		31.6				23.5					
Green Ext Time (p_c), s	6.7		1.0				2.8					

Intersection Summary		
HCM 7th Control Delay, s/veh	22.0	
HCM 7th LOS	C	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	361	100	0	0	0	0	238	51	52	361	0
Future Volume (veh/h)	38	361	100	0	0	0	0	238	51	52	361	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1538	1563	1575				0	1550	1550	1550	1563	0
Adj Flow Rate, veh/h	44	422	117				0	279	60	61	422	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	1	0				0	2	2	2	1	0
Cap, veh/h	187	1786	481				0	462	389	217	466	0
Arrive On Green	0.56	0.56	0.56				0.00	0.30	0.30	0.30	0.30	0.00
Sat Flow, veh/h	333	3182	857				0	1550	1305	860	1563	0
Grp Volume(v), veh/h	204	187	192				0	279	60	61	422	0
Grp Sat Flow(s),veh/h/ln	1546	1422	1404				0	1550	1305	860	1563	0
Q Serve(g_s), s	5.2	5.2	5.4				0.0	11.9	2.6	5.1	20.1	0.0
Cycle Q Clear(g_c), s	5.2	5.2	5.4				0.0	11.9	2.6	17.0	20.1	0.0
Prop In Lane	0.22		0.61				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	868	798	788				0	462	389	217	466	0
V/C Ratio(X)	0.24	0.23	0.24				0.00	0.60	0.15	0.28	0.91	0.00
Avail Cap(c_a), veh/h	868	798	788				0	512	431	245	516	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	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.6	8.6	8.6				0.0	23.3	20.0	30.6	26.2	0.0
Incr Delay (d2), s/veh	0.6	0.7	0.7				0.0	1.7	0.2	0.7	18.5	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
%ile BackOfQ(50%),veh/ln	1.7	1.6	1.6				0.0	4.4	0.8	1.1	9.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.2	9.3	9.4				0.0	25.0	20.2	31.3	44.6	0.0
LnGrp LOS	A	A	A					C	C	C	D	
Approach Vol, veh/h		583						339			483	
Approach Delay, s/veh		9.3						24.1			42.9	
Approach LOS		A						C			D	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	49.0	28.5	28.5
Change Period (Y+Rc), s	5.5	5.4	5.4
Max Green Setting (Gmax), s	43.5	25.6	25.6
Max Q Clear Time (g_c+I1), s	7.2	22.1	13.9
Green Ext Time (p_c), s	3.9	1.0	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	24.4
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	49	12	91	100	65	25	231	46	69	361	29
Future Volume (veh/h)	13	49	12	91	100	65	25	231	46	69	361	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1526	1575	1563	1514	1550	1575	1526	1575	1575	1563	1538
Adj Flow Rate, veh/h	15	57	14	106	116	76	29	269	54	80	420	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	0	1	5	2	0	4	0	0	1	3
Cap, veh/h	308	154	38	370	291	249	274	451	499	388	518	454
Arrive On Green	0.02	0.13	0.13	0.08	0.19	0.19	0.03	0.30	0.30	0.07	0.33	0.33
Sat Flow, veh/h	1500	1177	289	1488	1514	1293	1500	1526	1326	1500	1563	1296
Grp Volume(v), veh/h	15	0	71	106	116	76	29	269	54	80	420	34
Grp Sat Flow(s),veh/h/ln	1500	0	1466	1488	1514	1293	1500	1526	1326	1500	1563	1296
Q Serve(g_s), s	0.4	0.0	2.0	2.7	3.1	2.3	0.6	7.0	1.2	1.7	11.4	0.8
Cycle Q Clear(g_c), s	0.4	0.0	2.0	2.7	3.1	2.3	0.6	7.0	1.2	1.7	11.4	0.8
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	0	192	370	291	249	274	451	499	388	518	454
V/C Ratio(X)	0.05	0.00	0.37	0.29	0.40	0.31	0.11	0.60	0.11	0.21	0.81	0.07
Avail Cap(c_a), veh/h	506	0	770	476	795	679	450	729	740	511	746	643
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	18.4	14.9	16.3	16.0	11.7	13.9	9.4	10.4	14.1	10.0
Incr Delay (d2), s/veh	0.1	0.0	1.2	0.4	0.9	0.7	0.2	1.3	0.1	0.3	4.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.7	0.8	1.0	0.6	0.2	2.2	0.3	0.5	3.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.0	0.0	19.6	15.3	17.2	16.7	11.8	15.2	9.5	10.7	18.6	10.1
LnGrp LOS	B		B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		86			298			352			534	
Approach Delay, s/veh		19.1			16.4			14.0			16.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	14.6	7.2	19.6	7.7	11.8	5.6	21.2
Change Period (Y+Rc), s	4.0	5.7	4.0	5.9	4.0	5.7	4.0	5.9
Max Green Setting (Gmax), s	7.0	24.3	7.0	22.1	7.0	24.3	7.0	22.1
Max Q Clear Time (g_c+I1), s	2.4	5.1	3.7	9.0	4.7	4.0	2.6	13.4
Green Ext Time (p_c), s	0.0	0.8	0.0	1.4	0.0	0.3	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	16.1
HCM 7th LOS	B

Notes

User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	15	85	17	61	285	0	0	351	129
Future Volume (veh/h)	0	0	0	15	85	17	61	285	0	0	351	129
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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				1654	1750	1586	1723	1723	0	0	1736	1723
Adj Flow Rate, veh/h				18	104	21	74	348	0	0	429	158
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				7	0	12	2	2	0	0	1	2
Cap, veh/h				66	380	74	565	1231	0	0	1018	856
Arrive On Green				0.11	0.11	0.11	0.06	0.71	0.00	0.00	0.59	0.59
Sat Flow, veh/h				628	3605	698	1641	1723	0	0	1736	1460
Grp Volume(v), veh/h				49	45	49	74	348	0	0	429	158
Grp Sat Flow(s),veh/h/ln				1719	1593	1621	1641	1723	0	0	1736	1460
Q Serve(g_s), s				1.6	1.6	1.7	0.9	4.5	0.0	0.0	8.5	3.1
Cycle Q Clear(g_c), s				1.6	1.6	1.7	0.9	4.5	0.0	0.0	8.5	3.1
Prop In Lane				0.37		0.43	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				181	168	171	565	1231	0	0	1018	856
V/C Ratio(X)				0.27	0.27	0.29	0.13	0.28	0.00	0.00	0.42	0.18
Avail Cap(c_a), veh/h				671	622	632	618	1231	0	0	1018	856
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.6	25.6	25.7	4.3	3.2	0.0	0.0	7.1	6.0
Incr Delay (d2), s/veh				0.8	0.8	0.9	0.1	0.6	0.0	0.0	1.3	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
%ile BackOfQ(50%),veh/ln				0.7	0.6	0.7	0.2	1.1	0.0	0.0	2.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				26.4	26.5	26.6	4.4	3.8	0.0	0.0	8.4	6.5
LnGrp LOS				C	C	C	A	A			A	A
Approach Vol, veh/h					143			422			587	
Approach Delay, s/veh					26.5			3.9			7.8	
Approach LOS					C			A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.0	42.0		12.3		50.0
Change Period (Y+Rc), s	4.0	5.5		5.7		5.5
Max Green Setting (Gmax), s	6.0	34.5		24.3		44.5
Max Q Clear Time (g_c+I1), s	2.9	10.5		3.6		6.5
Green Ext Time (p_c), s	0.0	3.3		0.7		2.3

Intersection Summary	
HCM 7th Control Delay, s/veh	8.7
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	33	18	0	0	0	0	340	24	13	348	0
Future Volume (veh/h)	20	33	18	0	0	0	0	340	24	13	348	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
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	1682	1709	1750				0	1723	1750	1750	1736	0
Adj Flow Rate, veh/h	25	40	22				0	417	29	16	427	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	3	0				0	2	0	0	1	0
Cap, veh/h	83	129	69				0	1189	83	695	1297	0
Arrive On Green	0.09	0.09	0.09				0.00	0.75	0.75	0.75	0.75	0.00
Sat Flow, veh/h	950	1481	796				0	1592	111	883	1736	0
Grp Volume(v), veh/h	44	0	43				0	0	446	16	427	0
Grp Sat Flow(s),veh/h/ln	1662	0	1566				0	0	1703	883	1736	0
Q Serve(g_s), s	1.5	0.0	1.6				0.0	0.0	5.6	0.4	5.2	0.0
Cycle Q Clear(g_c), s	1.5	0.0	1.6				0.0	0.0	5.6	6.0	5.2	0.0
Prop In Lane	0.57		0.51				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	145	0	136				0	0	1272	695	1297	0
V/C Ratio(X)	0.30	0.00	0.32				0.00	0.00	0.35	0.02	0.33	0.00
Avail Cap(c_a), veh/h	601	0	566				0	0	1272	695	1297	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.9	0.0	26.9				0.0	0.0	2.7	3.7	2.7	0.0
Incr Delay (d2), s/veh	1.2	0.0	1.3				0.0	0.0	0.8	0.1	0.7	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	0.6	0.0	0.6				0.0	0.0	1.2	0.1	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.0	0.0	28.2				0.0	0.0	3.5	3.8	3.3	0.0
LnGrp LOS	C		C						A	A	A	
Approach Vol, veh/h		87						446			443	
Approach Delay, s/veh		28.1						3.5			3.4	
Approach LOS		C						A			A	

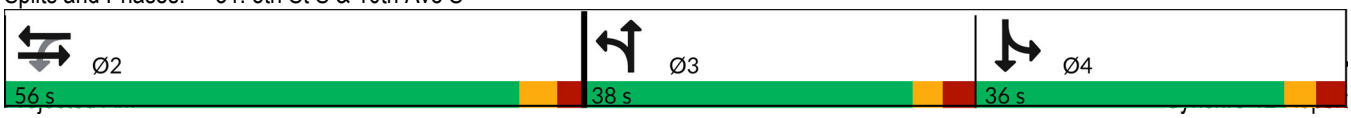
Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	52.0	10.8	52.0
Change Period (Y+Rc), s	5.1	5.3	5.1
Max Green Setting (Gmax), s	46.9	22.7	46.9
Max Q Clear Time (g_c+I1), s	8.0	2.0	7.6
Green Ext Time (p_c), s	3.1	0.4	3.2

Intersection Summary	
HCM 7th Control Delay, s/veh	5.6
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1465	9	18	945	0	43	0	14	71	25	49
Future Volume (vph)	0	1465	9	18	945	0	43	0	14	71	25	49
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	100		0	0		0	0		300
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	4587	0	1662	4594	0	0	1600	0	3101	1520	0
Flt Permitted				0.078				0.964		0.950		
Satd. Flow (perm)	0	4587	0	136	4594	0	0	1596	0	3094	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1						76			65	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			444			415			561	
Travel Time (s)		8.9			10.1			9.4			12.8	
Confl. Peds. (#/hr)	1		1	1		1	3		2	2		3
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	109%	109%	109%	109%	109%	109%	109%	109%	109%	109%	109%	109%
Heavy Vehicles (%)	0%	4%	11%	0%	4%	0%	2%	0%	0%	4%	0%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1959	0	24	1256	0	0	76	0	94	98	0
Turn Type		NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		3	3		4	4	
Permitted Phases				2								
Total Split (s)		56.0		56.0	56.0		38.0	38.0		36.0	36.0	
Total Lost Time (s)		6.0		6.0	6.0			6.0		6.0	6.0	
Act Effct Green (s)		51.5		51.5	51.5			8.2		8.2	8.2	
Actuated g/C Ratio		0.62		0.62	0.62			0.10		0.10	0.10	
v/c Ratio		0.68		0.28	0.43			0.33		0.30	0.46	
Control Delay (s/veh)		13.1		20.5	9.7			13.9		37.9	23.3	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)		13.1		20.5	9.7			13.9		37.9	23.3	
LOS		B		C	A			B		D	C	
Approach Delay (s/veh)		13.2			9.9			13.9			30.5	
Approach LOS		B			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 82.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 12.9		Intersection LOS: B	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			
Description: 10th Ave S/5th St S			

Splits and Phases: 31: 5th St S & 10th Ave S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1128	86	79	1015	144	68	70	53	120	110	83
Future Volume (veh/h)	96	1128	86	79	1015	144	68	70	53	120	110	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1695	1695	1709	1723	1736	1695	1736	1668	1750	1736	1736
Adj Flow Rate, veh/h	130	1523	116	107	1370	194	92	94	72	162	148	112
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	3	4	4	3	2	1	4	1	6	0	1	1
Cap, veh/h	252	2096	742	224	2086	801	294	132	101	305	317	363
Arrive On Green	0.06	0.45	0.45	0.06	0.44	0.44	0.06	0.15	0.15	0.10	0.18	0.18
Sat Flow, veh/h	1628	4628	1435	1628	4703	1470	1615	910	697	1667	1736	1467
Grp Volume(v), veh/h	130	1523	116	107	1370	194	92	0	166	162	148	112
Grp Sat Flow(s),veh/h/ln	1628	1543	1435	1628	1568	1470	1615	0	1607	1667	1736	1467
Q Serve(g_s), s	3.7	23.3	3.7	3.1	19.8	6.0	4.1	0.0	8.5	6.9	6.6	5.4
Cycle Q Clear(g_c), s	3.7	23.3	3.7	3.1	19.8	6.0	4.1	0.0	8.5	6.9	6.6	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	252	2096	742	224	2086	801	294	0	233	305	317	363
V/C Ratio(X)	0.52	0.73	0.16	0.48	0.66	0.24	0.31	0.00	0.71	0.53	0.47	0.31
Avail Cap(c_a), veh/h	348	2773	952	335	2818	1030	396	0	648	348	700	686
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	19.4	11.0	16.4	19.0	10.3	28.9	0.0	35.4	26.9	31.7	26.6
Incr Delay (d2), s/veh	1.6	0.7	0.1	1.6	0.4	0.2	0.6	0.0	4.0	1.4	1.1	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	1.4	7.9	1.1	1.2	6.8	1.8	1.6	0.0	3.5	2.8	2.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.0	20.0	11.1	18.0	19.3	10.5	29.5	0.0	39.3	28.3	32.7	27.1
LnGrp LOS	B	C	B	B	B	B	C		D	C	C	C
Approach Vol, veh/h		1769			1671			258			422	
Approach Delay, s/veh		19.2			18.2			35.8			29.5	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	45.3	12.8	18.6	10.9	44.5	9.5	21.9
Change Period (Y+Rc), s	5.3	6.0	4.0	6.0	5.3	6.0	4.0	6.0
Max Green Setting (Gmax), s	10.7	52.0	11.0	35.0	10.7	52.0	11.0	35.0
Max Q Clear Time (g_c+I1), s	5.7	25.3	8.9	10.5	5.7	21.8	6.1	8.6
Green Ext Time (p_c), s	0.1	14.0	0.1	0.9	0.1	13.5	0.1	1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	20.9
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1142	54	22	1212	64	54	46	53	79	56	34
Future Volume (veh/h)	16	1142	54	22	1212	64	54	46	53	79	56	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1709	1695	1750	1723	1750	1723	1750	1723	1709	1750	1709
Adj Flow Rate, veh/h	20	1405	66	27	1491	79	66	57	65	97	69	42
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	3	4	0	2	0	2	0	2	3	0	3
Cap, veh/h	275	2870	135	294	2874	152	295	105	120	147	46	23
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	306	4566	214	337	4572	242	1179	744	849	321	327	164
Grp Volume(v), veh/h	20	957	514	27	1023	547	66	0	122	208	0	0
Grp Sat Flow(s),veh/h/ln	306	1555	1670	337	1568	1678	1179	0	1593	812	0	0
Q Serve(g_s), s	2.0	8.6	8.6	2.4	9.4	9.4	0.0	0.0	3.7	3.6	0.0	0.0
Cycle Q Clear(g_c), s	11.4	8.6	8.6	11.0	9.4	9.4	2.8	0.0	3.7	7.4	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.14	1.00		0.53	0.47		0.20
Lane Grp Cap(c), veh/h	275	1955	1050	294	1971	1055	295	0	225	216	0	0
V/C Ratio(X)	0.07	0.49	0.49	0.09	0.52	0.52	0.22	0.00	0.54	0.96	0.00	0.00
Avail Cap(c_a), veh/h	588	5132	2755	638	5173	2769	852	0	978	872	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	5.2	5.2	8.2	5.3	5.3	20.4	0.0	20.8	24.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.4	0.1	0.2	0.4	0.4	0.0	2.0	20.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.8	2.0	0.2	1.9	2.1	0.7	0.0	1.4	3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.6	5.4	5.5	8.3	5.5	5.7	20.8	0.0	22.8	45.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C		C	D		
Approach Vol, veh/h		1491			1597			188			208	
Approach Delay, s/veh		5.5			5.7			22.1			45.5	
Approach LOS		A			A			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	38.8	13.4	38.8	13.4
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	86.0	32.0	86.0	32.0
Max Q Clear Time (g_c+I1), s	13.4	5.7	13.0	0.0
Green Ext Time (p_c), s	17.3	0.9	19.7	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	8.9
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1194	94	35	1265	8	88	19	54	19	25	15
Future Volume (veh/h)	9	1194	94	35	1265	8	88	19	54	19	25	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1709	1736	1750	1723	1573	1750	1750	1695	1600	1750	1750
Adj Flow Rate, veh/h	11	1420	112	42	1504	10	105	23	64	23	30	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	1	0	2	13	0	0	4	11	0	0
Cap, veh/h	288	2829	223	283	3093	21	286	42	196	119	105	46
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	323	4409	348	317	4820	32	1209	307	1430	229	764	337
Grp Volume(v), veh/h	11	1002	530	42	978	536	128	0	64	71	0	0
Grp Sat Flow(s),veh/h/ln	323	1555	1646	317	1568	1717	1516	0	1430	1331	0	0
Q Serve(g_s), s	1.0	9.2	9.2	4.4	8.8	8.8	0.0	0.0	2.2	0.1	0.0	0.0
Cycle Q Clear(g_c), s	9.8	9.2	9.2	13.6	8.8	8.8	3.9	0.0	2.2	3.9	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.02	0.82		1.00	0.32		0.25
Lane Grp Cap(c), veh/h	288	1996	1056	283	2012	1102	328	0	196	270	0	0
V/C Ratio(X)	0.04	0.50	0.50	0.15	0.49	0.49	0.39	0.00	0.33	0.26	0.00	0.00
Avail Cap(c_a), veh/h	593	4939	2614	583	4979	2726	933	0	845	940	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	5.1	5.1	8.7	5.1	5.1	21.8	0.0	21.1	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.4	0.2	0.2	0.3	0.8	0.0	1.0	0.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.9	2.1	0.3	1.8	2.1	1.5	0.0	0.7	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.7	5.3	5.5	9.0	5.2	5.4	22.6	0.0	22.1	21.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C		C	C		
Approach Vol, veh/h		1543			1556			192			71	
Approach Delay, s/veh		5.4			5.4			22.4			21.6	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	40.8	13.4	40.8	13.4
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	86.0	32.0	86.0	32.0
Max Q Clear Time (g_c+I1), s	11.8	5.9	15.6	5.9
Green Ext Time (p_c), s	18.2	0.9	19.2	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	6.7
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	983	352	123	1004	42	172	123	109	0	0	0
Future Volume (veh/h)	99	983	352	123	1004	42	172	123	109	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1736	1695	1723	1695	1723	1750	1695	1723	1709			
Adj Flow Rate, veh/h	124	1229	440	154	1255	52	168	219	136			
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88			
Percent Heavy Veh, %	1	4	2	4	2	0	4	2	3			
Cap, veh/h	295	1717	1024	274	1727	72	272	341	203			
Arrive On Green	0.06	0.53	0.53	0.07	0.54	0.54	0.17	0.17	0.17			
Sat Flow, veh/h	1654	3221	1459	1615	3203	133	1615	2023	1201			
Grp Volume(v), veh/h	124	1229	440	154	641	666	168	185	170			
Grp Sat Flow(s),veh/h/ln	1654	1611	1459	1615	1637	1699	1615	1723	1501			
Q Serve(g_s), s	2.4	21.3	9.5	3.1	21.9	22.0	7.1	7.4	7.9			
Cycle Q Clear(g_c), s	2.4	21.3	9.5	3.1	21.9	22.0	7.1	7.4	7.9			
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.80			
Lane Grp Cap(c), veh/h	295	1717	1024	274	883	916	272	291	253			
V/C Ratio(X)	0.42	0.72	0.43	0.56	0.73	0.73	0.62	0.64	0.67			
Avail Cap(c_a), veh/h	438	3047	1626	403	1548	1607	698	745	649			
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	11.1	13.0	4.7	13.1	12.9	12.9	28.5	28.6	28.8			
Incr Delay (d2), s/veh	1.0	0.6	0.3	1.8	1.2	1.1	2.3	2.3	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			
%ile BackOfQ(50%),veh/ln	0.8	6.8	0.1	1.2	7.2	7.5	2.8	3.1	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.1	13.6	5.0	14.9	14.1	14.0	30.8	31.0	31.9			
LnGrp LOS	B	B	A	B	B	B	C	C	C			
Approach Vol, veh/h		1793			1461			523				
Approach Delay, s/veh		11.4			14.1			31.2				
Approach LOS		B			B			C				

Timer - Assigned Phs	1	2		4	5	6			
Phs Duration (G+Y+Rc), s	10.1	45.5		18.5	9.6	45.9			
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0			
Max Green Setting (Gmax), s	11.0	70.0		32.0	11.0	70.0			
Max Q Clear Time (g_c+I1), s	5.1	23.3		9.9	4.4	24.0			
Green Ext Time (p_c), s	0.2	16.1		2.6	0.1	12.7			

Intersection Summary		
HCM 7th Control Delay, s/veh	15.2	
HCM 7th LOS	B	

Notes

User approved volume balancing among the lanes for turning movement.

