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SOLUTIONS EVALUATION MEMORANDUM

DATE: July 30, 2021

TO: Derrick Tokos | City of Newport
James Feldman | ODOT

FROM: Rochelle Starrett, Kevin Chewuk, Carl Springer | DKS

SUBJECT: Newport TSP Update
Technical Memorandum #8: Solutions Evaluation

Project #17081-007

This memo summarizes the preliminary transportation solutions identified for the City of Newport. The recommended solutions respond to system performance issues identified through the public outreach process, the prior technical analysis by the consultant team, and on-going feedback and reviews by city staff, the Project Advisory Committee, and the Project Management Team. The system solutions identified include pedestrian and bicycle enhancements along with minor roadway capacity improvements for motor vehicles. In addition, a more in-depth evaluation was made regarding several major roadway improvement concepts to help understand the trade-offs, expected benefits and potential risks of implementing each alternative major solution. This deeper technical review considered solutions along the US 101 and US 20 in the downtown core area, as well as a possible Harney Street extension to establish a new circulation route between US 20 and US 101 near NE 36th Street.

While projects documented in this memo are needed to develop a future, multimodal transportation system for Newport, funding will not be available to construct all recommended capital improvements. Evaluation criteria, that will be used to rank and prioritize transportation improvements at a later date, are also provided. The recommended evaluation criteria and project cost estimates will be used to develop a financially constrained project list as part of Task 5.10. The projects presented in this memo are still preliminary and will be refined prior to implementation of the Transportation System Plan (TSP). Furthermore, inclusion of a project in this memo does not commit the City of Newport to its ultimate construction.

APPROACH TO DEVELOPING NETWORK IMPROVEMENTS

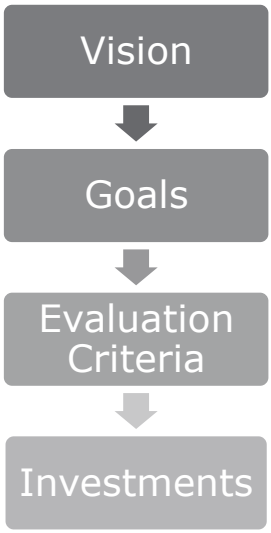
Newport's approach to developing transportation projects emphasized improved system efficiency and management over adding capacity. The approach considered four tiers of priorities that included:

1. Highest Priority – preserve the function of the system through management practices such as improved traffic signal operations, encouraging alternative modes of travel, and implementation of new policies and standards.

2. High Priority – improve existing facility efficiency through minor enhancement projects that upgrade roads to desired standards, fill important system connectivity gaps, or include safety improvements to intersections and corridors.

3. Moderate Priority – add capacity to the system by widening, constructing major improvements to existing roadways, or extending existing roadways to create parallel routes to congested corridors.

4. Lowest Priority – add capacity to the system by constructing new facilities.



The project team recommended higher priority solution types to address identified needs unless a lower priority solution was clearly more cost-effective or better supported the goals and objectives of the City. This process allowed the City to maximize use of available funds, minimize impacts to the natural and built environments, and balance investments across all modes of travel.

Measurable evaluation criteria were developed based on Newport's transportation goals and objectives (see Technical Memorandum #4: Goals and Objectives). These evaluation criteria will be used to screen and prioritize transportation solutions in the next phase of the solutions evaluation process. The prioritized solutions, consequently, will be consistent with the goals and objectives. The identified evaluation criteria will also consider available funding sources to help prioritize projects. The next phase of the solutions evaluation process will include project cost estimates and potential funding sources. For projects within Newport's Urban Renewal District boundaries, a lower priority project may be advanced over a higher priority project located outside the district due to specific funding constraints.

EVALUATION CRITERIA

Newport's evaluation criteria were developed from the city's specific transportation goals and objectives (see Technical Memorandum #4: Goals and Objectives) to screen and prioritize transportation solutions. The recommended evaluation criteria for each goal is summarized below

in Table 1. Details for how each evaluation criteria will be applied to a transportation project is provided in Appendix 1.

TABLE 1: RECOMMENDED EVALUATION CRITERIA

#	GOAL	DESCRIPTION	EVALUATION CRITERIA
1	SAFETY	Improve the safety of all users of the system for all modes of travel	(1) Project is expected to reduce crash rate and/or severity
2	MOBILITY AND ACCESSIBILITY	Promote efficient travel that provides access to goods, services, and employment to meet the daily needs of all users, as well as to local and regional major activity centers	(1) Project reduces vehicle delay (2) Project increases system connectivity (3) Project includes travel demand management or transportation system management and operations to better manage system capacity
3	ACTIVE TRANSPORTATION	Complete safe, convenient, and comfortable networks for facilities that make walking and biking an attractive choice by people of all ages and abilities	(1) Project completes existing gaps in pedestrian or bicycle network (2) Project increases access to transit for pedestrians or bicyclists (3) Project increases access to major destinations for pedestrians or bicyclists
4	GROW THE ECONOMY	Develop a transportation system that facilitates economic activity and draws business to the area	(1) Project increases access to employment (2) Project supports the efficient movement of freight
5	ENVIRONMENT	Minimize environmental impacts on natural resources and encourage lower-polluting transportation alternatives	(1) Project minimizes impact on natural resources
6	SUPPORT HEALTHY LIVING	Support options for exercise and healthy lifestyles to enhance the quality of life	(1) Project supports access to community amenities for bicyclists and pedestrians
7	PREPARE FOR CHANGE	Ensure that the choices being made today make sense at a time when Newport is growing and the transportation industry is rapidly changing	(1) Project supports access to a future growth area for Newport
8	FISCAL RESPONSIBILITY	Sustain an economically viable transportation system	(1) Project benefits are expected to exceed project cost