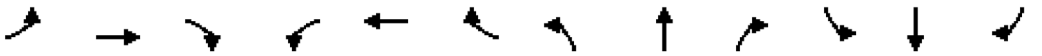
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	846	179	85	1166	5	4	0	47	0	0	14
Future Vol, veh/h	16	846	179	85	1166	5	4	0	47	0	0	14
Conflicting Peds, #/hr	1	0	0	0	0	1	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	4	2	7	2	20	0	0	2	0	0	0
Mvmt Flow	20	1040	220	105	1434	6	5	0	58	0	0	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1441	0	0	1261	0	0	2116	2840	630	2207	2947	721
Stage 1	-	-	-	-	-	-	1190	1190	-	1647	1647	-
Stage 2	-	-	-	-	-	-	926	1650	-	560	1300	-
Critical Hdwy	4.1	-	-	4.24	-	-	7.5	6.5	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.27	-	-	3.5	4	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	477	-	-	521	-	-	30	18	424	25	15	374
Stage 1	-	-	-	-	-	-	203	263	-	105	158	-
Stage 2	-	-	-	-	-	-	293	158	-	486	233	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	476	-	-	521	-	-	22	13	424	17	11	374
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	13	-	17	11	-
Stage 1	-	-	-	-	-	-	194	253	-	84	126	-
Stage 2	-	-	-	-	-	-	223	126	-	402	224	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0.92	37.4	15.09
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	172	476	-	-	521	-	-	374
HCM Lane V/C Ratio	0.364	0.041	-	-	0.201	-	-	0.046
HCM Control Delay (s/veh)	37.4	12.9	-	-	13.6	-	-	15.1
HCM Lane LOS	E	B	-	-	B	-	-	C
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.7	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	800	15	37	955	62	177	51	19	63	70	106
Future Volume (veh/h)	44	800	15	37	955	62	177	51	19	63	70	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1682	1654	1709	1709	1723	1723	1750	1682	1723	1750	1750
Adj Flow Rate, veh/h	53	960	18	44	1146	74	212	61	23	76	84	127
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	5	7	3	3	2	2	0	5	2	0	0
Cap, veh/h	221	1394	26	274	1330	86	292	74	23	272	271	528
Arrive On Green	0.05	0.43	0.43	0.04	0.43	0.43	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1641	3208	60	1628	3097	200	652	239	75	627	875	1483
Grp Volume(v), veh/h	53	478	500	44	600	620	296	0	0	160	0	127
Grp Sat Flow(s),veh/h/ln	1641	1598	1671	1628	1624	1673	966	0	0	1503	0	1483
Q Serve(g_s), s	1.2	16.5	16.5	1.0	22.9	23.0	15.7	0.0	0.0	0.0	0.0	4.1
Cycle Q Clear(g_c), s	1.2	16.5	16.5	1.0	22.9	23.0	21.0	0.0	0.0	5.3	0.0	4.1
Prop In Lane	1.00		0.04	1.00		0.12	0.72		0.08	0.47		1.00
Lane Grp Cap(c), veh/h	221	694	726	274	697	718	389	0	0	543	0	528
V/C Ratio(X)	0.24	0.69	0.69	0.16	0.86	0.86	0.76	0.00	0.00	0.29	0.00	0.24
Avail Cap(c_a), veh/h	667	1131	1183	340	766	789	389	0	0	543	0	528
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	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	15.6	15.6	11.9	17.7	17.7	25.5	0.0	0.0	18.1	0.0	15.5
Incr Delay (d2), s/veh	0.6	1.2	1.2	0.3	9.2	9.1	8.5	0.0	0.0	0.3	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.6	5.9	0.3	9.4	9.6	5.4	0.0	0.0	1.9	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.7	16.9	16.8	12.2	26.9	26.8	34.0	0.0	0.0	18.4	0.0	15.8
LnGrp LOS	B	B	B	B	C	C	C			B		B
Approach Vol, veh/h		1031			1264			296			287	
Approach Delay, s/veh		16.7			26.3			34.0			17.2	
Approach LOS		B			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	35.1		27.0	6.8	34.7		27.0				
Change Period (Y+Rc), s	3.6	5.3		5.8	3.6	5.3		5.8				
Max Green Setting (Gmax), s	5.6	48.5		21.2	21.8	32.3		21.2				
Max Q Clear Time (g_c+I1), s	3.0	18.5		7.3	3.2	25.0		23.0				
Green Ext Time (p_c), s	0.0	7.4		1.1	0.1	4.4		0.0				

Intersection Summary			
HCM 7th Control Delay, s/veh		22.8	
HCM 7th LOS		C	

Intersection	
Int Delay, s/veh	25

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	38	26	13	34	69	11	249	36	96	179	29
Future Vol, veh/h	9	38	26	13	34	69	11	249	36	96	179	29
Conflicting Peds, #/hr	1	0	1	1	0	1	9	0	2	2	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	11	0	0	0	0	1	0	2	3	1	3	3
Mvmt Flow	16	70	48	24	62	126	20	456	66	176	328	53

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1015	1279	200	1082	1273	264	390	0	0	524	0	0
Stage 1	715	715	-	531	531	-	-	-	-	-	-	-
Stage 2	300	564	-	551	741	-	-	-	-	-	-	-
Critical Hdwy	7.72	6.5	6.9	7.5	6.5	6.92	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.61	4	3.3	3.5	4	3.31	2.2	-	-	2.21	-	-
Pot Cap-1 Maneuver	180	167	813	174	169	738	1180	-	-	1046	-	-
Stage 1	368	438	-	505	529	-	-	-	-	-	-	-
Stage 2	659	512	-	491	426	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	132	806	69	133	735	1170	-	-	1044	-	-
Mov Cap-2 Maneuver	69	132	-	69	133	-	-	-	-	-	-	-
Stage 1	296	352	-	494	518	-	-	-	-	-	-	-
Stage 2	470	500	-	300	342	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	87.15	104.92	0.43	3.38
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	114	-	-	162	215	930	-	-
HCM Lane V/C Ratio	0.017	-	-	0.826	0.987	0.168	-	-
HCM Control Delay (s/veh)	8.1	0.2	-	87.2	104.9	9.1	0.8	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.5	8.7	0.6	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	91	121	34	70	66
Future Vol, veh/h	11	91	121	34	70	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	3	1	0	0	3
Mvmt Flow	20	167	223	63	129	121

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	633	254	0	0	285	0
Stage 1	254	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	6.4	6.23	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.2	-
Pot Cap-1 Maneuver	447	782	-	-	1289	-
Stage 1	793	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	402	782	-	-	1289	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	627	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.23	0	4.17
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	402	782	1289	-
HCM Lane V/C Ratio	-	-	0.05	0.214	0.1	-
HCM Control Delay (s/veh)	-	-	14.4	10.8	8.1	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.8	0.3	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	123	21	3	153	1	113	5	2	4	3	71
Future Vol, veh/h	32	123	21	3	153	1	113	5	2	4	3	71
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	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	24	14	0	8	100	3	20	0	0	33	0
Mvmt Flow	44	167	29	4	208	1	154	7	3	5	4	97

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	209	0	0	196	0	0	383	486	98	391	500	105
Stage 1	-	-	-	-	-	-	269	269	-	217	217	-
Stage 2	-	-	-	-	-	-	114	218	-	174	283	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.56	6.9	6.9	7.5	7.16	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.9	-	6.5	6.16	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.9	-	6.5	6.16	-
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.53	4.2	3.3	3.5	4.33	3.3
Pot Cap-1 Maneuver	1351	-	-	1389	-	-	548	442	945	548	409	936
Stage 1	-	-	-	-	-	-	711	643	-	771	652	-
Stage 2	-	-	-	-	-	-	875	679	-	817	605	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1351	-	-	1389	-	-	469	427	945	519	395	936
Mov Cap-2 Maneuver	-	-	-	-	-	-	469	427	-	519	395	-
Stage 1	-	-	-	-	-	-	688	622	-	769	650	-
Stage 2	-	-	-	-	-	-	778	677	-	779	585	-

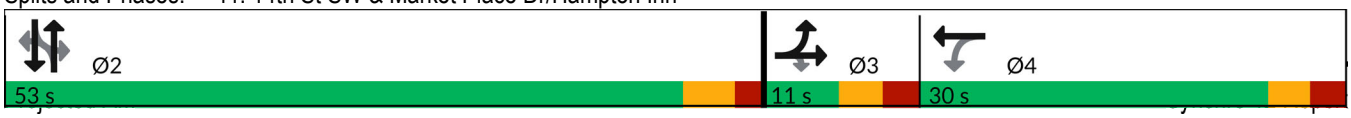
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.41	0.15	16.63	9.8
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	471	1351	-	-	1389	-	-	856
HCM Lane V/C Ratio	0.346	0.032	-	-	0.003	-	-	0.124
HCM Control Delay (s/veh)	16.6	7.8	-	-	7.6	-	-	9.8
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0	-	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	0	25	0	0	4	38	314	0	3	128	89
Future Volume (vph)	75	0	25	0	0	4	38	314	0	3	128	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	0		0	100		0	250		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1490	1490	1430	0	1514	0	1662	3292	0	1662	1579	0
Flt Permitted	0.950	0.950					0.603			0.535		
Satd. Flow (perm)	1490	1490	1390	0	1514	0	1054	3292	0	935	1579	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		402						54	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		289			368			392			897	
Travel Time (s)		6.6			8.4			8.9			20.4	
Confl. Peds. (#/hr)			1	1			1		1	1		1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%
Heavy Vehicles (%)	6%	0%	4%	0%	0%	0%	0%	1%	0%	0%	3%	3%
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	43	44	29	0	5	0	44	363	0	3	251	0
Turn Type	Split	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases	3	3			4			2			2	
Permitted Phases			3	4			2			2		
Total Split (s)	11.0	11.0	11.0	30.0	30.0		53.0	53.0		53.0	53.0	
Total Lost Time (s)	5.5	5.5	5.5		5.5		5.4	5.4		5.4	5.4	
Act Effct Green (s)	5.7	5.7	5.7		6.2		21.0	21.0		21.0	21.0	
Actuated g/C Ratio	0.16	0.16	0.16		0.17		0.58	0.58		0.58	0.58	
v/c Ratio	0.18	0.18	0.09		0.00		0.07	0.18		0.00	0.26	
Control Delay (s/veh)	16.5	16.6	0.6		0.0		7.1	6.3		7.0	6.4	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	16.5	16.6	0.6		0.0		7.1	6.3		7.0	6.4	
LOS	B	B	A		A		A	A		A	A	
Approach Delay (s/veh)		12.6						6.5			6.5	
Approach LOS		B						A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 94			
Actuated Cycle Length: 36.2			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.27			
Intersection Signal Delay (s/veh): 7.3		Intersection LOS: A	
Intersection Capacity Utilization 46.4%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 14th SW/Market Place Dr			

Splits and Phases: 41: 14th St SW & Market Place Dr/Hampton Inn



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	85	0	44	31	10	3	57	236	71	183	122
Future Volume (veh/h)	28	85	0	44	31	10	3	57	236	71	183	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1668	1750	1654	1750	1477	1300	1682	1750	1668	1709	1668
Adj Flow Rate, veh/h	35	107	0	55	39	13	4	71	296	89	229	153
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	11	6	0	7	0	20	33	5	0	6	3	6
Cap, veh/h	445	296	263	477	244	175	359	471	506	467	478	455
Arrive On Green	0.04	0.18	0.00	0.06	0.14	0.14	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1524	1668	1483	1576	1750	1252	696	1682	1483	905	1709	1414
Grp Volume(v), veh/h	35	107	0	55	39	13	4	71	296	89	229	153
Grp Sat Flow(s),veh/h/ln	1524	1668	1483	1576	1750	1252	696	1682	1483	905	1709	1414
Q Serve(g_s), s	0.6	1.7	0.0	0.9	0.6	0.3	0.1	0.9	4.9	2.4	3.3	2.4
Cycle Q Clear(g_c), s	0.6	1.7	0.0	0.9	0.6	0.3	3.5	0.9	4.9	3.4	3.3	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	296	263	477	244	175	359	471	506	467	478	455
V/C Ratio(X)	0.08	0.36	0.00	0.12	0.16	0.07	0.01	0.15	0.58	0.19	0.48	0.34
Avail Cap(c_a), veh/h	858	1364	1213	964	1431	1024	876	1721	1608	1140	1749	1506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	10.7	0.0	9.8	11.3	11.1	10.3	8.0	8.1	9.3	8.9	7.7
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.1	0.3	0.2	0.0	0.1	1.1	0.2	0.7	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	0.1	0.5	0.0	0.2	0.2	0.1	0.0	0.2	1.1	0.4	0.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.3	11.5	0.0	9.9	11.6	11.3	10.3	8.2	9.1	9.5	9.6	8.1
LnGrp LOS	B	B		A	B	B	B	A	A	A	A	A
Approach Vol, veh/h		142			107			371			471	
Approach Delay, s/veh		11.2			10.7			9.0			9.1	
Approach LOS		B			B			A			A	

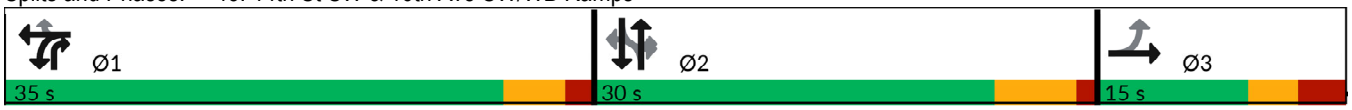
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	12.9	7.0	9.8	12.9	5.8	11.0
Change Period (Y+Rc), s	4.6	5.7	5.7	4.6	4.0	5.7
Max Green Setting (Gmax), s	30.4	9.3	24.3	30.4	11.0	24.3
Max Q Clear Time (g_c+I1), s	5.4	2.6	2.6	6.9	2.9	3.7
Green Ext Time (p_c), s	2.4	0.0	0.2	1.4	0.1	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	9.5
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	10	268	3	35	5	26	58	17	91	0
Future Volume (vph)	0	4	10	268	3	35	5	26	58	17	91	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	0		100	100		250	100		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1578	0	0	1604	1365	1662	1562	1365	1568	1651	0
Flt Permitted					0.953		0.684			0.736		
Satd. Flow (perm)	0	1578	0	0	1604	1365	1197	1562	1365	1215	1651	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				120			73			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		388			530			1071			1047	
Travel Time (s)		8.8			12.0			24.3			23.8	
Peak Hour Factor	0.82	0.82	0.82	0.85	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%
Heavy Vehicles (%)	0%	0%	0%	4%	0%	9%	0%	12%	9%	6%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	329	44	6	33	73	21	114	0
Turn Type		NA		Split	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		3		1	1			2	1		2	
Permitted Phases	3					1	2		2	2		
Total Split (s)	15.0	15.0		35.0	35.0	35.0	30.0	30.0	35.0	30.0	30.0	
Total Lost Time (s)		5.8			5.2	5.2	6.0	6.0	5.2	6.0	6.0	
Act Effct Green (s)		6.7			13.5	13.5	9.1	9.1	34.3	9.1	9.1	
Actuated g/C Ratio		0.18			0.37	0.37	0.25	0.25	0.94	0.25	0.25	
v/c Ratio		0.05			0.55	0.07	0.02	0.08	0.05	0.06	0.27	
Control Delay (s/veh)		13.6			14.0	0.2	15.2	15.0	0.7	15.4	16.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		13.6			14.0	0.2	15.2	15.0	0.7	15.4	16.2	
LOS		B			B	A	B	B	A	B	B	
Approach Delay (s/veh)		13.6			12.4			5.7			16.1	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 36.4			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay (s/veh): 12.0		Intersection LOS: B	
Intersection Capacity Utilization 40.5%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 14th St SW/WB Ramps/16th Ave SW			

Splits and Phases: 43: 14th St SW & 16th Ave SW/WB Ramps



Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	62	34	2	0	31	2	13	0	5	0
Future Vol, veh/h	1	0	62	34	2	0	31	2	13	0	5	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	41	23	1	0	21	1	9	0	3	0
Mvmt Flow	1	0	77	42	2	0	39	2	16	0	6	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	77	0	0	132	128	39	91	167	2
Stage 1	-	-	-	-	-	-	41	41	-	87	87	-
Stage 2	-	-	-	-	-	-	90	87	-	4	80	-
Critical Hdwy	4.1	-	-	4.33	-	-	7.31	6.51	6.29	7.1	6.53	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.31	5.51	-	6.1	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.31	5.51	-	6.1	5.53	-
Follow-up Hdwy	2.2	-	-	2.407	-	-	3.689	4.009	3.381	3.5	4.027	3.3
Pot Cap-1 Maneuver	1633	-	-	1398	-	-	799	764	1013	898	724	1087
Stage 1	-	-	-	-	-	-	927	863	-	925	821	-
Stage 2	-	-	-	-	-	-	872	824	-	1024	827	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1633	-	-	1398	-	-	767	740	1013	853	701	1087
Mov Cap-2 Maneuver	-	-	-	-	-	-	767	740	-	853	701	-
Stage 1	-	-	-	-	-	-	926	862	-	897	796	-
Stage 2	-	-	-	-	-	-	839	799	-	1004	826	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.11	7.23	9.71	10.18
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	822	24	-	-	1396	-	-	701
HCM Lane V/C Ratio	0.07	0.001	-	-	0.03	-	-	0.009
HCM Control Delay (s/veh)	9.7	7.2	0	-	7.7	0	-	10.2
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	162	63	597	671	85
Future Vol, veh/h	22	162	63	597	671	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	5	5	7	7
Mvmt Flow	28	206	80	760	854	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1448	481	962	0	-	0
Stage 1	908	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	122	531	693	-	-	-
Stage 1	354	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	531	693	-	-	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	16.87	1.04	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	693	-	226	531	-	-
HCM Lane V/C Ratio	0.116	-	0.124	0.388	-	-
HCM Control Delay (s/veh)	10.9	-	23.2	16	-	-
HCM Lane LOS	B	-	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	1.8	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	36	1	69	4	1	0	15	84	2	0	191	49
Future Vol, veh/h	36	1	69	4	1	0	15	84	2	0	191	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	3	0
Mvmt Flow	42	1	81	5	1	0	18	98	2	0	224	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	387	389	253	359	416	100	281	0	0	101	0	0
Stage 1	253	253	-	135	135	-	-	-	-	-	-	-
Stage 2	134	136	-	225	281	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	575	549	791	600	530	961	1293	-	-	1504	-	-
Stage 1	756	702	-	873	789	-	-	-	-	-	-	-
Stage 2	874	788	-	783	682	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	566	541	791	530	523	961	1293	-	-	1504	-	-
Mov Cap-2 Maneuver	566	541	-	530	523	-	-	-	-	-	-	-
Stage 1	756	702	-	861	777	-	-	-	-	-	-	-
Stage 2	860	776	-	701	682	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.31	11.89	1.16	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	266	-	-	694	528	1504	-	-
HCM Lane V/C Ratio	0.014	-	-	0.179	0.011	-	-	-
HCM Control Delay (s/veh)	7.8	0	-	11.3	11.9	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	2	13	36	4	22
Future Vol, veh/h	60	2	13	36	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	0	0	0	0	5
Mvmt Flow	125	4	27	75	8	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	127	64	0	0	102	0
Stage 1	64	-	-	-	-	-
Stage 2	62	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	868	1005	-	-	1503	-
Stage 1	958	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	863	1005	-	-	1503	-
Mov Cap-2 Maneuver	863	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.88	0	1.14
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	867	277	-
HCM Lane V/C Ratio	-	-	0.149	0.006	-
HCM Control Delay (s/veh)	-	-	9.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	3	9	62	4	5
Future Vol, veh/h	36	3	9	62	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	82	7	21	142	9	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	89	0	269	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	183	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1519	-	724	978
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1519	-	714	978
Mov Cap-2 Maneuver	-	-	-	-	714	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	840	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.94	9.39
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	840	-	-	228	-
HCM Lane V/C Ratio	0.025	-	-	0.014	-
HCM Control Delay (s/veh)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	6	2	3	10	1	2	65	2	1	194	57
Future Vol, veh/h	33	6	2	3	10	1	2	65	2	1	194	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	2	2
Mvmt Flow	51	9	3	5	15	2	3	100	3	2	300	88

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	461	456	344	415	499	102	388	0	0	103	0	0
Stage 1	347	347	-	108	108	-	-	-	-	-	-	-
Stage 2	114	110	-	307	391	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	514	503	704	551	476	959	1182	-	-	1501	-	-
Stage 1	673	639	-	902	810	-	-	-	-	-	-	-
Stage 2	895	808	-	707	611	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	495	501	704	536	474	959	1182	-	-	1501	-	-
Mov Cap-2 Maneuver	495	501	-	536	474	-	-	-	-	-	-	-
Stage 1	672	638	-	900	807	-	-	-	-	-	-	-
Stage 2	874	806	-	693	610	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	13.19	12.45	0.23	0.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	52	-	-	503	505	7	-	-
HCM Lane V/C Ratio	0.003	-	-	0.126	0.043	0.001	-	-
HCM Control Delay (s/veh)	8.1	0	-	13.2	12.4	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	0	-	-

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	1	7	4	7	5	2	1	21	2	0	50	3
Future Vol, veh/h	1	7	4	7	5	2	1	21	2	0	50	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	0	0
Mvmt Flow	1	10	5	10	7	3	1	29	3	0	68	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	105	104	70	105	105	30	72	0	0	31	0	0
Stage 1	70	70	-	33	33	-	-	-	-	-	-	-
Stage 2	35	34	-	73	72	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	880	790	998	879	789	1050	1541	-	-	1594	-	-
Stage 1	945	841	-	989	872	-	-	-	-	-	-	-
Stage 2	986	871	-	942	839	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	869	789	998	863	789	1050	1541	-	-	1594	-	-
Mov Cap-2 Maneuver	869	789	-	863	789	-	-	-	-	-	-	-
Stage 1	945	841	-	988	871	-	-	-	-	-	-	-
Stage 2	975	870	-	926	839	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.29	9.3	0.31	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	74	-	-	856	856	1594	-	-
HCM Lane V/C Ratio	0.001	-	-	0.019	0.022	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	9.3	9.3	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	15	1	0	26	0	3	1	1	1	1	0
Future Vol, veh/h	0	15	1	0	26	0	3	1	1	1	1	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	24	2	0	42	0	5	2	2	2	2	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	42	0	0	26	0	0	67	66	25	66	67	42
Stage 1	-	-	-	-	-	-	25	25	-	42	42	-
Stage 2	-	-	-	-	-	-	42	42	-	25	26	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1581	-	-	1602	-	-	931	828	1057	932	827	1035
Stage 1	-	-	-	-	-	-	998	879	-	978	864	-
Stage 2	-	-	-	-	-	-	977	864	-	998	878	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1581	-	-	1602	-	-	929	828	1057	929	827	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	929	828	-	929	827	-
Stage 1	-	-	-	-	-	-	998	879	-	978	864	-
Stage 2	-	-	-	-	-	-	975	864	-	995	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	8.91	9.13
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	929	1581	-	-	1602	-	-	875
HCM Lane V/C Ratio	0.009	-	-	-	-	-	-	0.004
HCM Control Delay (s/veh)	8.9	0	-	-	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	12	1	97	174	1
Future Vol, veh/h	4	12	1	97	174	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	4	3	0
Mvmt Flow	7	20	2	164	294	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	462	295	296	0	-	0
Stage 1	295	-	-	-	-	-
Stage 2	167	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	562	749	1277	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	561	749	1277	-	-	-
Mov Cap-2 Maneuver	561	-	-	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10.42	0.08	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	18	-	691	-	-
HCM Lane V/C Ratio	0.001	-	0.039	-	-
HCM Control Delay (s/veh)	7.8	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	7	10	55	1	12	2	30	35	41	105	1
Future Vol, veh/h	0	7	10	55	1	12	2	30	35	41	105	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	2	0	25	0	0	3	0	2	0
Mvmt Flow	0	12	17	94	2	20	3	51	60	70	179	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	378	437	180	413	408	81	181	0	0	111	0	0
Stage 1	320	320	-	88	88	-	-	-	-	-	-	-
Stage 2	59	118	-	325	320	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.5	6.45	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4	3.525	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	583	516	868	550	536	919	1407	-	-	1492	-	-
Stage 1	696	656	-	920	826	-	-	-	-	-	-	-
Stage 2	958	802	-	688	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	537	488	868	498	506	919	1407	-	-	1492	-	-
Mov Cap-2 Maneuver	537	488	-	498	506	-	-	-	-	-	-	-
Stage 1	660	622	-	917	824	-	-	-	-	-	-	-
Stage 2	932	800	-	627	621	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.73	13.44	0.23	2.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	49	-	-	657	542	501	-	-
HCM Lane V/C Ratio	0.002	-	-	0.044	0.214	0.047	-	-
HCM Control Delay (s/veh)	7.6	0	-	10.7	13.4	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.8	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	11	18	82	0	20
Future Vol, veh/h	134	11	18	82	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	1	0	0	7	0	5
Mvmt Flow	198	16	27	121	0	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	214	0	381	206
Stage 1	-	-	-	-	206	-
Stage 2	-	-	-	-	175	-
Critical Hdwy	-	-	4.1	-	6.4	6.25
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.345
Pot Cap-1 Maneuver	-	-	1368	-	625	827
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	861	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1368	-	612	827
Mov Cap-2 Maneuver	-	-	-	-	612	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	843	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.38	9.52
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	827	-	-	324	-
HCM Lane V/C Ratio	0.036	-	-	0.019	-
HCM Control Delay (s/veh)	9.5	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	196	14	45	84	2	10	14	51	5	37	9
Future Vol, veh/h	2	196	14	45	84	2	10	14	51	5	37	9
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	1	7	4	7	0	20	0	0	0	3	11
Mvmt Flow	4	348	25	80	149	4	18	25	91	9	66	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	153	0	0	373	0	0	710	680	361	679	691	151
Stage 1	-	-	-	-	-	-	368	368	-	311	311	-
Stage 2	-	-	-	-	-	-	342	313	-	368	380	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.3	6.5	6.2	7.1	6.53	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.53	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.68	4	3.3	3.5	4.027	3.399
Pot Cap-1 Maneuver	1440	-	-	1175	-	-	326	376	688	369	366	872
Stage 1	-	-	-	-	-	-	617	625	-	704	657	-
Stage 2	-	-	-	-	-	-	637	661	-	656	612	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1440	-	-	1175	-	-	242	346	688	276	338	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	346	-	276	338	-
Stage 1	-	-	-	-	-	-	615	623	-	651	608	-
Stage 2	-	-	-	-	-	-	516	612	-	545	610	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.07	2.85	15.32	17.86
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	481	17	-	-	615	-	-	370
HCM Lane V/C Ratio	0.277	0.002	-	-	0.068	-	-	0.245
HCM Control Delay (s/veh)	15.3	7.5	0	-	8.3	0	-	17.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.1	0	-	-	0.2	-	-	0.9

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	297	86	30	139	46
Future Vol, veh/h	28	297	86	30	139	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	1	12	7	0	7
Mvmt Flow	47	494	143	50	231	76

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	605	269	308	0	-	0
Stage 1	269	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.22	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.308	-	-	-
Pot Cap-1 Maneuver	457	772	1198	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	772	1198	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.35	6.24	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1198	-	403	772	-	-
HCM Lane V/C Ratio	0.119	-	0.116	0.64	-	-
HCM Control Delay (s/veh)	8.4	-	15.1	17.6	-	-
HCM Lane LOS	A	-	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	4.7	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	62	23	22	116	0
Future Vol, veh/h	0	62	23	22	116	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	4	9	2	0
Mvmt Flow	0	105	39	37	197	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	313	197	197	0	-	0
Stage 1	197	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.4	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	684	844	1364	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	664	844	1364	-	-	-
Mov Cap-2 Maneuver	664	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	914	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.87	3.94	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1364	-	844	-	-
HCM Lane V/C Ratio	0.029	-	0.125	-	-
HCM Control Delay (s/veh)	7.7	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	3	4	9	2
Future Vol, veh/h	0	5	3	4	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	20	0	0	0	50
Mvmt Flow	0	8	5	7	15	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	33	17	18	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.4	6.4	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.48	2.2	-	-	-
Pot Cap-1 Maneuver	985	1012	1611	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	982	1012	1611	-	-	-
Mov Cap-2 Maneuver	982	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	1011	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.59	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	771	-	1012	-	-
HCM Lane V/C Ratio	0.003	-	0.008	-	-
HCM Control Delay (s/veh)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	36	64	12	10	56
Future Vol, veh/h	4	36	64	12	10	56
Conflicting Peds, #/hr	0	6	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	7	59	105	20	16	92

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	239	121	0	0	125	0
Stage 1	115	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	753	936	-	-	1475	-
Stage 1	915	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	745	931	-	-	1475	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.2	0	1.13
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	745	931	1475	-
HCM Lane V/C Ratio	-	-	0.009	0.063	0.011	-
HCM Control Delay (s/veh)	-	-	9.9	9.1	7.5	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0	-

Lanes, Volumes, Timings
60: 15th St N & River Dr N

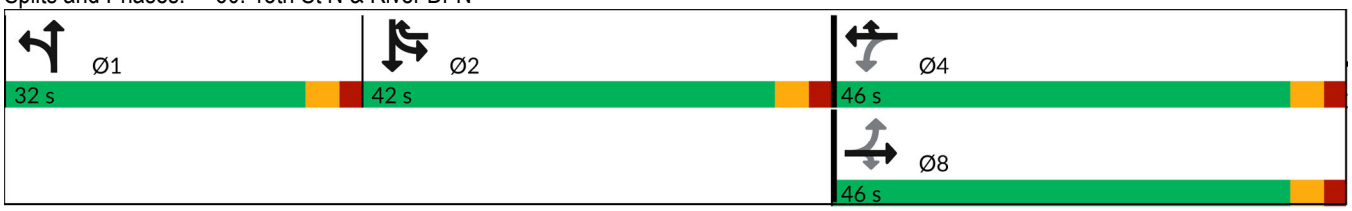
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	390	78	13	144	258	108	301	49	405	278	9
Future Volume (vph)	17	390	78	13	144	258	108	301	49	405	278	9
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	100		500	250		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1484	1651	1473	1080	1535	1403	1446	3138	0	0	3115	0
Flt Permitted	0.547			0.115			0.950				0.972	
Satd. Flow (perm)	855	1651	1473	131	1535	1403	1446	3138	0	0	3115	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			79		14			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		526			805			584			552	
Travel Time (s)		12.0			18.3			13.3			12.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%
Heavy Vehicles (%)	12%	6%	1%	54%	14%	6%	15%	4%	2%	4%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	574	115	19	212	379	159	515	0	0	1018	0
Turn Type	Perm	NA	Perm	Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases		8			4	4 2	1	1		2	2	
Permitted Phases	8		8	4								
Total Split (s)	46.0	46.0	46.0	46.0	46.0		32.0	32.0		42.0	42.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0			5.0	
Act Effct Green (s)	41.1	41.1	41.1	41.1	41.1	83.1	23.7	23.7			37.1	
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35	0.71	0.20	0.20			0.32	
v/c Ratio	0.08	0.98	0.19	0.42	0.39	0.37	0.54	0.79			1.18dl	
Control Delay (s/veh)	27.6	73.6	8.0	62.3	31.9	6.5	49.0	52.8			76.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay (s/veh)	27.6	73.6	8.0	62.3	31.9	6.5	49.0	52.8			76.3	
LOS	C	E	A	E	C	A	D	D			E	
Approach Delay (s/veh)		61.4			17.1			52.0			76.3	
Approach LOS		E			B			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay (s/veh): 55.4		Intersection LOS: E	
Intersection Capacity Utilization 84.2%		ICU Level of Service E	
Analysis Period (min) 15			
Description: 15th St N/River Dr N			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 60: 15th St N & River Dr N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	377	0	0	0	0	0	433	71	0	0	0
Future Volume (veh/h)	42	377	0	0	0	0	0	433	71	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1654	1736	0				0	1723	1750			
Adj Flow Rate, veh/h	64	570	0				0	655	107			
Peak Hour Factor	0.84	0.84	0.84				0.84	0.84	0.84			
Percent Heavy Veh, %	7	1	0				0	2	0			
Cap, veh/h	115	1028	0				0	1038	169			
Arrive On Green	0.34	0.34	0.00				0.00	0.37	0.37			
Sat Flow, veh/h	340	3116	0				0	2903	460			
Grp Volume(v), veh/h	324	310	0				0	380	382			
Grp Sat Flow(s),veh/h/ln	1719	1650	0				0	1637	1640			
Q Serve(g_s), s	5.1	5.1	0.0				0.0	6.4	6.4			
Cycle Q Clear(g_c), s	5.1	5.1	0.0				0.0	6.4	6.4			
Prop In Lane	0.20		0.00				0.00		0.28			
Lane Grp Cap(c), veh/h	583	560	0				0	603	604			
V/C Ratio(X)	0.56	0.55	0.00				0.00	0.63	0.63			
Avail Cap(c_a), veh/h	2004	1923	0				0	1029	1032			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	9.0	9.0	0.0				0.0	8.7	8.7			
Incr Delay (d2), s/veh	0.8	0.9	0.0				0.0	1.1	1.1			
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	1.4	0.0				0.0	1.7	1.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.8	9.9	0.0				0.0	9.8	9.8			
LnGrp LOS	A	A						A	A			
Approach Vol, veh/h		634						762				
Approach Delay, s/veh		9.9						9.8				
Approach LOS		A						A				

Timer - Assigned Phs	2	4
Phs Duration (G+Y+Rc), s	16.3	17.3
Change Period (Y+Rc), s	4.9	4.9
Max Green Setting (Gmax), s	39.1	21.1
Max Q Clear Time (g_c+I1), s	7.1	8.4
Green Ext Time (p_c), s	4.3	3.9

Intersection Summary	
HCM 7th Control Delay, s/veh	9.8
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	67.1

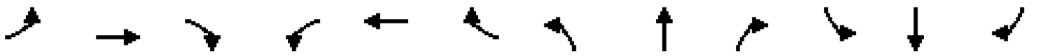
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	1274	35	45	1197	69	4	9	48	14	11	40
Future Vol, veh/h	34	1274	35	45	1197	69	4	9	48	14	11	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	4	4	4
Mvmt Flow	42	1564	43	55	1469	85	5	11	59	17	14	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1554	0	0	1607	0	0	2373	3333	803	2336	3312	777
Stage 1	-	-	-	-	-	-	1668	1668	-	1622	1622	-
Stage 2	-	-	-	-	-	-	705	1664	-	714	1690	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.4	6.5	7.1	6.48	6.58	7.18
Critical Hdwy Stg 1	-	-	-	-	-	-	7.3	5.5	-	7.38	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.78	5.58	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.8	4	3.9	3.84	4.04	3.94
Pot Cap-1 Maneuver	210	-	-	197	-	-	38	~ 8	284	38	~ 8	288
Stage 1	-	-	-	-	-	-	68	155	-	71	157	-
Stage 2	-	-	-	-	-	-	362	155	-	349	145	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	210	-	-	197	-	-	18	~ 5	284	17	~ 5	288
Mov Cap-2 Maneuver	-	-	-	-	-	-	18	~ 5	-	17	~ 5	-
Stage 1	-	-	-	-	-	-	55	124	-	51	113	-
Stage 2	-	-	-	-	-	-	190	112	-	202	116	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.67	1.04	$ 1110.88	$ 1794.66
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	27	210	-	-	197	-	-	19
HCM Lane V/C Ratio	2.779	0.199	-	-	0.28	-	-	4.095
HCM Control Delay (s/veh)	$ 1110.9	26.4	-	-	30.2	-	-	$ 1794.7
HCM Lane LOS	F	D	-	-	D	-	-	F
HCM 95th %tile Q(veh)	9.1	0.7	-	-	1.1	-	-	10.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	235	79	35	284	70	45	147	50	86	191	42
Future Volume (veh/h)	6	235	79	35	284	70	45	147	50	86	191	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	9	346	116	51	418	103	66	216	74	127	281	62
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	338	771	254	360	832	203	184	434	133	244	407	81
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	823	2454	810	869	2647	646	184	1097	336	317	1029	205
Grp Volume(v), veh/h	9	233	229	51	261	260	356	0	0	470	0	0
Grp Sat Flow(s),veh/h/ln	823	1663	1601	869	1663	1631	1617	0	0	1550	0	0
Q Serve(g_s), s	0.3	4.3	4.4	1.9	4.9	5.0	0.0	0.0	0.0	3.3	0.0	0.0
Cycle Q Clear(g_c), s	5.4	4.3	4.4	6.3	4.9	5.0	6.2	0.0	0.0	9.5	0.0	0.0
Prop In Lane	1.00		0.51	1.00		0.40	0.19		0.21	0.27		0.13
Lane Grp Cap(c), veh/h	338	522	503	360	522	512	750	0	0	732	0	0
V/C Ratio(X)	0.03	0.45	0.46	0.14	0.50	0.51	0.47	0.00	0.00	0.64	0.00	0.00
Avail Cap(c_a), veh/h	887	1630	1570	939	1630	1599	2881	0	0	2808	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.0	10.5	10.6	13.1	10.8	10.8	8.9	0.0	0.0	9.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.6	0.2	0.7	0.8	0.5	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.3	1.3	0.3	1.5	1.5	1.7	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.0	11.1	11.2	13.3	11.5	11.6	9.4	0.0	0.0	10.7	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	A			B		
Approach Vol, veh/h		471			572			356			470	
Approach Delay, s/veh		11.2			11.7			9.4			10.7	
Approach LOS		B			B			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.3		21.2		17.3		21.2				
Change Period (Y+Rc), s		5.2		6.0		5.2		6.0				
Max Green Setting (Gmax), s		37.8		71.0		37.8		71.0				
Max Q Clear Time (g_c+I1), s		7.4		11.5		8.3		8.2				
Green Ext Time (p_c), s		3.1		3.8		3.8		2.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.9									
HCM 7th LOS			B									

GREAT FALLS AREA LONG RANGE TRANSPORTATION PLAN 2024

PM PEAK PERIOD

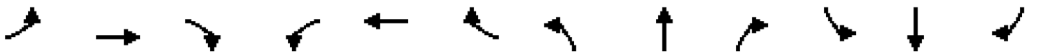
Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	72	18	29	9	10	19	11	214	4	32	373	106
Future Vol, veh/h	72	18	29	9	10	19	11	214	4	32	373	106
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	0	3	0	10	0	0	3	25	3	1	1
Mvmt Flow	85	21	34	11	12	22	13	252	5	38	439	125

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	861	861	502	807	921	255	564	0	0	258	0	0
Stage 1	577	577	-	281	281	-	-	-	-	-	-	-
Stage 2	284	284	-	525	640	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.23	7.1	6.6	6.2	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.327	3.5	4.09	3.3	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	274	295	568	302	262	788	1018	-	-	1301	-	-
Stage 1	498	505	-	730	664	-	-	-	-	-	-	-
Stage 2	719	680	-	539	458	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	239	278	568	248	247	787	1018	-	-	1300	-	-
Mov Cap-2 Maneuver	239	278	-	248	247	-	-	-	-	-	-	-
Stage 1	477	483	-	718	653	-	-	-	-	-	-	-
Stage 2	676	670	-	464	438	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	29.18	15.84	0.41	0.49
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	86	-	-	286	377	108	-	-
HCM Lane V/C Ratio	0.013	-	-	0.491	0.119	0.029	-	-
HCM Control Delay (s/veh)	8.6	0	-	29.2	15.8	7.9	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.5	0.4	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	626	59	546	876	0	52	151	254	151	357	334
Future Volume (veh/h)	189	626	59	546	876	0	52	151	254	151	357	334
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1682	1682	1750	1723	1750	1723	1736	1750	1750	1736	1723
Adj Flow Rate, veh/h	225	746	70	651	1044	0	62	180	303	180	425	398
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	5	5	0	2	0	2	1	0	0	1	2
Cap, veh/h	192	925	585	532	1106	501	0	669	543	226	621	443
Arrive On Green	0.12	0.29	0.29	0.16	0.34	0.00	0.12	0.20	0.20	0.14	0.19	0.19
Sat Flow, veh/h	1654	3195	1425	3233	3273	1483	0	3299	1476	1667	3299	1453
Grp Volume(v), veh/h	225	746	70	651	1044	0	0	180	303	180	425	398
Grp Sat Flow(s),veh/h/ln	1654	1598	1425	1617	1637	1483	0	1650	1476	1667	1650	1453
Q Serve(g_s), s	12.0	22.4	1.2	17.0	32.1	0.0	0.0	4.8	16.9	10.8	12.4	15.6
Cycle Q Clear(g_c), s	12.0	22.4	1.2	17.0	32.1	0.0	0.0	4.8	16.9	10.8	12.4	15.6
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	925	585	532	1106	501	0	669	543	226	621	443
V/C Ratio(X)	1.17	0.81	0.12	1.22	0.94	0.00	0.00	0.27	0.56	0.80	0.68	0.90
Avail Cap(c_a), veh/h	192	1066	648	532	1251	567	0	1117	744	677	1117	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	34.0	6.0	43.2	33.3	0.0	0.0	34.8	26.0	43.3	39.1	13.7
Incr Delay (d2), s/veh	119.0	3.5	0.0	116.9	12.7	0.0	0.0	0.2	0.9	2.4	0.5	8.2
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	11.1	8.6	0.5	15.1	13.8	0.0	0.0	1.9	6.0	4.5	4.9	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	164.7	37.5	6.0	160.1	46.0	0.0	0.0	35.0	26.9	45.8	39.6	21.9
LnGrp LOS	F	D	A	F	D			C	C	D	D	C
Approach Vol, veh/h		1041			1695			483			1003	
Approach Delay, s/veh		62.9			89.8			29.9			33.7	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	36.4	18.5	25.4	18.0	41.4	17.0	27.0
Change Period (Y+Rc), s	6.0	6.5	6.0	6.0	6.0	6.5	3.0	6.0
Max Green Setting (Gmax), s	17.0	34.5	39.0	35.0	12.0	39.5	42.0	35.0
Max Q Clear Time (g_c+I1), s	19.0	24.4	0.0	17.6	14.0	34.1	12.8	18.9
Green Ext Time (p_c), s	0.0	0.7	0.0	0.4	0.0	0.9	0.0	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	63.0
HCM 7th LOS	E

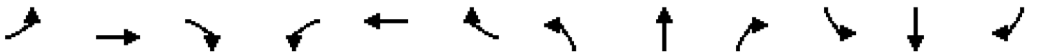
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	16	70	2	1	6	460	197	6	749	19
Future Vol, veh/h	4	1	16	70	2	1	6	460	197	6	749	19
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	1	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	0	0	0	2	3	17	1	0
Mvmt Flow	5	1	19	84	2	1	7	550	236	7	896	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1216	1726	463	1146	1620	394	922	0	0	787	0	0
Stage 1	925	925	-	683	683	-	-	-	-	-	-	-
Stage 2	291	801	-	463	937	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.9	4.1	-	-	4.44	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.3	2.2	-	-	2.37	-	-
Pot Cap-1 Maneuver	139	90	551	155	104	611	749	-	-	738	-	-
Stage 1	293	350	-	408	452	-	-	-	-	-	-	-
Stage 2	699	400	-	551	346	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	133	87	549	145	102	610	746	-	-	737	-	-
Mov Cap-2 Maneuver	133	87	-	145	102	-	-	-	-	-	-	-
Stage 1	289	346	-	403	447	-	-	-	-	-	-	-
Stage 2	687	396	-	525	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	18.25	61.84	0.09	0.08
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	746	-	-	297	145	737	-	-
HCM Lane V/C Ratio	0.01	-	-	0.085	0.603	0.01	-	-
HCM Control Delay (s/veh)	9.9	-	-	18.2	61.8	9.9	-	-
HCM Lane LOS	A	-	-	C	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	3.2	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	476	4	12	612	90	7	15	11	74	20	43
Future Volume (veh/h)	48	476	4	12	612	90	7	15	11	74	20	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1682	1750	1750	1695	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	59	582	5	15	748	110	9	18	13	90	24	53
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	5	0	0	4	0	0	0	0	0	0	0
Cap, veh/h	397	1463	13	504	1270	187	185	169	98	314	61	85
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	593	3246	28	775	2817	414	180	898	519	654	321	453
Grp Volume(v), veh/h	59	286	301	15	428	430	40	0	0	167	0	0
Grp Sat Flow(s),veh/h/ln	593	1598	1677	775	1611	1620	1597	0	0	1429	0	0
Q Serve(g_s), s	2.4	3.5	3.5	0.4	5.8	5.8	0.0	0.0	0.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	8.2	3.5	3.5	3.9	5.8	5.8	0.6	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.26	0.22		0.32	0.54		0.32
Lane Grp Cap(c), veh/h	397	720	756	504	726	730	453	0	0	460	0	0
V/C Ratio(X)	0.15	0.40	0.40	0.03	0.59	0.59	0.09	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	924	2140	2246	1193	2158	2171	1755	0	0	1658	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.0	5.3	5.4	6.6	6.0	6.0	9.8	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.0	0.3	0.3	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.6	0.6	0.0	1.0	1.0	0.2	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.1	5.5	5.5	6.7	6.3	6.3	9.9	0.0	0.0	11.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A			B		
Approach Vol, veh/h		646			873			40			167	
Approach Delay, s/veh		5.8			6.3			9.9			11.0	
Approach LOS		A			A			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.1		11.0		18.1		11.0				
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5				
Max Green Setting (Gmax), s		39.0		30.5		39.0		30.5				
Max Q Clear Time (g_c+I1), s		10.2		2.6		7.8		5.1				
Green Ext Time (p_c), s		2.9		0.1		4.0		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			6.6									
HCM 7th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	439	67	375	610	62	87	265	83	93	315	29
Future Volume (veh/h)	45	439	67	375	610	62	87	265	83	93	315	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		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	1750	1668	1750	1723	1709	1709	1682	1736	1695	1723	1736	1709
Adj Flow Rate, veh/h	54	530	81	453	737	75	105	320	100	112	381	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	2	3	3	5	1	4	2	1	3
Cap, veh/h	276	703	107	419	1101	112	297	483	148	299	606	55
Arrive On Green	0.04	0.26	0.26	0.15	0.37	0.37	0.07	0.19	0.19	0.08	0.20	0.20
Sat Flow, veh/h	1667	2756	420	1641	2975	303	1602	2484	763	1641	3056	279
Grp Volume(v), veh/h	54	304	307	453	402	410	105	211	209	112	205	211
Grp Sat Flow(s),veh/h/ln	1667	1585	1591	1641	1624	1654	1602	1650	1598	1641	1650	1686
Q Serve(g_s), s	1.5	11.5	11.6	10.0	13.5	13.5	3.4	7.7	7.9	3.5	7.4	7.5
Cycle Q Clear(g_c), s	1.5	11.5	11.6	10.0	13.5	13.5	3.4	7.7	7.9	3.5	7.4	7.5
Prop In Lane	1.00		0.26	1.00		0.18	1.00		0.48	1.00		0.17
Lane Grp Cap(c), veh/h	276	404	406	419	601	612	297	320	310	299	327	334
V/C Ratio(X)	0.20	0.75	0.76	1.08	0.67	0.67	0.35	0.66	0.67	0.37	0.63	0.63
Avail Cap(c_a), veh/h	1413	2028	2037	419	1157	1179	551	771	747	552	771	788
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	17.1	22.4	22.4	18.1	17.2	17.2	19.3	24.3	24.4	19.2	23.9	24.0
Incr Delay (d2), s/veh	0.3	1.1	1.1	67.1	1.3	1.3	0.5	2.3	2.6	0.8	2.0	2.0
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	0.6	4.1	4.2	11.9	4.8	4.9	1.2	3.0	3.0	1.3	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.5	23.5	23.5	85.2	18.5	18.5	19.8	26.6	26.9	20.0	25.9	26.0
LnGrp LOS	B	C	C	F	B	B	B	C	C	C	C	C
Approach Vol, veh/h		665			1265			525			528	
Approach Delay, s/veh		23.0			42.4			25.4			24.7	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	22.1	9.7	18.4	7.5	29.7	9.9	18.2
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5
Max Green Setting (Gmax), s	10.0	83.5	15.0	30.5	47.0	46.5	15.0	30.5
Max Q Clear Time (g_c+I1), s	12.0	13.6	5.4	9.5	3.5	15.5	5.5	9.9
Green Ext Time (p_c), s	0.0	2.6	0.1	2.4	0.1	2.6	0.2	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	31.9
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	581	7	67	845	650	6	98	116	512	48	255
Future Volume (veh/h)	126	581	7	67	845	650	6	98	116	512	48	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1627	1709	1750	1750	1723	1736	1750	1736	1709	1736	1750	1709
Adj Flow Rate, veh/h	149	685	8	79	996	766	7	116	137	604	57	301
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	3	0	0	2	1	0	1	3	1	0	3
Cap, veh/h	206	1548	18	353	1449	649	291	203	169	661	260	215
Arrive On Green	0.07	0.47	0.47	0.04	0.44	0.44	0.17	0.12	0.12	0.21	0.15	0.15
Sat Flow, veh/h	1550	3287	38	1667	3273	1467	1667	1736	1445	3208	1750	1445
Grp Volume(v), veh/h	149	338	355	79	996	766	7	116	137	604	57	301
Grp Sat Flow(s),veh/h/ln	1550	1624	1702	1667	1637	1467	1667	1736	1445	1604	1750	1445
Q Serve(g_s), s	6.8	18.4	18.4	3.4	32.2	58.5	0.5	8.4	12.2	24.3	3.8	16.2
Cycle Q Clear(g_c), s	6.8	18.4	18.4	3.4	32.2	58.5	0.5	8.4	12.2	24.3	3.8	16.2
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	765	802	353	1449	649	291	203	169	661	260	215
V/C Ratio(X)	0.72	0.44	0.44	0.22	0.69	1.18	0.02	0.57	0.81	0.91	0.22	1.40
Avail Cap(c_a), veh/h	277	765	802	476	1449	649	435	453	377	728	397	328
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	26.3	23.4	23.4	19.5	29.5	36.8	45.2	55.2	56.9	51.3	49.5	38.1
Incr Delay (d2), s/veh	5.9	0.4	0.4	0.3	1.4	96.1	0.0	2.5	8.8	15.2	0.4	202.8
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	2.8	7.2	7.5	1.4	12.9	37.8	0.2	3.8	4.9	11.2	1.7	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.2	23.8	23.8	19.9	30.9	132.9	45.3	57.7	65.7	66.5	49.9	240.9
LnGrp LOS	C	C	C	B	C	F	D	E	E	E	D	F
Approach Vol, veh/h		842			1841			260			962	
Approach Delay, s/veh		25.3			72.9			61.6			120.1	
Approach LOS		C			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	67.7	28.6	25.6	14.0	64.0	33.2	21.0
Change Period (Y+Rc), s	5.0	5.5	5.5	6.0	5.0	5.5	6.0	5.5
Max Green Setting (Gmax), s	15.0	58.5	34.5	30.0	15.0	58.5	30.0	34.5
Max Q Clear Time (g_c+I1), s	5.4	20.4	2.5	18.2	8.8	60.5	26.3	14.2
Green Ext Time (p_c), s	0.1	4.9	0.0	1.1	0.2	0.0	0.9	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	73.5
HCM 7th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	327	36	198	547	28	36	198	169	44	180	74
Future Volume (veh/h)	62	327	36	198	547	28	36	198	169	44	180	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1668	1668	1723	1723	1750	1709	1736	1736	1750	1736	1750
Adj Flow Rate, veh/h	81	425	47	257	711	36	47	257	220	57	234	96
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	6	6	2	2	0	3	1	1	0	1	0
Cap, veh/h	329	714	79	475	1045	53	257	526	442	290	354	145
Arrive On Green	0.07	0.25	0.25	0.15	0.33	0.33	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1628	2879	317	1641	3170	160	956	1736	1460	856	1167	479
Grp Volume(v), veh/h	81	233	239	257	367	380	47	257	220	57	0	330
Grp Sat Flow(s),veh/h/ln	1628	1585	1611	1641	1637	1694	956	1736	1460	856	0	1646
Q Serve(g_s), s	1.9	7.0	7.0	5.8	10.4	10.4	2.4	6.5	6.6	3.1	0.0	9.4
Cycle Q Clear(g_c), s	1.9	7.0	7.0	5.8	10.4	10.4	11.8	6.5	6.6	9.6	0.0	9.4
Prop In Lane	1.00		0.20	1.00		0.09	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	329	393	399	475	539	558	257	526	442	290	0	499
V/C Ratio(X)	0.25	0.59	0.60	0.54	0.68	0.68	0.18	0.49	0.50	0.20	0.00	0.66
Avail Cap(c_a), veh/h	587	1330	1352	601	1373	1421	481	933	784	490	0	884
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	0.00	1.00
Uniform Delay (d), s/veh	13.7	17.8	17.8	11.6	15.5	15.5	21.4	15.3	15.3	19.2	0.0	16.3
Incr Delay (d2), s/veh	0.4	1.4	1.4	1.0	1.5	1.5	0.3	0.7	0.9	0.3	0.0	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	0.7	2.4	2.5	1.9	3.6	3.7	0.5	2.4	2.0	0.6	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.1	19.2	19.3	12.6	17.0	17.0	21.8	16.0	16.2	19.6	0.0	17.8
LnGrp LOS	B	B	B	B	B	B	C	B	B	B		B
Approach Vol, veh/h		553			1004			524			387	
Approach Delay, s/veh		18.5			15.9			16.6			18.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	18.3		22.4	8.5	22.7		22.4				
Change Period (Y+Rc), s	5.0	5.0		6.2	5.0	5.0		6.2				
Max Green Setting (Gmax), s	12.0	45.0		28.8	12.0	45.0		28.8				
Max Q Clear Time (g_c+I1), s	7.8	9.0		11.6	3.9	12.4		13.8				
Green Ext Time (p_c), s	0.3	3.1		2.3	0.1	5.3		2.2				

Intersection Summary		
HCM 7th Control Delay, s/veh	17.0	
HCM 7th LOS	B	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	347	140	227	603	576	465
Future Volume (veh/h)	347	140	227	603	576	465
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1682	1750	1750	1736	1736	1709
Adj Flow Rate, veh/h	309	318	288	764	730	589
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	0	0	1	1	3
Cap, veh/h	381	353	375	2100	1569	1033
Arrive On Green	0.24	0.24	0.10	0.64	0.48	0.48
Sat Flow, veh/h	1602	1483	1667	3386	3386	1448
Grp Volume(v), veh/h	309	318	288	764	730	589
Grp Sat Flow(s),veh/h/ln	1602	1483	1667	1650	1650	1448
Q Serve(g_s), s	17.7	20.2	8.1	10.6	14.5	19.1
Cycle Q Clear(g_c), s	17.7	20.2	8.1	10.6	14.5	19.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	381	353	375	2100	1569	1033
V/C Ratio(X)	0.81	0.90	0.77	0.36	0.47	0.57
Avail Cap(c_a), veh/h	429	397	382	2100	1569	1033
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.9	35.9	14.3	8.3	17.2	6.7
Incr Delay (d2), s/veh	10.2	21.6	9.0	0.5	0.2	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	9.3	3.7	3.6	5.3	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	45.1	57.5	23.3	8.8	17.4	7.5
LnGrp LOS	D	E	C	A	B	A
Approach Vol, veh/h	627			1052	1319	
Approach Delay, s/veh	51.4			12.8	13.0	
Approach LOS	D			B	B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.6	52.4			68.0	29.1
Change Period (Y+Rc), s	5.5	6.2			6.2	6.0
Max Green Setting (Gmax), s	10.1	45.8			61.8	26.0
Max Q Clear Time (g_c+I1), s	10.1	21.1			12.6	22.2
Green Ext Time (p_c), s	0.0	8.3			6.4	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	20.9
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	11	97	30	10	3	159	752	29	13	912	60
Future Volume (veh/h)	151	11	97	30	10	3	159	752	29	13	912	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1736	1750	1750	1750	1750	1709	1750	1750	1723	1750
Adj Flow Rate, veh/h	176	13	113	35	12	4	186	879	34	15	1066	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0	0	3	0	0	2	0
Cap, veh/h	291	27	232	190	216	72	363	2240	87	414	1859	122
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.06	0.70	0.70	0.60	0.60	0.60
Sat Flow, veh/h	1307	155	1351	1183	1256	419	1667	3187	123	572	3118	205
Grp Volume(v), veh/h	176	0	126	35	0	16	186	448	465	15	559	577
Grp Sat Flow(s),veh/h/ln	1307	0	1507	1183	0	1675	1667	1624	1687	572	1637	1686
Q Serve(g_s), s	12.3	0.0	7.1	2.6	0.0	0.8	3.8	10.7	10.7	1.0	19.8	19.8
Cycle Q Clear(g_c), s	13.0	0.0	7.1	9.7	0.0	0.8	3.8	10.7	10.7	1.7	19.8	19.8
Prop In Lane	1.00		0.90	1.00		0.25	1.00		0.07	1.00		0.12
Lane Grp Cap(c), veh/h	291	0	259	190	0	288	363	1141	1186	414	976	1005
V/C Ratio(X)	0.61	0.00	0.49	0.18	0.00	0.06	0.51	0.39	0.39	0.04	0.57	0.57
Avail Cap(c_a), veh/h	510	0	512	389	0	569	521	1141	1186	414	976	1005
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	38.0	0.0	35.2	39.6	0.0	32.6	9.6	5.7	5.7	8.1	11.7	11.7
Incr Delay (d2), s/veh	2.0	0.0	1.4	0.5	0.0	0.1	1.1	1.0	1.0	0.0	0.8	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	4.0	0.0	2.7	0.8	0.0	0.3	1.2	3.3	3.5	0.1	6.7	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.1	0.0	36.7	40.1	0.0	32.7	10.7	6.8	6.7	8.2	12.5	12.5
LnGrp LOS	D		D	D		C	B	A	A	A	B	B
Approach Vol, veh/h		302			51			1099			1151	
Approach Delay, s/veh		38.7			37.8			7.4			12.4	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	62.0		22.2		72.0		22.2				
Change Period (Y+Rc), s	4.0	5.8		6.0		5.8		6.0				
Max Green Setting (Gmax), s	15.0	47.2		32.0		66.2		32.0				
Max Q Clear Time (g_c+I1), s	15.8	21.8		11.7		12.7		15.0				
Green Ext Time (p_c), s	0.3	8.9		0.1		7.3		1.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	13.8
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	1	44	50	0	48	0	776	40	13	877	0
Future Vol, veh/h	28	1	44	50	0	48	0	776	40	13	877	0
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	4	0	3	10	8	2	0
Mvmt Flow	34	1	53	60	0	58	0	930	48	16	1051	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1549	2059	525	1511	2035	491	1051	0	0	977	0	0
Stage 1	1082	1082	-	954	954	-	-	-	-	-	-	-
Stage 2	467	977	-	557	1082	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.26	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.28	-	-
Pot Cap-1 Maneuver	79	56	502	84	58	518	670	-	-	666	-	-
Stage 1	236	296	-	282	340	-	-	-	-	-	-	-
Stage 2	551	331	-	487	296	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	68	54	502	72	56	517	670	-	-	666	-	-
Mov Cap-2 Maneuver	68	54	-	72	56	-	-	-	-	-	-	-
Stage 1	230	289	-	282	340	-	-	-	-	-	-	-
Stage 2	489	331	-	424	289	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	64.52	132.08	0	0.15
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	670	-	-	142	125	666	-	-
HCM Lane V/C Ratio	-	-	-	0.617	0.941	0.023	-	-
HCM Control Delay (s/veh)	0	-	-	64.5	132.1	10.5	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	3.3	6.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	1	93	137	688	897	11
Future Vol, veh/h	1	93	137	688	897	11
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	4	2	9
Mvmt Flow	1	111	164	824	1075	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1822	545	1089	0	-	0
Stage 1	1082	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	70	488	648	-	-	-
Stage 1	291	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	52	487	648	-	-	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	217	-	-	-	-	-
Stage 2	437	-	-	-	-	-

Approach	SB	NE	SW
HCM Control Delay, s/v	15.72	2.06	0
HCM LOS	C		

Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	648	-	448	-	-
HCM Lane V/C Ratio	0.253	-	0.252	-	-
HCM Control Delay (s/veh)	12.4	-	15.7	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	1	-	1	-	-

Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	265	8	0	698	834	336
Future Volume (veh/h)	265	8	0	698	834	336
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1750	1750	0	1695	1723	1750
Adj Flow Rate, veh/h	341	10	0	898	1074	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	4	2	0
Cap, veh/h	424	377	0	1601	1627	
Arrive On Green	0.25	0.25	0.00	0.50	0.50	0.00
Sat Flow, veh/h	1667	1483	0	3391	3359	1483
Grp Volume(v), veh/h	341	10	0	898	1074	0
Grp Sat Flow(s),veh/h/ln	1667	1483	0	1611	1637	1483
Q Serve(g_s), s	9.1	0.2	0.0	9.2	11.7	0.0
Cycle Q Clear(g_c), s	9.1	0.2	0.0	9.2	11.7	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	424	377	0	1601	1627	
V/C Ratio(X)	0.80	0.03	0.00	0.56	0.66	
Avail Cap(c_a), veh/h	1649	1467	0	3472	3528	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.6	13.3	0.0	8.3	8.9	0.0
Incr Delay (d2), s/veh	3.6	0.0	0.0	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	3.4	0.1	0.0	2.4	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	20.2	13.3	0.0	8.6	9.4	0.0
LnGrp LOS	C	B		A	A	
Approach Vol, veh/h	351			898	1074	
Approach Delay, s/veh	20.0			8.6	9.4	
Approach LOS	C			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		29.4		18.1		29.4
Change Period (Y+Rc), s		5.8		6.0		5.8
Max Green Setting (Gmax), s		51.2		47.0		51.2
Max Q Clear Time (g_c+I1), s		11.2		11.1		13.7
Green Ext Time (p_c), s		7.9		1.1		9.9

Intersection Summary	
HCM 7th Control Delay, s/veh	10.7
HCM 7th LOS	B

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

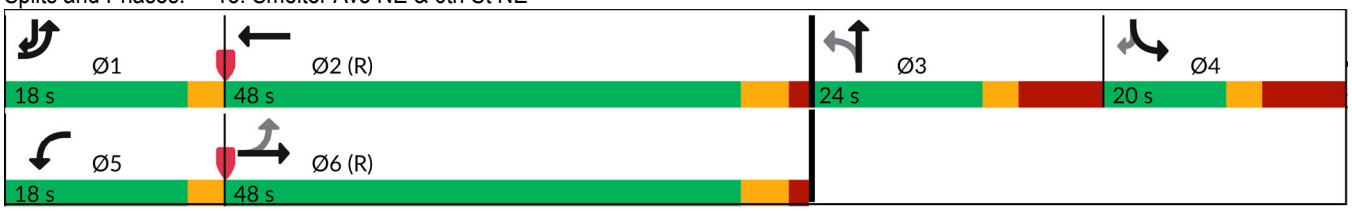
Lanes, Volumes, Timings
13: Smelter Ave NE & 6th St NE

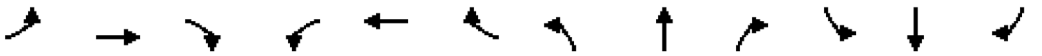
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	917	0	0	1179	35	0	0	0	59	0	58
Future Volume (vph)	40	917	0	0	1179	35	0	0	0	59	0	58
Ideal Flow (vphpl)	1750	1750	1900	1900	1750	1750	1900	1900	1900	1750	1900	1750
Storage Length (ft)	100		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1662	3197	0	1863	3089	0	0	1863	0	1646	0	1473
Flt Permitted	0.108									0.950		
Satd. Flow (perm)	189	3197	0	1863	3089	0	0	1863	0	1646	0	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3							123
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		801			175			190			247	
Travel Time (s)		18.2			4.0			4.3			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Heavy Vehicles (%)	0%	4%	2%	2%	7%	14%	2%	2%	2%	1%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1196	0	0	1584	0	0	0	0	77	0	76
Turn Type	pm+pt	NA		Prot	NA					Prot		pm+ov
Protected Phases	1	6		5	2			3		4		1
Permitted Phases	6						3					4
Total Split (s)	18.0	48.0		18.0	48.0		24.0	24.0		20.0		18.0
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8		9.8		3.0
Act Effct Green (s)	90.0	88.5			80.8					10.5		23.4
Actuated g/C Ratio	0.82	0.80			0.73					0.10		0.21
v/c Ratio	0.21	0.46			0.69					0.49		0.18
Control Delay (s/veh)	5.1	5.3			13.2					57.1		2.2
Queue Delay	0.0	0.0			0.4					21.6		0.0
Total Delay (s/veh)	5.1	5.3			13.6					78.8		2.2
LOS	A	A			B					E		A
Approach Delay (s/veh)		5.4			13.6						40.8	
Approach LOS		A			B						D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 18 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay (s/veh): 11.6		Intersection LOS: B	
Intersection Capacity Utilization 56.6%		ICU Level of Service B	
Analysis Period (min) 15			
Description: Smelter Ave NE/6th St NE (1)			

Splits and Phases: 13: Smelter Ave NE & 6th St NE

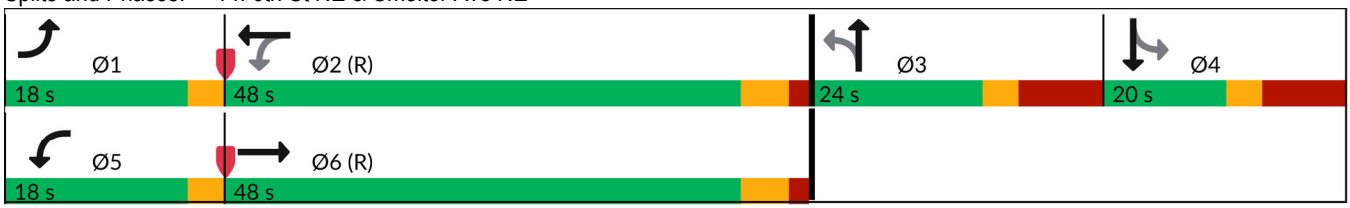




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	922	28	43	1156	0	63	0	73	0	0	0
Future Volume (vph)	0	922	28	43	1156	0	63	0	73	0	0	0
Ideal Flow (vphpl)	1900	1750	1750	1750	1750	1900	1750	1900	1750	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1900	3216	0	1599	3260	0	0	1700	0	0	1900	0
Flt Permitted				0.170				0.950				
Satd. Flow (perm)	1900	3216	0	286	3260	0	0	1653	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						153				
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		175			675			200			159	
Travel Time (s)		4.0			15.3			5.5			3.6	
Confl. Peds. (#/hr)			2	2					1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	0%	3%	0%	4%	2%	0%	0%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1236	0	56	1504	0	0	177	0	0	0	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA				
Protected Phases	1	6		5	2			3			4	
Permitted Phases				2			3			4		
Total Split (s)	18.0	48.0		18.0	48.0		24.0	24.0		20.0	20.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6			9.8			9.8	
Act Effct Green (s)		72.7		83.0	80.4			14.2				
Actuated g/C Ratio		0.66		0.75	0.73			0.13				
v/c Ratio		0.58		0.19	0.63			0.51				
Control Delay (s/veh)		8.6		4.9	8.8			15.8				
Queue Delay		0.0		0.0	0.3			0.2				
Total Delay (s/veh)		8.7		4.9	9.2			16.1				
LOS		A		A	A			B				
Approach Delay (s/veh)		8.7			9.1			16.1				
Approach LOS		A			A			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 4 (4%), Referenced to phase 2:WBTL and 6:EBT, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay (s/veh): 9.4		Intersection LOS: A	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			
Description: Smelter Ave NE/6th St NE (2)			

Splits and Phases: 14: 6th St NE & Smelter Ave NE



Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	51	42	56	117	5	64	198	21	3	282	25
Future Vol, veh/h	8	51	42	56	117	5	64	198	21	3	282	25
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	100	100	-	150	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	7	2	100	0	17	10	0	5	0
Mvmt Flow	11	67	56	74	155	7	85	262	28	4	373	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	776	856	203	673	859	146	406	0	0	289	0	0
Stage 1	397	397	-	445	445	-	-	-	-	-	-	-
Stage 2	378	459	-	228	414	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.64	6.54	8.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.64	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.64	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.57	4.02	4.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	291	297	810	331	293	636	1164	-	-	1284	-	-
Stage 1	605	607	-	549	573	-	-	-	-	-	-	-
Stage 2	621	570	-	740	592	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	119	275	810	219	270	636	1164	-	-	1284	-	-
Mov Cap-2 Maneuver	119	275	-	219	270	-	-	-	-	-	-	-
Stage 1	603	605	-	509	531	-	-	-	-	-	-	-
Stage 2	404	529	-	610	590	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	20.4	32.4	1.89	0.1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	233	810	219	270	636	31	-	-
HCM Lane V/C Ratio	0.073	-	-	0.334	0.069	0.337	0.572	0.01	0.003	-	-
HCM Control Delay (s/veh)	8.3	-	-	28	9.8	29.5	34.7	10.7	7.8	0	-
HCM Lane LOS	A	-	-	D	A	D	D	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.2	1.4	3.3	0	0	-	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	242	2	0	1	436	183	0	0	302	30
Future Vol, veh/h	4	0	242	2	0	1	436	183	0	0	302	30
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	-	-	Yield
Storage Length	-	-	-	-	-	-	250	-	-	50	-	350
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	0	0	0	1	5	0	0	8	0
Mvmt Flow	5	0	332	3	0	1	598	251	0	0	414	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1737	1862	414	1862	1862	126	414	0	0	251	0	0
Stage 1	414	414	-	1448	1448	-	-	-	-	-	-	-
Stage 2	1322	1448	-	414	414	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.23	7.3	6.5	6.9	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.319	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	63	74	637	51	74	908	1149	-	-	1326	-	-
Stage 1	619	596	-	140	198	-	-	-	-	-	-	-
Stage 2	168	198	-	619	596	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	30	35	637	12	35	908	1149	-	-	1326	-	-
Mov Cap-2 Maneuver	30	35	-	12	35	-	-	-	-	-	-	-
Stage 1	619	596	-	67	95	-	-	-	-	-	-	-
Stage 2	80	95	-	296	596	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	28.41	266.45	8.09	0
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1149	-	-	480	17	1326	-	-
HCM Lane V/C Ratio	0.521	-	-	0.704	0.236	-	-	-
HCM Control Delay (s/veh)	11.5	-	-	28.4	266.5	0	-	-
HCM Lane LOS	B	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	3.1	-	-	5.4	0.7	0	-	-

Intersection	
Int Delay, s/veh	151.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	25	80	82	40	20	101	447	79	19	306	7
Future Vol, veh/h	2	25	80	82	40	20	101	447	79	19	306	7
Conflicting Peds, #/hr	1	0	1	1	0	1	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	100	-	0	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	4	0	5	3	5	1	1	6	0	2	14
Mvmt Flow	3	38	120	123	60	30	152	673	119	29	461	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1195	1619	237	1344	1565	397	471	0	0	792	0	0
Stage 1	523	523	-	1037	1037	-	-	-	-	-	-	-
Stage 2	672	1096	-	307	528	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.58	6.9	7.6	6.56	7	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.58	-	6.6	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.58	-	6.6	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.04	3.3	3.55	4.03	3.35	2.21	-	-	2.2	-	-
Pot Cap-1 Maneuver	144	100	771	~ 107	109	594	1094	-	-	838	-	-
Stage 1	510	524	-	242	304	-	-	-	-	-	-	-
Stage 2	416	283	-	669	523	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	43	83	770	~ 45	91	593	1094	-	-	838	-	-
Mov Cap-2 Maneuver	43	83	-	~ 45	91	-	-	-	-	-	-	-
Stage 1	493	506	-	208	262	-	-	-	-	-	-	-
Stage 2	262	244	-	504	505	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	28.28	$ 1257.17	1.42	0.54
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1094	-	-	43	83	770	61	838	-	-
HCM Lane V/C Ratio	0.139	-	-	0.07	0.452	0.156	3.481	0.034	-	-
HCM Control Delay (s/veh)	8.8	-	-	94.4	79.7	10.$	1257.2	9.4	-	-
HCM Lane LOS	A	-	-	F	F	B	F	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.2	1.9	0.6	22.6	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	11.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	560	293	54	699	115	38
Future Vol, veh/h	560	293	54	699	115	38
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	175	50	-	0	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	1	7	2	4	0
Mvmt Flow	625	327	60	780	128	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	626	0	1526	626
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	900	-
Critical Hdwy	-	-	4.17	-	6.44	6.2
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.263	-	3.536	3.3
Pot Cap-1 Maneuver	-	-	932	-	~ 128	488
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	393	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	931	-	~ 120	487
Mov Cap-2 Maneuver	-	-	-	-	~ 120	-
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	368	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.66	133.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	120	487	-	-	931	-
HCM Lane V/C Ratio	1.072	0.087	-	-	0.065	-
HCM Control Delay (s/veh)	172.8	13.1	-	-	9.1	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	7.5	0.3	-	-	0.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	55	9	73	7	4	1	51	353	10	5	361	34
Future Vol, veh/h	55	9	73	7	4	1	51	353	10	5	361	34
Conflicting Peds, #/hr	0	0	1	1	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	0	6	1	0	0	1	3
Mvmt Flow	72	12	95	9	5	1	67	461	13	7	472	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1108	1121	499	1095	1136	470	520	0	0	476	0	0
Stage 1	511	511	-	603	603	-	-	-	-	-	-	-
Stage 2	597	610	-	492	533	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	189	208	570	193	204	598	1026	-	-	1096	-	-
Stage 1	549	540	-	489	491	-	-	-	-	-	-	-
Stage 2	493	488	-	562	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	187	567	136	183	597	1022	-	-	1094	-	-
Mov Cap-2 Maneuver	165	187	-	136	183	-	-	-	-	-	-	-
Stage 1	542	534	-	445	447	-	-	-	-	-	-	-
Stage 2	443	444	-	453	522	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	41.56	29.9	1.08	0.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	221	-	-	269	160	22	-	-
HCM Lane V/C Ratio	0.065	-	-	0.666	0.098	0.006	-	-
HCM Control Delay (s/veh)	8.8	0	-	41.6	29.9	8.3	0	-
HCM Lane LOS	A	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.3	0.3	0	-	-

Intersection	
Intersection Delay, s/veh	20.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	78	117	28	56	21	30	306	31	29	260	30
Future Vol, veh/h	40	78	117	28	56	21	30	306	31	29	260	30
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	5	3	0	0	4	10	0	0	0	0	0	0
Mvmt Flow	49	95	142	34	68	25	36	371	38	35	315	36
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	16.6	12.7	25.5	20.9
HCM LOS	C	B	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	17%	27%	9%
Vol Thru, %	83%	33%	53%	82%
Vol Right, %	8%	50%	20%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	367	235	105	319
LT Vol	30	40	28	29
Through Vol	306	78	56	260
RT Vol	31	117	21	30
Lane Flow Rate	445	285	127	387
Geometry Grp	1	1	1	1
Degree of Util (X)	0.753	0.52	0.254	0.666
Departure Headway (Hd)	6.09	6.568	7.177	6.194
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	592	547	497	580
Service Time	4.155	4.641	5.271	4.263
HCM Lane V/C Ratio	0.752	0.521	0.256	0.667
HCM Control Delay, s/veh	25.5	16.6	12.7	20.9
HCM Lane LOS	D	C	B	C
HCM 95th-tile Q	6.7	3	1	5

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	7	9	45	3	40	13	320	43	65	319	13
Future Vol, veh/h	1	7	9	45	3	40	13	320	43	65	319	13
Conflicting Peds, #/hr	1	0	3	3	0	1	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	8	11	54	4	48	16	383	52	78	382	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	965	1016	395	987	998	412	400	0	0	437	0	0
Stage 1	548	548	-	442	442	-	-	-	-	-	-	-
Stage 2	417	468	-	545	555	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	236	240	659	228	246	644	1170	-	-	1134	-	-
Stage 1	525	520	-	598	580	-	-	-	-	-	-	-
Stage 2	617	565	-	526	516	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	192	214	656	193	219	642	1168	-	-	1132	-	-
Mov Cap-2 Maneuver	192	214	-	193	219	-	-	-	-	-	-	-
Stage 1	477	473	-	586	568	-	-	-	-	-	-	-
Stage 2	557	554	-	462	470	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.65	24.89	0.28	1.38
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	61	-	-	329	285	292	-	-
HCM Lane V/C Ratio	0.013	-	-	0.062	0.37	0.069	-	-
HCM Control Delay (s/veh)	8.1	0	-	16.7	24.9	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.6	0.2	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	5	39	14	4	12	46	412	17	4	511	57
Future Vol, veh/h	27	5	39	14	4	12	46	412	17	4	511	57
Conflicting Peds, #/hr	0	0	1	1	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	8	14	0	17	4	5	18	0	1	0
Mvmt Flow	37	7	54	19	6	17	63	567	23	6	703	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1165	1469	391	1071	1497	295	781	0	0	590	0	0
Stage 1	753	753	-	705	705	-	-	-	-	-	-	-
Stage 2	413	716	-	367	792	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.06	7.78	6.5	7.24	4.18	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.78	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.78	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.38	3.64	4	3.47	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	152	129	591	160	124	659	819	-	-	996	-	-
Stage 1	373	421	-	367	442	-	-	-	-	-	-	-
Stage 2	593	437	-	593	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	130	118	590	126	114	659	819	-	-	996	-	-
Mov Cap-2 Maneuver	130	118	-	126	114	-	-	-	-	-	-	-
Stage 1	371	418	-	338	408	-	-	-	-	-	-	-
Stage 2	526	403	-	527	401	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	32.89	30.4	0.95	0.06
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	819	-	-	224	182	996	-	-
HCM Lane V/C Ratio	0.077	-	-	0.435	0.226	0.006	-	-
HCM Control Delay (s/veh)	9.8	-	-	32.9	30.4	8.6	-	-
HCM Lane LOS	A	-	-	D	D	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	2	0.8	0	-	-

Lanes, Volumes, Timings
23: River Dr N & 1st Ave N

Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	718	321	31	872	10	389	81	84	29	108	339
Future Volume (vph)	129	718	321	31	872	10	389	81	84	29	108	339
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	125		50	100		0	230		230	0		150
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1511	3325	1473	1662	3277	0	1564	1593	1488	0	1692	1444
Flt Permitted	0.065			0.195			0.950	0.968			0.989	
Satd. Flow (perm)	103	3325	1425	340	3277	0	1564	1593	1468	0	1692	1444
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		1				136			133
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1798			943			577			569	
Travel Time (s)		40.9			21.4			13.1			12.9	
Confl. Peds. (#/hr)	3		6	6		3			1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	117%	117%	117%	117%	117%	117%	117%	117%	117%	117%	117%	117%
Heavy Vehicles (%)	10%	0%	1%	0%	1%	20%	1%	1%	0%	7%	1%	3%
Shared Lane Traffic (%)							40%					
Lane Group Flow (vph)	164	913	408	39	1122	0	297	301	107	0	174	431
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6					3			4
Total Split (s)	19.0	67.0	67.0	13.0	61.0		40.0	40.0	40.0	40.0	40.0	40.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	5.5	5.5		6.0	6.0
Act Effct Green (s)	74.5	63.9	63.9	62.4	55.0		32.6	32.6	32.6		34.0	34.0
Actuated g/C Ratio	0.47	0.40	0.40	0.39	0.35		0.21	0.21	0.21		0.21	0.21
v/c Ratio	0.97	0.67	0.64	0.20	0.98		0.92	0.91	0.26		0.47	1.04
Control Delay (s/veh)	105.4	43.0	35.3	26.5	73.8		94.6	93.5	4.7		59.9	95.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	105.4	43.0	35.3	26.5	73.8		94.6	93.5	4.7		59.9	95.4
LOS	F	D	D	C	E		F	F	A		E	F
Approach Delay (s/veh)		47.8			72.2			80.5			85.2	
Approach LOS		D			E			F			F	

Intersection Summary

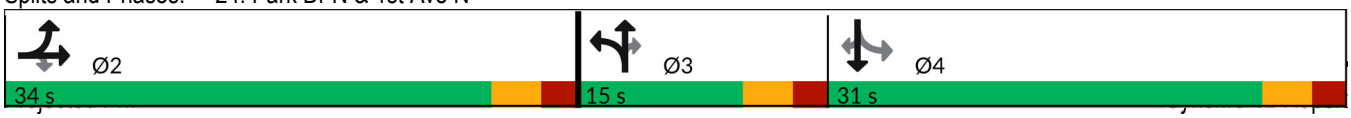
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 158.2
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay (s/veh): 66.5 Intersection LOS: E
Intersection Capacity Utilization 88.7% ICU Level of Service E
Analysis Period (min) 15
Description: Central Ave/River Dr S/1st Ave N

Splits and Phases: 23: River Dr N & 1st Ave N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	651	148	0	0	0	345	18	24	13	45	605
Future Volume (vph)	58	651	148	0	0	0	345	18	24	13	45	605
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		200	0		0	0		100	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3306	1444	0	0	0	1548	1563	1488	1539	1750	1473
Flt Permitted		0.996					0.950	0.957		0.597		
Satd. Flow (perm)	0	3304	1420	0	0	0	1547	1561	1466	966	1750	1453
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204						95			812
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		943			369			832			390	
Travel Time (s)		21.4			8.4			18.9			8.9	
Confl. Peds. (#/hr)	4		3	3		4	1		1	1		1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Heavy Vehicles (%)	2%	0%	3%	0%	0%	0%	2%	0%	0%	8%	0%	1%
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	978	204	0	0	0	252	249	33	18	62	834
Turn Type	Split	NA	Perm				Split	NA	Perm	Perm	NA	Perm
Protected Phases	2	2					3	3			4	
Permitted Phases			2						3	4		4
Total Split (s)	34.0	34.0	34.0				15.0	15.0	15.0	31.0	31.0	31.0
Total Lost Time (s)		5.0	5.0				5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)		26.0	26.0				10.3	10.3	10.3	15.7	15.7	15.7
Actuated g/C Ratio		0.39	0.39				0.15	0.15	0.15	0.23	0.23	0.23
v/c Ratio		0.76	0.30				1.06	1.04	0.10	0.08	0.15	0.86
Control Delay (s/veh)		24.2	4.2				112.3	105.6	0.7	20.3	20.9	13.5
Queue Delay		0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		24.2	4.2				112.3	105.6	0.7	20.3	20.9	13.5
LOS		C	A				F	F	A	C	C	B
Approach Delay (s/veh)		20.8						102.3			14.2	
Approach LOS		C						F			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 67.4			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 35.1		Intersection LOS: D	
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			
Description: 1st Ave N/Park Dr			

Splits and Phases: 24: Park Dr N & 1st Ave N



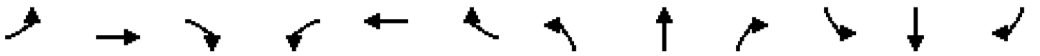
Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	0	24	22	16	195	0	0	0	0	97	17
Future Vol, veh/h	69	0	24	22	16	195	0	0	0	0	97	17
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	0	-	100	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	3	0
Mvmt Flow	122	0	42	39	28	345	0	0	0	0	172	30

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	202	-	102	86	203	-			-	-	0
Stage 1	188	-	-	0	0	-			-	-	-
Stage 2	14	-	-	86	203	-			-	-	-
Critical Hdwy	7.5	-	6.9	7.5	6.5	-			-	-	-
Critical Hdwy Stg 1	6.5	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-			-	-	-
Follow-up Hdwy	3.5	-	3.3	3.5	4	-			-	-	-
Pot Cap-1 Maneuver	744	0	940	897	697	0			0	-	-
Stage 1	802	0	-	-	-	0			0	-	-
Stage 2	-	0	-	918	737	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	713	-	939	856	696	-			-	-	-
Mov Cap-2 Maneuver	713	-	-	856	696	-			-	-	-
Stage 1	801	-	-	-	-	-			-	-	-
Stage 2	-	-	-	877	737	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	10.55	9.82	0
HCM LOS	B	A	

Minor Lane/Major Mvmt	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBT	SBR
Capacity (veh/h)	713	939	856	696	-	-	-
HCM Lane V/C Ratio	0.171	0.045	0.045	0.041	-	-	-
HCM Control Delay (s/veh)	11.1	9	9.4	10.4	0	-	-
HCM Lane LOS	B	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.6	0.1	0.1	0.1	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	75	423	48	78	450	0	0	352	27
Future Volume (veh/h)	0	0	0	75	423	48	78	450	0	0	352	27
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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				1575	1563	1550	1575	1550	0	0	1563	1526
Adj Flow Rate, veh/h				96	542	61	100	576	0	0	451	35
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				0	1	2	0	2	0	0	1	4
Cap, veh/h				169	955	107	257	710	0	0	655	51
Arrive On Green				0.40	0.40	0.40	0.46	0.46	0.00	0.00	0.46	0.46
Sat Flow, veh/h				420	2369	266	766	1550	0	0	1431	111
Grp Volume(v), veh/h				353	0	346	100	576	0	0	0	486
Grp Sat Flow(s),veh/h/ln				1542	0	1513	766	1550	0	0	0	1542
Q Serve(g_s), s				13.1	0.0	13.1	8.8	23.7	0.0	0.0	0.0	18.4
Cycle Q Clear(g_c), s				13.1	0.0	13.1	27.2	23.7	0.0	0.0	0.0	18.4
Prop In Lane				0.27		0.18	1.00		0.00	0.00		0.07
Lane Grp Cap(c), veh/h				621	0	610	257	710	0	0	0	706
V/C Ratio(X)				0.57	0.00	0.57	0.39	0.81	0.00	0.00	0.00	0.69
Avail Cap(c_a), veh/h				621	0	610	423	1046	0	0	0	1041
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	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				17.1	0.0	17.1	26.7	17.3	0.0	0.0	0.0	15.9
Incr Delay (d2), s/veh				3.7	0.0	3.8	1.0	3.1	0.0	0.0	0.0	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
%ile BackOfQ(50%),veh/ln				4.9	0.0	4.9	1.6	8.2	0.0	0.0	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				20.8	0.0	20.9	27.6	20.4	0.0	0.0	0.0	17.1
LnGrp LOS				C		C	C	C				B
Approach Vol, veh/h					699			676			486	
Approach Delay, s/veh					20.9			21.5			17.1	
Approach LOS					C			C			B	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	35.0	38.9	38.9
Change Period (Y+Rc), s	5.2	5.1	5.1
Max Green Setting (Gmax), s	29.8	49.9	49.9
Max Q Clear Time (g_c+I1), s	2.0	29.2	20.4
Green Ext Time (p_c), s	4.8	4.6	3.4

Intersection Summary	
HCM 7th Control Delay, s/veh	20.1
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	714	86	0	0	0	0	426	58	54	377	0
Future Volume (veh/h)	83	714	86	0	0	0	0	426	58	54	377	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
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	1575	1575	1563				0	1563	1575	1550	1550	0
Adj Flow Rate, veh/h	119	1020	123				0	609	83	77	539	0
Peak Hour Factor	0.77	0.77	0.77				0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	0	0	1				0	1	0	2	2	0
Cap, veh/h	204	1751	211				0	618	527	86	613	0
Arrive On Green	0.48	0.48	0.48				0.00	0.40	0.40	0.40	0.40	0.00
Sat Flow, veh/h	423	3622	437				0	1563	1333	623	1550	0
Grp Volume(v), veh/h	438	403	421				0	609	83	77	539	0
Grp Sat Flow(s),veh/h/ln	1554	1433	1494				0	1563	1333	623	1550	0
Q Serve(g_s), s	18.2	18.2	18.2				0.0	34.7	3.6	0.9	29.0	0.0
Cycle Q Clear(g_c), s	18.2	18.2	18.2				0.0	34.7	3.6	35.6	29.0	0.0
Prop In Lane	0.27		0.29				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	751	693	722				0	618	527	86	613	0
V/C Ratio(X)	0.58	0.58	0.58				0.00	0.99	0.16	0.90	0.88	0.00
Avail Cap(c_a), veh/h	751	693	722				0	618	527	86	613	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	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.7	16.7	16.7				0.0	26.9	17.5	45.0	25.2	0.0
Incr Delay (d2), s/veh	3.3	3.6	3.4				0.0	32.3	0.1	63.7	13.8	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	6.8	6.3	6.6				0.0	17.7	1.1	3.2	12.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.0	20.3	20.1				0.0	59.3	17.7	108.7	39.0	0.0
LnGrp LOS	C	C	C					E	B	F	D	
Approach Vol, veh/h		1262						692			616	
Approach Delay, s/veh		20.1						54.3			47.7	
Approach LOS		C						D			D	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	49.0	41.0	41.0
Change Period (Y+Rc), s	5.5	5.4	5.4
Max Green Setting (Gmax), s	43.5	35.6	35.6
Max Q Clear Time (g_c+I1), s	20.2	37.6	36.7
Green Ext Time (p_c), s	8.9	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	35.9
HCM 7th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	172	43	65	112	44	30	432	42	44	411	41
Future Volume (veh/h)	44	172	43	65	112	44	30	432	42	44	411	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1550	1575	1575	1550	1550	1575	1550	1575	1575	1563	1575
Adj Flow Rate, veh/h	57	222	55	84	144	57	39	557	54	57	530	53
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	0	2	0	0	2	2	0	2	0	0	1	0
Cap, veh/h	353	279	69	258	377	319	193	540	543	188	561	542
Arrive On Green	0.05	0.23	0.23	0.06	0.24	0.24	0.04	0.35	0.35	0.05	0.36	0.36
Sat Flow, veh/h	1500	1199	297	1500	1550	1311	1500	1550	1325	1500	1563	1325
Grp Volume(v), veh/h	57	0	277	84	144	57	39	557	54	57	530	53
Grp Sat Flow(s),veh/h/ln	1500	0	1496	1500	1550	1311	1500	1550	1325	1500	1563	1325
Q Serve(g_s), s	1.8	0.0	11.1	2.7	4.9	2.2	1.0	22.1	1.6	1.5	20.9	1.6
Cycle Q Clear(g_c), s	1.8	0.0	11.1	2.7	4.9	2.2	1.0	22.1	1.6	1.5	20.9	1.6
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	353	0	348	258	377	319	193	540	543	188	561	542
V/C Ratio(X)	0.16	0.00	0.80	0.33	0.38	0.18	0.20	1.03	0.10	0.30	0.94	0.10
Avail Cap(c_a), veh/h	443	0	808	333	838	708	300	540	543	279	561	542
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	23.0	17.9	20.0	19.0	15.6	20.7	11.6	15.8	19.7	11.6
Incr Delay (d2), s/veh	0.2	0.0	4.2	0.7	0.6	0.3	0.5	47.2	0.1	0.9	25.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	4.0	0.9	1.7	0.6	0.3	14.2	0.4	0.5	10.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.4	0.0	27.2	18.6	20.7	19.3	16.1	67.9	11.6	16.7	44.8	11.6
LnGrp LOS	B		C	B	C	B	B	F	B	B	D	B
Approach Vol, veh/h		334			285			650			640	
Approach Delay, s/veh		25.5			19.8			60.1			39.5	
Approach LOS		C			B			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	21.1	7.2	28.0	7.9	20.4	6.5	28.7
Change Period (Y+Rc), s	4.0	5.7	4.0	5.9	4.0	5.7	4.0	5.9
Max Green Setting (Gmax), s	7.0	34.3	7.0	22.1	7.0	34.3	7.0	22.1
Max Q Clear Time (g_c+I1), s	3.8	6.9	3.5	24.1	4.7	13.1	3.0	22.9
Green Ext Time (p_c), s	0.0	1.0	0.0	0.0	0.0	1.6	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	41.1
HCM 7th LOS	D

Notes

User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	75	18	73	482	0	0	470	55
Future Volume (veh/h)	0	0	0	21	75	18	73	482	0	0	470	55
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1682	1750	1750	1750	1723	0	0	1736	1750
Adj Flow Rate, veh/h				26	92	22	89	588	0	0	574	67
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				5	0	0	0	2	0	0	1	0
Cap, veh/h				94	331	75	525	1283	0	0	1103	940
Arrive On Green				0.10	0.10	0.10	0.05	0.74	0.00	0.00	0.64	0.64
Sat Flow, veh/h				918	3237	737	1667	1723	0	0	1736	1480
Grp Volume(v), veh/h				48	44	48	89	588	0	0	574	67
Grp Sat Flow(s),veh/h/ln				1704	1593	1596	1667	1723	0	0	1736	1480
Q Serve(g_s), s				1.9	1.9	2.0	1.2	9.7	0.0	0.0	13.2	1.3
Cycle Q Clear(g_c), s				1.9	1.9	2.0	1.2	9.7	0.0	0.0	13.2	1.3
Prop In Lane				0.54		0.46	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				174	163	163	525	1283	0	0	1103	940
V/C Ratio(X)				0.28	0.27	0.29	0.17	0.46	0.00	0.00	0.52	0.07
Avail Cap(c_a), veh/h				566	529	530	571	1283	0	0	1103	940
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.4	30.3	30.4	4.9	3.6	0.0	0.0	7.3	5.1
Incr Delay (d2), s/veh				0.9	0.9	1.0	0.2	1.2	0.0	0.0	1.8	0.1
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.7	0.8	0.3	2.5	0.0	0.0	4.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				31.2	31.2	31.4	5.0	4.8	0.0	0.0	9.0	5.2
LnGrp LOS				C	C	C	A	A			A	A
Approach Vol, veh/h					140			677			641	
Approach Delay, s/veh					31.3			4.8			8.6	
Approach LOS					C			A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.0	52.0		13.2		60.0
Change Period (Y+Rc), s	4.0	5.5		5.7		5.5
Max Green Setting (Gmax), s	6.0	44.5		24.3		54.5
Max Q Clear Time (g_c+I1), s	3.2	15.2		3.9		11.7
Green Ext Time (p_c), s	0.0	4.4		0.7		4.6

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	61	45	0	0	0	0	505	24	11	474	0
Future Volume (veh/h)	42	61	45	0	0	0	0	505	24	11	474	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1723	1750	1750				0	1723	1695	1750	1736	0
Adj Flow Rate, veh/h	53	77	57				0	634	30	14	595	0
Peak Hour Factor	0.86	0.86	0.86				0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	0	0				0	2	4	0	1	0
Cap, veh/h	93	132	94				0	1248	59	539	1328	0
Arrive On Green	0.10	0.10	0.10				0.00	0.76	0.76	0.76	0.76	0.00
Sat Flow, veh/h	949	1343	963				0	1631	77	722	1736	0
Grp Volume(v), veh/h	95	0	92				0	0	664	14	595	0
Grp Sat Flow(s),veh/h/ln	1703	0	1553				0	0	1709	722	1736	0
Q Serve(g_s), s	4.0	0.0	4.3				0.0	0.0	11.3	0.6	9.3	0.0
Cycle Q Clear(g_c), s	4.0	0.0	4.3				0.0	0.0	11.3	11.9	9.3	0.0
Prop In Lane	0.56		0.62				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	167	0	152				0	0	1307	539	1328	0
V/C Ratio(X)	0.57	0.00	0.60				0.00	0.00	0.51	0.03	0.45	0.00
Avail Cap(c_a), veh/h	488	0	445				0	0	1307	539	1328	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.6	0.0	32.7				0.0	0.0	3.4	5.7	3.2	0.0
Incr Delay (d2), s/veh	3.0	0.0	3.8				0.0	0.0	1.4	0.1	1.1	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	1.8	0.0	1.7				0.0	0.0	2.8	0.1	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.7	0.0	36.6				0.0	0.0	4.8	5.8	4.3	0.0
LnGrp LOS	D		D						A	A	A	
Approach Vol, veh/h		187						664			609	
Approach Delay, s/veh		36.1						4.8			4.3	
Approach LOS		D						A			A	

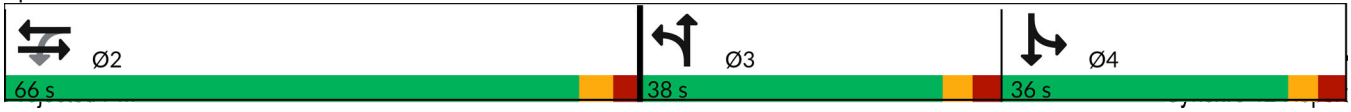
Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	63.0	12.7	63.0
Change Period (Y+Rc), s	5.1	5.3	5.1
Max Green Setting (Gmax), s	57.9	21.7	57.9
Max Q Clear Time (g_c+I1), s	13.9	2.0	13.3
Green Ext Time (p_c), s	4.8	1.0	5.5

Intersection Summary	
HCM 7th Control Delay, s/veh	8.6
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1350	25	17	1666	0	100	0	34	127	40	87
Future Volume (vph)	0	1350	25	17	1666	0	100	0	34	127	40	87
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	100		0	0		0	0		300
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	4671	0	1662	4684	0	0	1600	0	3162	1534	0
Flt Permitted				0.114				0.964		0.950		
Satd. Flow (perm)	0	4671	0	200	4684	0	0	1599	0	3159	1534	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2						70			71	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		391			444			415			561	
Travel Time (s)		8.9			10.1			9.4			12.8	
Confl. Peds. (#/hr)							1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	109%	109%	109%	109%	109%	109%	109%	109%	109%	109%	109%	109%
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	2%	0%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1578	0	20	1912	0	0	154	0	146	146	0
Turn Type		NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		3	3		4	4	
Permitted Phases				2								
Total Split (s)		66.0		66.0	66.0		38.0	38.0		36.0	36.0	
Total Lost Time (s)		6.0		6.0	6.0			6.0		6.0	6.0	
Act Effct Green (s)		54.9		54.9	54.9			11.4		11.1	11.1	
Actuated g/C Ratio		0.57		0.57	0.57			0.12		0.12	0.12	
v/c Ratio		0.58		0.17	0.71			0.61		0.39	0.60	
Control Delay (s/veh)		14.8		16.4	17.2			35.0		44.4	34.4	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)		14.8		16.4	17.2			35.0		44.4	34.4	
LOS		B		B	B			D		D	C	
Approach Delay (s/veh)		14.9			17.3			35.0			39.4	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 95.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 18.6		Intersection LOS: B	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			
Description: 10th Ave S/5th St S			

Splits and Phases: 31: 5th St S & 10th Ave S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1298	147	82	1409	210	154	165	71	190	151	115
Future Volume (veh/h)	110	1298	147	82	1409	210	154	165	71	190	151	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1736	1736	1736	1750	1736	1723	1750	1723	1736	1750
Adj Flow Rate, veh/h	129	1524	173	96	1654	247	181	194	83	223	177	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	1	1	1	0	1	2	0	2	1	0
Cap, veh/h	189	2061	798	188	2020	816	369	233	99	308	388	420
Arrive On Green	0.06	0.44	0.44	0.05	0.43	0.43	0.10	0.20	0.20	0.12	0.22	0.22
Sat Flow, veh/h	1667	4703	1470	1654	4740	1481	1654	1143	489	1641	1736	1477
Grp Volume(v), veh/h	129	1524	173	96	1654	247	181	0	277	223	177	135
Grp Sat Flow(s),veh/h/ln	1667	1568	1470	1654	1580	1481	1654	0	1632	1641	1736	1477
Q Serve(g_s), s	4.9	30.9	7.0	3.7	35.3	10.3	9.8	0.0	18.7	12.1	10.1	8.3
Cycle Q Clear(g_c), s	4.9	30.9	7.0	3.7	35.3	10.3	9.8	0.0	18.7	12.1	10.1	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	189	2061	798	188	2020	816	369	0	332	308	388	420
V/C Ratio(X)	0.68	0.74	0.22	0.51	0.82	0.30	0.49	0.00	0.83	0.72	0.46	0.32
Avail Cap(c_a), veh/h	230	2214	845	248	2232	882	456	0	526	361	560	566
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	26.8	13.6	22.7	29.0	13.9	31.2	0.0	43.8	31.7	38.5	32.4
Incr Delay (d2), s/veh	6.1	1.3	0.1	2.2	2.3	0.2	1.0	0.0	6.5	5.8	0.8	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	2.2	11.5	2.3	1.5	13.5	3.4	4.0	0.0	8.1	5.3	4.4	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.5	28.0	13.7	24.9	31.3	14.1	32.2	0.0	50.3	37.6	39.3	32.8
LnGrp LOS	C	C	B	C	C	B	C		D	D	D	C
Approach Vol, veh/h		1826			1997			458			535	
Approach Delay, s/veh		26.9			28.9			43.1			36.9	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	56.3	18.3	29.3	12.2	54.9	16.0	31.7
Change Period (Y+Rc), s	5.3	6.0	4.0	6.0	5.3	6.0	4.0	6.0
Max Green Setting (Gmax), s	9.7	54.0	18.0	37.0	9.7	54.0	18.0	37.0
Max Q Clear Time (g_c+I1), s	5.7	32.9	14.1	20.7	6.9	37.3	11.8	12.1
Green Ext Time (p_c), s	0.1	12.4	0.2	1.5	0.1	11.6	0.2	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	30.4
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1347	57	23	1594	43	166	49	62	71	45	35
Future Volume (veh/h)	25	1347	57	23	1594	43	166	49	62	71	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1695	1750	1736	1750	1736	1750	1750	1736	1750	1709
Adj Flow Rate, veh/h	29	1550	66	26	1834	49	191	56	71	82	52	40
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	4	0	1	0	1	0	0	1	0	3
Cap, veh/h	170	2832	121	209	2907	78	338	170	215	179	108	66
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	226	4625	197	293	4747	127	1206	698	886	472	443	273
Grp Volume(v), veh/h	29	1051	565	26	1221	662	191	0	127	174	0	0
Grp Sat Flow(s),veh/h/ln	226	1568	1687	293	1580	1713	1206	0	1584	1188	0	0
Q Serve(g_s), s	7.7	16.2	16.2	4.7	20.2	20.2	3.0	0.0	5.5	6.7	0.0	0.0
Cycle Q Clear(g_c), s	28.0	16.2	16.2	20.9	20.2	20.2	15.2	0.0	5.5	12.2	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.56	0.47		0.23
Lane Grp Cap(c), veh/h	170	1920	1033	209	1935	1049	338	0	385	352	0	0
V/C Ratio(X)	0.17	0.55	0.55	0.12	0.63	0.63	0.57	0.00	0.33	0.49	0.00	0.00
Avail Cap(c_a), veh/h	274	3369	1812	344	3396	1841	613	0	746	666	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.0	9.4	9.4	15.5	10.1	10.1	29.8	0.0	25.8	28.8	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.2	0.5	0.3	0.3	0.6	1.5	0.0	0.5	1.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.8	5.3	0.3	6.1	6.7	3.6	0.0	2.1	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.5	9.6	9.8	15.7	10.5	10.8	31.3	0.0	26.3	29.9	0.0	0.0
LnGrp LOS	B	A	A	B	B	B	C		C	C		
Approach Vol, veh/h		1645			1909			318			174	
Approach Delay, s/veh		9.9			10.7			29.3			29.9	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	56.7	26.1	56.7	26.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	89.0	39.0	89.0	39.0
Max Q Clear Time (g_c+I1), s	30.0	17.2	22.9	0.0
Green Ext Time (p_c), s	20.8	1.4	27.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	12.6
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1271	65	56	1523	37	210	47	103	23	46	27
Future Volume (veh/h)	31	1271	65	56	1523	37	210	47	103	23	46	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1723	1750	1736	1750	1736	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	35	1447	74	64	1734	42	239	54	117	26	52	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	0	1	0	1	0	0	0	0	0
Cap, veh/h	137	2566	131	174	2666	65	195	32	503	37	63	25
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	251	4581	234	321	4760	115	414	93	1479	0	185	73
Grp Volume(v), veh/h	35	990	531	64	1151	625	293	0	117	109	0	0
Grp Sat Flow(s),veh/h/ln	251	1568	1680	321	1580	1715	507	0	1479	258	0	0
Q Serve(g_s), s	13.5	24.5	24.5	19.3	30.4	30.4	0.0	0.0	6.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	43.9	24.5	24.5	43.8	30.4	30.4	41.0	0.0	6.8	41.0	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.07	0.82		1.00	0.24		0.28
Lane Grp Cap(c), veh/h	137	1756	941	174	1770	961	227	0	503	125	0	0
V/C Ratio(X)	0.26	0.56	0.56	0.37	0.65	0.65	1.29	0.00	0.23	0.87	0.00	0.00
Avail Cap(c_a), veh/h	178	2264	1213	226	2282	1239	227	0	503	125	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.5	17.0	17.0	31.1	18.3	18.3	44.6	0.0	28.5	33.0	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.3	0.5	1.3	0.4	0.8	160.0	0.0	0.2	44.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.6	9.3	1.6	10.8	11.8	17.0	0.0	2.5	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.5	17.3	17.6	32.4	18.8	19.1	204.6	0.0	28.7	77.7	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	F		C	E		
Approach Vol, veh/h		1556			1840			410			109	
Approach Delay, s/veh		17.8			19.4			154.4			77.7	
Approach LOS		B			B			F			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	73.5	47.0	73.5	47.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	87.0	41.0	87.0	41.0
Max Q Clear Time (g_c+I1), s	45.9	43.0	45.8	43.0
Green Ext Time (p_c), s	17.0	0.0	21.7	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	34.5
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	1258	165	110	1085	67	383	241	122	0	0	0
Future Volume (veh/h)	149	1258	165	110	1085	67	383	241	122	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1736	1723	1723	1750	1723	1723	1736	1736	1750			
Adj Flow Rate, veh/h	173	1457	191	127	1256	78	288	496	141			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	2	2	0	2	2	1	1	0			
Cap, veh/h	259	1733	1132	208	1616	100	407	641	181			
Arrive On Green	0.07	0.53	0.53	0.06	0.52	0.52	0.25	0.25	0.25			
Sat Flow, veh/h	1654	3273	1459	1667	3130	194	1654	2602	735			
Grp Volume(v), veh/h	173	1457	191	127	656	678	288	330	307			
Grp Sat Flow(s),veh/h/ln	1654	1637	1459	1667	1637	1688	1654	1736	1601			
Q Serve(g_s), s	4.9	38.1	3.4	3.6	32.7	32.8	16.1	17.9	18.1			
Cycle Q Clear(g_c), s	4.9	38.1	3.4	3.6	32.7	32.8	16.1	17.9	18.1			
Prop In Lane	1.00		1.00	1.00		0.12	1.00		0.46			
Lane Grp Cap(c), veh/h	259	1733	1132	208	845	871	407	428	394			
V/C Ratio(X)	0.67	0.84	0.17	0.61	0.78	0.78	0.71	0.77	0.78			
Avail Cap(c_a), veh/h	324	2074	1284	444	1183	1220	639	670	618			
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	19.1	20.1	2.9	20.9	19.7	19.8	34.7	35.4	35.5			
Incr Delay (d2), s/veh	3.7	2.8	0.1	2.9	2.2	2.2	2.3	3.0	3.4			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	14.2	6.6	1.6	12.2	12.6	6.6	7.8	7.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.8	23.0	3.0	23.8	21.9	21.9	37.0	38.4	38.9			
LnGrp LOS	C	C	A	C	C	C	D	D	D			
Approach Vol, veh/h		1821			1461			925				
Approach Delay, s/veh		20.9			22.1			38.1				
Approach LOS		C			C			D				

Timer - Assigned Phs	1	2		4	5	6			
Phs Duration (G+Y+Rc), s	10.7	59.5		30.9	12.0	58.1			
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0			
Max Green Setting (Gmax), s	20.0	64.0		39.0	11.0	73.0			
Max Q Clear Time (g_c+I1), s	5.6	40.1		20.1	6.9	34.8			
Green Ext Time (p_c), s	0.3	13.4		4.8	0.2	12.6			

Intersection Summary		
HCM 7th Control Delay, s/veh	25.1	
HCM 7th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

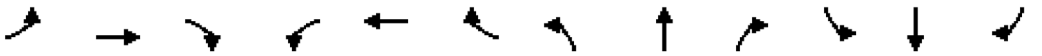
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	1319	40	27	1243	14	6	1	77	0	1	22
Future Vol, veh/h	45	1319	40	27	1243	14	6	1	77	0	1	22
Conflicting Peds, #/hr	0	0	1	1	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	2	3	4	1	0	0	0	0	0	0	0
Mvmt Flow	50	1470	45	30	1385	16	7	1	86	0	1	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1401	0	0	1516	0	0	2347	3055	758	2289	3069	701
Stage 1	-	-	-	-	-	-	1594	1594	-	1453	1453	-
Stage 2	-	-	-	-	-	-	753	1461	-	836	1616	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.24	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	494	-	-	427	-	-	20	13	354	22	12	386
Stage 1	-	-	-	-	-	-	114	168	-	139	197	-
Stage 2	-	-	-	-	-	-	372	195	-	332	164	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	494	-	-	427	-	-	14	11	353	13	10	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	14	11	-	13	10	-
Stage 1	-	-	-	-	-	-	102	151	-	129	183	-
Stage 2	-	-	-	-	-	-	322	181	-	224	147	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.42	0.3	113.4	33.89
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	113	494	-	-	427	-	-	150
HCM Lane V/C Ratio	0.827	0.102	-	-	0.071	-	-	0.171
HCM Control Delay (s/veh)	113.4	13.1	-	-	14.1	-	-	33.9
HCM Lane LOS	F	B	-	-	B	-	-	D
HCM 95th %tile Q(veh)	4.8	0.3	-	-	0.2	-	-	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1239	25	45	982	45	166	82	60	76	70	74
Future Volume (veh/h)	96	1239	25	45	982	45	166	82	60	76	70	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1736	1750	1750	1736	1736	1750
Adj Flow Rate, veh/h	109	1409	28	51	1116	51	189	93	68	86	80	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	0	2	0	1	0	0	1	1	0
Cap, veh/h	276	1649	33	202	1556	71	192	71	47	226	188	493
Arrive On Green	0.06	0.50	0.50	0.04	0.49	0.49	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1667	3282	65	1667	3187	146	448	258	170	577	679	1483
Grp Volume(v), veh/h	109	702	735	51	573	594	350	0	0	166	0	84
Grp Sat Flow(s),veh/h/ln	1667	1637	1711	1667	1637	1696	877	0	0	1257	0	1483
Q Serve(g_s), s	2.6	30.7	30.8	1.2	22.6	22.6	14.2	0.0	0.0	0.0	0.0	3.3
Cycle Q Clear(g_c), s	2.6	30.7	30.8	1.2	22.6	22.6	22.7	0.0	0.0	8.5	0.0	3.3
Prop In Lane	1.00		0.04	1.00		0.09	0.54		0.19	0.52		1.00
Lane Grp Cap(c), veh/h	276	822	859	202	799	828	310	0	0	414	0	493
V/C Ratio(X)	0.39	0.85	0.86	0.25	0.72	0.72	1.13	0.00	0.00	0.40	0.00	0.17
Avail Cap(c_a), veh/h	626	937	980	246	799	828	310	0	0	414	0	493
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	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	17.8	17.8	15.6	16.5	16.5	34.8	0.0	0.0	24.3	0.0	19.4
Incr Delay (d2), s/veh	0.9	7.0	6.8	0.6	3.1	3.0	90.4	0.0	0.0	0.6	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	12.0	12.5	0.4	8.4	8.7	14.0	0.0	0.0	2.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.2	24.8	24.6	16.3	19.6	19.5	125.2	0.0	0.0	24.9	0.0	19.5
LnGrp LOS	B	C	C	B	B	B	F			C		B
Approach Vol, veh/h		1546			1218			350			250	
Approach Delay, s/veh		24.0			19.4			125.2			23.1	
Approach LOS		C			B			F			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	46.5		28.5	8.2	45.4		28.5				
Change Period (Y+Rc), s	3.6	5.3		5.8	3.6	5.3		5.8				
Max Green Setting (Gmax), s	5.6	47.0		22.7	21.8	30.8		22.7				
Max Q Clear Time (g_c+I1), s	3.2	32.8		10.5	4.6	24.6		24.7				
Green Ext Time (p_c), s	0.0	8.5		0.9	0.2	3.7		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			32.8									
HCM 7th LOS			C									

Intersection	
Int Delay, s/veh	16.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	30	16	20	39	160	31	341	11	46	213	13
Future Vol, veh/h	24	30	16	20	39	160	31	341	11	46	213	13
Conflicting Peds, #/hr	1	0	3	3	0	1	6	0	3	3	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	5	0	0	0	2	0	0	2	0
Mvmt Flow	36	45	24	30	59	240	47	512	17	69	320	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	852	1097	179	939	1099	268	345	0	0	531	0	0
Stage 1	473	473	-	616	616	-	-	-	-	-	-	-
Stage 2	379	624	-	323	483	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.6	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.6	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.6	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.55	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	256	215	840	214	214	736	1225	-	-	1047	-	-
Stage 1	546	562	-	438	485	-	-	-	-	-	-	-
Stage 2	620	481	-	655	556	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	108	189	833	143	188	733	1218	-	-	1044	-	-
Mov Cap-2 Maneuver	108	189	-	143	188	-	-	-	-	-	-	-
Stage 1	503	518	-	417	462	-	-	-	-	-	-	-
Stage 2	348	458	-	537	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	52.38	48.66	0.93	1.82
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	279	-	-	175	388	563	-	-
HCM Lane V/C Ratio	0.038	-	-	0.6	0.847	0.066	-	-
HCM Control Delay (s/veh)	8.1	0.3	-	52.4	48.7	8.7	0.4	-
HCM Lane LOS	A	A	-	F	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.3	8	0.2	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	129	96	13	119	170
Future Vol, veh/h	25	129	96	13	119	170
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	43	224	166	23	206	295

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	885	179	0	0	190	0
Stage 1	179	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	318	870	-	-	1390	-
Stage 1	857	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	270	869	-	-	1389	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.24	0	3.31
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	270	869	1389	-
HCM Lane V/C Ratio	-	-	0.16	0.257	0.148	-
HCM Control Delay (s/veh)	-	-	20.8	10.6	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	1	0.5	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	202	106	3	177	2	50	1	7	1	2	36
Future Vol, veh/h	67	202	106	3	177	2	50	1	7	1	2	36
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	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	8	1	0	12	0	10	0	14	0	50	3
Mvmt Flow	88	266	139	4	233	3	66	1	9	1	3	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	235	0	0	405	0	0	637	755	203	552	823	118
Stage 1	-	-	-	-	-	-	512	512	-	242	242	-
Stage 2	-	-	-	-	-	-	126	243	-	310	581	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.7	6.5	7.18	7.5	7.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.7	5.5	-	6.5	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.5	6.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.6	4	3.44	3.5	4.5	3.33
Pot Cap-1 Maneuver	1329	-	-	1165	-	-	346	340	769	421	230	909
Stage 1	-	-	-	-	-	-	493	540	-	746	599	-
Stage 2	-	-	-	-	-	-	842	708	-	681	394	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1165	-	-	302	317	769	386	214	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	302	317	-	386	214	-
Stage 1	-	-	-	-	-	-	460	504	-	743	597	-
Stage 2	-	-	-	-	-	-	792	706	-	627	368	-

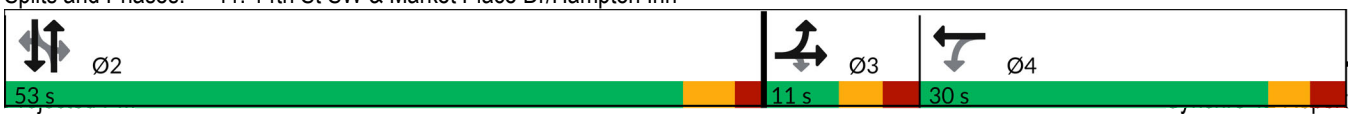
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.41	0.13	19.39	10.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	326	1329	-	-	1165	-	-	757
HCM Lane V/C Ratio	0.234	0.066	-	-	0.003	-	-	0.068
HCM Control Delay (s/veh)	19.4	7.9	-	-	8.1	-	-	10.1
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	2	106	1	0	3	75	146	1	6	284	167
Future Volume (vph)	151	2	106	1	0	3	75	146	1	6	284	167
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	0		0	100		0	250		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1579	1584	1473	0	1554	0	1662	3289	0	1662	1638	0
Flt Permitted	0.950	0.953					0.386			0.646		
Satd. Flow (perm)	1579	1584	1406	0	1571	0	675	3289	0	1130	1638	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121		92			1			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		289			368			392			897	
Travel Time (s)		6.6			8.4			8.9			20.4	
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	88	87	121	0	4	0	86	168	0	7	516	0
Turn Type	Split	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	3			4			2			2	
Permitted Phases			3	4			2			2		
Total Split (s)	11.0	11.0	11.0	30.0	30.0		53.0	53.0		53.0	53.0	
Total Lost Time (s)	5.5	5.5	5.5		5.5		5.4	5.4		5.4	5.4	
Act Effct Green (s)	5.9	5.9	5.9		6.4		21.2	21.2		21.2	21.2	
Actuated g/C Ratio	0.15	0.15	0.15		0.16		0.53	0.53		0.53	0.53	
v/c Ratio	0.38	0.37	0.39		0.01		0.24	0.09		0.01	0.58	
Control Delay (s/veh)	26.1	25.8	9.9		0.0		7.9	5.3		5.5	9.4	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.1	25.8	9.9		0.0		7.9	5.3		5.5	9.4	
LOS	C	C	A		A		A	A		A	A	
Approach Delay (s/veh)		19.5						6.2			9.4	
Approach LOS		B						A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 94			
Actuated Cycle Length: 40.3			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 11.4		Intersection LOS: B	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			
Description: 14th SW/Market Place Dr			

Splits and Phases: 41: 14th St SW & Market Place Dr/Hampton Inn



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	165	3	71	36	14	3	67	221	88	339	184
Future Volume (veh/h)	95	165	3	71	36	14	3	67	221	88	339	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1723	1709	1354	1300	1750	1736	1682	1736	1736
Adj Flow Rate, veh/h	102	177	3	76	39	15	3	72	237	94	363	197
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	2	3	29	33	0	1	5	1	1
Cap, veh/h	490	341	289	437	227	152	293	584	600	494	579	622
Arrive On Green	0.09	0.19	0.19	0.07	0.13	0.13	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1667	1750	1483	1641	1709	1148	590	1750	1471	962	1736	1471
Grp Volume(v), veh/h	102	177	3	76	39	15	3	72	237	94	363	197
Grp Sat Flow(s),veh/h/ln	1667	1750	1483	1641	1709	1148	590	1750	1471	962	1736	1471
Q Serve(g_s), s	1.8	3.3	0.1	1.4	0.7	0.4	0.2	1.0	4.1	2.7	6.3	3.2
Cycle Q Clear(g_c), s	1.8	3.3	0.1	1.4	0.7	0.4	6.5	1.0	4.1	3.7	6.3	3.2
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	490	341	289	437	227	152	293	584	600	494	579	622
V/C Ratio(X)	0.21	0.52	0.01	0.17	0.17	0.10	0.01	0.12	0.40	0.19	0.63	0.32
Avail Cap(c_a), veh/h	1005	1085	919	1046	1060	712	776	2014	1803	1280	1999	1824
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	11.6	13.0	11.7	11.9	13.8	13.7	12.8	8.3	7.5	9.6	10.1	6.9
Incr Delay (d2), s/veh	0.2	1.2	0.0	0.2	0.4	0.3	0.0	0.1	0.4	0.2	1.1	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	0.6	1.1	0.0	0.4	0.3	0.1	0.0	0.3	0.9	0.4	1.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.8	14.2	11.7	12.1	14.2	14.0	12.8	8.4	7.9	9.8	11.2	7.2
LnGrp LOS	B	B	B	B	B	B	B	A	A	A	B	A
Approach Vol, veh/h		282			130			312			654	
Approach Delay, s/veh		13.3			12.9			8.1			9.8	
Approach LOS		B			B			A			A	

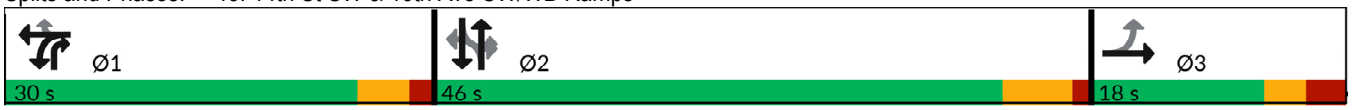
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	16.6	8.9	10.5	16.6	6.7	12.7
Change Period (Y+Rc), s	4.6	5.7	5.7	4.6	4.0	5.7
Max Green Setting (Gmax), s	41.4	14.3	22.3	41.4	16.0	22.3
Max Q Clear Time (g_c+I1), s	8.3	3.8	2.7	8.5	3.4	5.3
Green Ext Time (p_c), s	3.7	0.2	0.2	1.3	0.1	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	10.4
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	7	13	455	15	119	6	50	113	14	111	0
Future Volume (vph)	0	7	13	455	15	119	6	50	113	14	111	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	0		100	100		250	100		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1596	0	0	1653	1430	1662	1620	1488	1554	1699	0
Flt Permitted					0.954		0.676			0.720		
Satd. Flow (perm)	0	1596	0	0	1653	1430	1183	1620	1488	1178	1699	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				102			129			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		388			530			1071			1047	
Travel Time (s)		8.8			12.0			24.3			23.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%
Heavy Vehicles (%)	0%	0%	0%	1%	0%	4%	0%	8%	0%	7%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	538	136	7	57	129	16	127	0
Turn Type		NA		Split	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases		3		1	1			2	1		2	
Permitted Phases	3					1	2		2	2		
Total Split (s)	18.0	18.0		30.0	30.0	30.0	46.0	46.0	30.0	46.0	46.0	
Total Lost Time (s)		5.8			5.2	5.2	6.0	6.0	5.2	6.0	6.0	
Act Effct Green (s)		6.4			25.3	25.3	9.2	9.2	45.1	9.2	9.2	
Actuated g/C Ratio		0.13			0.53	0.53	0.19	0.19	0.94	0.19	0.19	
v/c Ratio		0.10			0.61	0.16	0.03	0.18	0.09	0.07	0.38	
Control Delay (s/veh)		15.7			15.0	4.2	17.6	18.8	0.6	18.0	21.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		15.7			15.0	4.2	17.6	18.8	0.6	18.0	21.6	
LOS		B			B	A	B	B	A	B	C	
Approach Delay (s/veh)		15.8			12.8			6.6			21.3	
Approach LOS		B			B			A			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 94			
Actuated Cycle Length: 47.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay (s/veh): 12.9		Intersection LOS: B	
Intersection Capacity Utilization 52.6%		ICU Level of Service A	
Analysis Period (min) 15			
Description: 14th St SW/WB Ramps/16th Ave SW			

Splits and Phases: 43: 14th St SW & 16th Ave SW/WB Ramps



Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	47	51	2	0	91	5	46	0	4	0
Future Vol, veh/h	0	2	47	51	2	0	91	5	46	0	4	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	2	0	0	0	0	9	0	0	0
Mvmt Flow	0	2	58	63	2	0	112	6	57	0	5	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	60	0	0	162	160	31	134	189	2
Stage 1	-	-	-	-	-	-	31	31	-	128	128	-
Stage 2	-	-	-	-	-	-	131	128	-	6	60	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.29	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.381	3.5	4	3.3
Pot Cap-1 Maneuver	1633	-	-	1543	-	-	807	736	1023	842	710	1088
Stage 1	-	-	-	-	-	-	990	873	-	880	794	-
Stage 2	-	-	-	-	-	-	878	794	-	1022	848	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1633	-	-	1543	-	-	769	706	1023	757	681	1088
Mov Cap-2 Maneuver	-	-	-	-	-	-	769	706	-	757	681	-
Stage 1	-	-	-	-	-	-	990	873	-	844	761	-
Stage 2	-	-	-	-	-	-	836	761	-	958	848	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	7.15	10.46	10.33
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	833	1633	-	-	1541	-	-	681
HCM Lane V/C Ratio	0.21	-	-	-	0.041	-	-	0.007
HCM Control Delay (s/veh)	10.5	0	-	-	7.4	0	-	10.3
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	110	144	841	930	114
Future Vol, veh/h	26	110	144	841	930	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	32	134	175	1024	1132	139

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2064	635	1271	0	-	0
Stage 1	1202	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.14	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.22	-	-	-
Pot Cap-1 Maneuver	48	426	542	-	-	-
Stage 1	252	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	33	426	542	-	-	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	170	-	-	-	-	-
Stage 2	379	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	22.69	2.16	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	542	-	120	426	-	-
HCM Lane V/C Ratio	0.323	-	0.264	0.315	-	-
HCM Control Delay (s/veh)	14.8	-	45.6	17.3	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	1.4	-	1	1.3	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	1	13	3	2	0	28	206	7	1	95	14
Future Vol, veh/h	22	1	13	3	2	0	28	206	7	1	95	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	3	0
Mvmt Flow	25	1	15	3	2	0	32	236	8	1	109	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	421	427	117	416	431	240	125	0	0	244	0	0
Stage 1	119	119	-	304	304	-	-	-	-	-	-	-
Stage 2	301	308	-	112	127	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	547	523	941	551	520	804	1474	-	-	1334	-	-
Stage 1	890	801	-	710	666	-	-	-	-	-	-	-
Stage 2	712	664	-	898	795	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	530	509	941	526	506	804	1474	-	-	1334	-	-
Mov Cap-2 Maneuver	530	509	-	526	506	-	-	-	-	-	-	-
Stage 1	889	800	-	692	650	-	-	-	-	-	-	-
Stage 2	692	647	-	882	794	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.13	12.02	0.87	0.07
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	208	-	-	628	518	16	-	-
HCM Lane V/C Ratio	0.022	-	-	0.066	0.011	0.001	-	-
HCM Control Delay (s/veh)	7.5	0	-	11.1	12	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	7	11	78	6	6
Future Vol, veh/h	52	7	11	78	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	0	0	0	0
Mvmt Flow	137	19	29	206	16	16

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	180	132	0	0	235	0
Stage 1	132	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	810	923	-	-	1344	-
Stage 1	894	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	800	923	-	-	1344	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	963	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.48	0	3.86
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	813	900	-
HCM Lane V/C Ratio	-	-	0.192	0.012	-
HCM Control Delay (s/veh)	-	-	10.5	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	9	4	55	11	10
Future Vol, veh/h	73	9	4	55	11	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	2	0	0
Mvmt Flow	222	27	12	167	33	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	428	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1328	-	588	808
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	846	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1328	-	582	808
Mov Cap-2 Maneuver	-	-	-	-	582	-
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	837	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.52	10.92
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	671	-	-	122	-
HCM Lane V/C Ratio	0.095	-	-	0.009	-
HCM Control Delay (s/veh)	10.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	63	14	1	0	10	1	2	161	7	0	94	47
Future Vol, veh/h	63	14	1	0	10	1	2	161	7	0	94	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	2	2
Mvmt Flow	100	22	2	0	16	2	3	254	11	0	148	74

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	454	457	186	426	489	260	223	0	0	265	0	0
Stage 1	186	186	-	266	266	-	-	-	-	-	-	-
Stage 2	269	272	-	160	223	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	520	503	862	542	483	784	1358	-	-	1310	-	-
Stage 1	821	750	-	744	692	-	-	-	-	-	-	-
Stage 2	741	688	-	847	723	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	500	501	862	516	481	784	1358	-	-	1310	-	-
Mov Cap-2 Maneuver	500	501	-	516	481	-	-	-	-	-	-	-
Stage 1	821	750	-	742	690	-	-	-	-	-	-	-
Stage 2	721	687	-	821	723	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.46	12.48	0.09	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	21	-	-	503	499	1310	-	-
HCM Lane V/C Ratio	0.002	-	-	0.245	0.035	-	-	-
HCM Control Delay (s/veh)	7.7	0	-	14.5	12.5	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1	0.1	0	-	-

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	2	5	4	5	7	6	2	57	6	1	25	3
Future Vol, veh/h	2	5	4	5	7	6	2	57	6	1	25	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	8	6	8	11	9	3	86	9	2	38	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	140	144	40	141	142	90	42	0	0	95	0	0
Stage 1	43	43	-	96	96	-	-	-	-	-	-	-
Stage 2	97	101	-	44	45	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	835	751	1037	834	753	973	1580	-	-	1512	-	-
Stage 1	977	863	-	915	819	-	-	-	-	-	-	-
Stage 2	914	815	-	975	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	813	749	1037	818	751	973	1580	-	-	1512	-	-
Mov Cap-2 Maneuver	813	749	-	818	751	-	-	-	-	-	-	-
Stage 1	976	862	-	913	817	-	-	-	-	-	-	-
Stage 2	892	814	-	960	860	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.34	9.47	0.22	0.25
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	54	-	-	847	833	61	-	-
HCM Lane V/C Ratio	0.002	-	-	0.02	0.033	0.001	-	-
HCM Control Delay (s/veh)	7.3	0	-	9.3	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	22	2	0	4	0	3	1	0	2	1	0
Future Vol, veh/h	0	22	2	0	4	0	3	1	0	2	1	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	29	3	0	5	0	4	1	0	3	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	5	0	0	31	0	0	36	35	30	35	37	5
Stage 1	-	-	-	-	-	-	30	30	-	5	5	-
Stage 2	-	-	-	-	-	-	6	5	-	29	31	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1629	-	-	1594	-	-	975	861	1050	977	860	1084
Stage 1	-	-	-	-	-	-	992	874	-	1022	895	-
Stage 2	-	-	-	-	-	-	1021	895	-	993	873	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1629	-	-	1594	-	-	973	861	1050	975	860	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	973	861	-	975	860	-
Stage 1	-	-	-	-	-	-	992	874	-	1022	895	-
Stage 2	-	-	-	-	-	-	1020	895	-	991	873	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	8.84	8.87
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	943	1629	-	-	1594	-	-	933
HCM Lane V/C Ratio	0.006	-	-	-	-	-	-	0.004
HCM Control Delay (s/veh)	8.8	0	-	-	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	13	158	82	2
Future Vol, veh/h	0	5	13	158	82	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	4	0
Mvmt Flow	0	7	18	215	111	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	363	113	114	0	-	0
Stage 1	113	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	640	946	1488	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	632	946	1488	-	-	-
Mov Cap-2 Maneuver	632	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	796	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.83	0.57	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	137	-	946	-	-
HCM Lane V/C Ratio	0.012	-	0.007	-	-
HCM Control Delay (s/veh)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	2	4	61	11	31	15	101	45	14	56	2
Future Vol, veh/h	0	2	4	61	11	31	15	101	45	14	56	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	100
Mvmt Flow	0	3	7	106	19	54	26	176	78	24	98	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	386	455	99	416	418	215	101	0	0	255	0	0
Stage 1	148	148	-	268	268	-	-	-	-	-	-	-
Stage 2	238	307	-	148	150	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	576	504	962	551	529	830	1504	-	-	1322	-	-
Stage 1	859	778	-	742	691	-	-	-	-	-	-	-
Stage 2	770	665	-	859	777	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	498	484	962	521	508	830	1504	-	-	1322	-	-
Mov Cap-2 Maneuver	498	484	-	521	508	-	-	-	-	-	-	-
Stage 1	842	763	-	727	677	-	-	-	-	-	-	-
Stage 2	685	651	-	832	762	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.05	13.86	0.69	1.51
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	158	-	-	724	585	348	-	-
HCM Lane V/C Ratio	0.017	-	-	0.014	0.307	0.018	-	-
HCM Control Delay (s/veh)	7.4	0	-	10	13.9	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	1.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	3	17	162	8	17
Future Vol, veh/h	84	3	17	162	8	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	99	4	20	191	9	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	332	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1502	-	667	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1502	-	657	960
Mov Cap-2 Maneuver	-	-	-	-	657	-
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.71	9.46
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	836	-	-	171	-
HCM Lane V/C Ratio	0.035	-	-	0.013	-
HCM Control Delay (s/veh)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

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	13	93	11	32	210	8	32	26	32	3	24	5
Future Vol, veh/h	13	93	11	32	210	8	32	26	32	3	24	5
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	6	0	0	0	4	0
Mvmt Flow	20	146	17	50	330	13	50	41	50	5	38	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	342	0	0	163	0	0	644	638	155	644	640	336
Stage 1	-	-	-	-	-	-	195	195	-	436	436	-
Stage 2	-	-	-	-	-	-	449	443	-	207	204	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.16	6.5	6.2	7.1	6.54	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.54	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.554	4	3.3	3.5	4.036	3.3
Pot Cap-1 Maneuver	1228	-	-	1428	-	-	380	397	897	389	391	711
Stage 1	-	-	-	-	-	-	797	743	-	603	576	-
Stage 2	-	-	-	-	-	-	582	579	-	799	729	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1228	-	-	1428	-	-	319	373	897	309	367	711
Mov Cap-2 Maneuver	-	-	-	-	-	-	319	373	-	309	367	-
Stage 1	-	-	-	-	-	-	783	729	-	576	551	-
Stage 2	-	-	-	-	-	-	513	554	-	699	716	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.89	0.97	17.12	15.61
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	437	196	-	-	229	-	-	389
HCM Lane V/C Ratio	0.323	0.017	-	-	0.035	-	-	0.129
HCM Control Delay (s/veh)	17.1	8	0	-	7.6	0	-	15.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	131	334	134	66	14
Future Vol, veh/h	26	131	334	134	66	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	39	198	505	203	100	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1322	110	121	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	1212	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	174	946	1479	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	115	946	1479	-	-	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	284	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	16.79	6.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1479	-	115	946	-	-
HCM Lane V/C Ratio	0.341	-	0.343	0.209	-	-
HCM Control Delay (s/veh)	8.7	-	51.9	9.8	-	-
HCM Lane LOS	A	-	F	A	-	-
HCM 95th %tile Q(veh)	1.5	-	1.4	0.8	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	33	49	103	44	1
Future Vol, veh/h	0	33	49	103	44	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	55	82	173	74	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	413	75	76	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	599	992	1536	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	567	992	1536	-	-	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	727	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.84	2.41	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	992	-	-
HCM Lane V/C Ratio	0.054	-	0.056	-	-
HCM Control Delay (s/veh)	7.5	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	6	8	3	2
Future Vol, veh/h	2	9	6	8	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	18	12	16	6	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	48	8	10	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	966	1080	1623	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	959	1080	1623	-	-	-
Mov Cap-2 Maneuver	959	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	987	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.48	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	771	-	1056	-	-
HCM Lane V/C Ratio	0.007	-	0.021	-	-
HCM Control Delay (s/veh)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	136	122	15	47	266
Future Vol, veh/h	22	136	122	15	47	266
Conflicting Peds, #/hr	0	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	1	0	0	0	1
Mvmt Flow	29	180	162	20	62	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	652	178	0	0	185	0
Stage 1	175	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Critical Hdwy	6.4	6.21	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	-	-	2.2	-
Pot Cap-1 Maneuver	436	868	-	-	1402	-
Stage 1	861	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	415	863	-	-	1398	-
Mov Cap-2 Maneuver	415	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	600	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.84	0	1.16
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	415	863	1398	-
HCM Lane V/C Ratio	-	-	0.07	0.209	0.045	-
HCM Control Delay (s/veh)	-	-	14.3	10.3	7.7	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.8	0.1	-

Lanes, Volumes, Timings
60: 15th St N & River Dr N

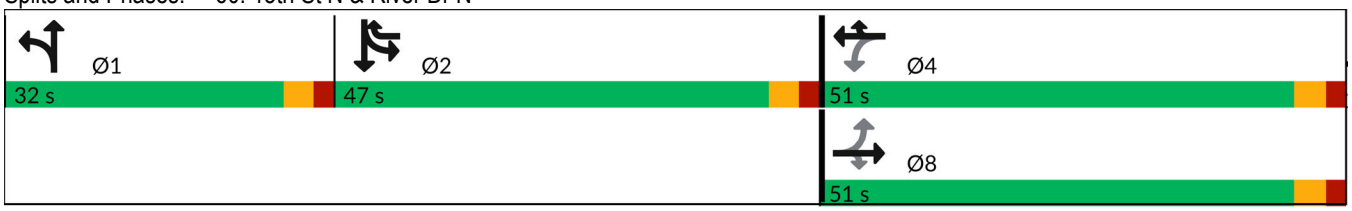
Report Date: 01/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	349	74	34	343	426	149	566	53	361	276	21
Future Volume (vph)	15	349	74	34	343	426	149	566	53	361	276	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	100		0	100		500	250		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1554	1716	1444	1662	1733	1473	1662	3241	0	0	3183	0
Flt Permitted	0.175			0.166			0.950				0.973	
Satd. Flow (perm)	286	1716	1444	290	1733	1473	1662	3241	0	0	3183	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			17		7			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		526			805			584			552	
Travel Time (s)		12.0			18.3			13.3			12.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%
Heavy Vehicles (%)	7%	2%	3%	0%	1%	1%	0%	1%	4%	1%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	501	106	49	493	612	214	889	0	0	946	0
Turn Type	Perm	NA	Perm	Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases		8			4	4 2	1	1		2	2	
Permitted Phases	8		8	4								
Total Split (s)	51.0	51.0	51.0	51.0	51.0		32.0	32.0		47.0	47.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0			5.0	
Act Effct Green (s)	41.4	41.4	41.4	41.4	41.4	87.5	27.1	27.1			41.1	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.70	0.22	0.22			0.33	
v/c Ratio	0.23	0.87	0.19	0.51	0.85	0.58	0.59	1.25			0.95dl	
Control Delay (s/veh)	37.3	57.0	7.0	54.6	54.3	11.7	53.0	165.7			52.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay (s/veh)	37.3	57.0	7.0	54.6	54.3	11.7	53.0	165.7			52.8	
LOS	D	E	A	D	D	B	D	F			D	
Approach Delay (s/veh)		47.9			31.8			143.9			52.9	
Approach LOS		D			C			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 124.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay (s/veh): 71.9		Intersection LOS: E	
Intersection Capacity Utilization 96.4%		ICU Level of Service F	
Analysis Period (min) 15			
Description: 15th St N/River Dr N			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 60: 15th St N & River Dr N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	675	0	0	0	0	0	599	85	0	0	0
Future Volume (veh/h)	67	675	0	0	0	0	0	599	85	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1750	1682	0				0	1723	1736			
Adj Flow Rate, veh/h	117	1174	0				0	1042	148			
Peak Hour Factor	0.73	0.73	0.73				0.73	0.73	0.73			
Percent Heavy Veh, %	0	5	0				0	2	1			
Cap, veh/h	139	1394	0				0	1098	156			
Arrive On Green	0.47	0.47	0.00				0.00	0.38	0.38			
Sat Flow, veh/h	296	3053	0				0	2964	408			
Grp Volume(v), veh/h	660	631	0				0	592	598			
Grp Sat Flow(s),veh/h/ln	1667	1598	0				0	1637	1649			
Q Serve(g_s), s	22.8	22.8	0.0				0.0	23.1	23.1			
Cycle Q Clear(g_c), s	22.8	22.8	0.0				0.0	23.1	23.1			
Prop In Lane	0.18		0.00				0.00		0.25			
Lane Grp Cap(c), veh/h	782	750	0				0	625	629			
V/C Ratio(X)	0.84	0.84	0.00				0.00	0.95	0.95			
Avail Cap(c_a), veh/h	890	853	0				0	625	629			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	15.3	15.3	0.0				0.0	19.7	19.7			
Incr Delay (d2), s/veh	6.7	6.9	0.0				0.0	23.9	24.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.9	8.5	0.0				0.0	11.9	12.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.0	22.2	0.0				0.0	43.6	43.9			
LnGrp LOS	C	C						D	D			
Approach Vol, veh/h		1291						1190				
Approach Delay, s/veh		22.1						43.7				
Approach LOS		C						D				

Timer - Assigned Phs	2	4
Phs Duration (G+Y+Rc), s	35.8	30.0
Change Period (Y+Rc), s	4.9	4.9
Max Green Setting (Gmax), s	35.1	25.1
Max Q Clear Time (g_c+I1), s	24.8	25.1
Green Ext Time (p_c), s	6.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	32.5
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	61.8

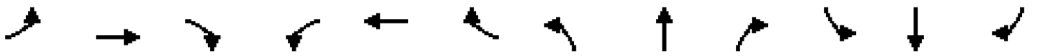
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	1498	57	41	1944	54	5	2	32	2	2	37
Future Vol, veh/h	35	1498	57	41	1944	54	5	2	32	2	2	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	4	4	4	3	3	3
Mvmt Flow	41	1759	67	48	2282	63	6	2	38	2	2	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2345	0	0	1825	0	0	2884	4316	913	3197	4318	1173
Stage 1	-	-	-	-	-	-	1874	1874	-	2410	2410	-
Stage 2	-	-	-	-	-	-	1010	2442	-	787	1908	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.48	6.58	7.18	6.46	6.56	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	7.38	5.58	-	7.36	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.78	5.58	-	6.76	5.56	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.84	4.04	3.94	3.83	4.03	3.93
Pot Cap-1 Maneuver	83	-	-	153	-	-	17	~ 2	234	11	~ 2	158
Stage 1	-	-	-	-	-	-	47	117	-	19	62	-
Stage 2	-	-	-	-	-	-	228	59	-	317	114	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	83	-	-	153	-	-	~ 4	~ 1	234	3	~ 1	158
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 4	~ 1	-	3	~ 1	-
Stage 1	-	-	-	-	-	-	24	59	-	13	43	-
Stage 2	-	-	-	-	-	-	107	41	-	129	58	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.86	0.78	$ 3011.9	$ 2615.44
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	8	83	-	-	153	-	-	9
HCM Lane V/C Ratio	5.692	0.494	-	-	0.314	-	-	5.087
HCM Control Delay (s/veh)	$ 3011.9	84.6	-	-	38.9	-	-	$ 2615.4
HCM Lane LOS	F	F	-	-	E	-	-	F
HCM 95th %tile Q(veh)	7.1	2.1	-	-	1.3	-	-	7.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	193	88	63	312	87	75	191	49	82	235	47
Future Volume (veh/h)	8	193	88	63	312	87	75	191	49	82	235	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	11	271	124	89	439	122	105	269	69	115	331	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	313	725	323	378	834	230	210	426	98	210	457	84
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	794	2236	995	925	2574	709	255	1026	236	259	1100	201
Grp Volume(v), veh/h	11	200	195	89	282	279	443	0	0	512	0	0
Grp Sat Flow(s),veh/h/ln	794	1663	1569	925	1663	1621	1517	0	0	1560	0	0
Q Serve(g_s), s	0.5	4.0	4.1	3.5	5.9	6.0	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	4.0	4.1	7.7	5.9	6.0	9.7	0.0	0.0	11.7	0.0	0.0
Prop In Lane	1.00		0.63	1.00		0.44	0.24		0.16	0.22		0.13
Lane Grp Cap(c), veh/h	313	539	508	378	539	525	734	0	0	751	0	0
V/C Ratio(X)	0.04	0.37	0.38	0.24	0.52	0.53	0.60	0.00	0.00	0.68	0.00	0.00
Avail Cap(c_a), veh/h	754	1461	1379	892	1461	1425	2478	0	0	2551	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.5	11.2	11.2	14.2	11.8	11.9	10.1	0.0	0.0	10.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.5	0.3	0.8	0.8	0.8	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.2	0.7	1.9	1.9	2.6	0.0	0.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.6	11.6	11.7	14.5	12.6	12.7	10.9	0.0	0.0	11.7	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B			B		
Approach Vol, veh/h		406			650			443			512	
Approach Delay, s/veh		11.7			12.9			10.9			11.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	19.1	23.9	19.1	23.9
Change Period (Y+Rc), s	5.2	6.0	5.2	6.0
Max Green Setting (Gmax), s	37.8	71.0	37.8	71.0
Max Q Clear Time (g_c+I1), s	8.5	13.7	9.7	11.7
Green Ext Time (p_c), s	2.6	4.2	4.3	3.6

Intersection Summary	
HCM 7th Control Delay, s/veh	11.9
HCM 7th LOS	B