TABLE 1: RECOMMENDED EVALUATION CRITERIA			
#	GOAL	DESCRIPTION	EVALUATION CRITERIA
9	WORK WITH REGIONAL PARTNERS	Partner with other jurisdictions to plan and fund projects that better connect Newport with the region	No evaluation criteria identified

TRANSPORTATION SOLUTIONS

Newport's recommended transportation solutions, detailed below, include two types of transportation improvement strategies, resulting in four major sets of solutions for Newport:

- **Minor Roadway Improvements** which include spot motor vehicle improvements, minor roadway extensions, enhancements to the pedestrian and bicycle network, and other programmatic improvements
- **Major Roadway Improvements** which include the previously identified minor roadway improvements and one of the following major street improvement projects:
  - **US 101 Couplets**
  - **US 20 Couplet**
  - **Harney Street Extension**

Major Roadway Improvements include large-scale capital investments that could significantly alter Newport's transportation network and travel patterns. Conversely, Minor Roadway Improvements include low or medium cost capital improvements that will not significantly alter circulation patterns for vehicles in Newport. These improvements encompass the remaining transportation solutions identified for Newport and are needed even with a Major Roadway Improvement project.

The following sections summarize the evaluation of improvement options to provide early direction in developing recommended solutions for these street segments. The options consider the available right-of way and environmental constraints to ease implementation. These design options are preliminary and are subject to change. Community input and further technical analysis will ultimately lead to a recommended solution to be included in the TSP.

MINOR ROADWAY IMPROVEMENT ALTERNATIVES

The minor roadway improvement projects are solutions that do not require major capital improvements to provide benefits to Newport residents. These solutions can include pedestrian and bicycle enhancements throughout the city to support biking and walking as an alternative to driving, minor roadway capacity improvements (including at congested intersections), or minor street extensions to support local street connectivity. Bicycle and pedestrian improvements were considered at the citywide scale since these projects were developed to complete a comprehensive network for biking and walking. Other network improvements were discussed for each subarea of Newport, detailed below, since the solution strategies considered are dependent on the specific challenges facing each area.

PEDESTRIAN IMPROVEMENTS

The existing sidewalk gaps were inventoried to identify priority corridors for sidewalk infill or shared use path projects. Priority corridors were identified based on their:

- Proximity to schools
- Proximity to major destinations (*e.g.* Nye Beach, Bayfront)
- The extent of existing gaps (*i.e.* completing sidewalk infill can create a longer, more continuous pedestrian connection)
- Lack of topographical constraints

Enhanced crossing locations were also identified, as needed, to facilitate safe crossing opportunities for US 101 and US 20 based on the future sidewalk conditions for adjacent roadways.

Specific pedestrian improvements are identified for each subarea below.

BICYCLE IMPROVEMENTS

Newport's existing bicycle facilities were inventoried and used as a starting point to develop a priority bicycle network. Corridors were included in the priority bicycle network based on:

- Proximity to schools
- Proximity to major destinations (*e.g.* Nye Beach, Bayfront)
- Directness of route
- Ability to provide an off-highway connection

The functional classification and available pavement width were used to recommend bicycle treatments that were appropriate to the roadway context. Recommended treatments included:

- Separated bike facilities – treatments could include a shared use path, cycle track, separated bicycle lanes, or buffered bicycle lanes
- Bicycle lanes – treatments could include an on-street bicycle lanes without a painted buffer
- Bicycle routes – treatments could include sharrows or wayfinding with other neighborhood traffic management[1] measures as appropriate

Specific bicycle improvements for each subarea are identified below.

[1] Neighborhood traffic management treatments are document in Technical Memo #10: Transportation Standards

LOCAL STREET CONNECTIVITY IMPROVEMENTS

Improvements for the local street network, including connectivity enhancements, are not typically included as part of a TSP project list. However, as redevelopment occurs, the City should explore opportunities to enhance connectivity within neighborhoods through local street extensions. Potential connections that should be pursued may include, but are not limited to:

- Extending NE Lucky Gap Street between NE 55th Street and NE 56th Street
- Extending NE 60th Street to connect to NE Lucky Gap Street/NE 57th Street
- Extending NE 53rd Street east to connect to the vacant parcel east of NE Lucky Gap Street
- Extending a new local street connection between NE 54th Street and the vacant parcel east of NE Lucky Gap Street
- Extending a second access to the Longview Hills development. Potential options include a connection between NE Windmill Drive and NE 54th Street or a connection to the new local street network/local street extensions to serve the vacant parcel east of NE Lucky Gap Street
- Extending NE 70th Drive northeast to NE 71st Street
- Extending NE Evergreen Lane to connect to NE 70th Drive

Note all local street connections must remain within Newport's Urban Growth Boundary (UGB).

RECOMMENDED TRANSPORTATION IMPROVEMENTS

The preliminary list of projects addresses the gaps and deficiencies identified through engagement with the public and in Technical Memorandum #7 (Future Transportation System Conditions and Needs). The project list was developed by following the four-tiered identification process and through the specific considerations for bicycle and pedestrian improvements, detailed above. Specific projects were identified during the TSP planning process for the major modes of travel in Newport (motor vehicle, pedestrian, bicycle and transit) and are broken into five subareas within the City, outlined below. The TSP planning process eliminates any project that may not be feasible for reasons other than financial (such as environmental or existing development limitations).

The full list includes 74 projects and is provided in the appendix. Each project was assigned a primary source of funding for planning purposes (City, State, County, or Lincoln County Transit) although such designations do not create any obligation for funding. The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change and will ultimately be determined through a preliminary and final design process and are subject to City and/or ODOT approval.

Agate Beach Improvements

Agate Beach is the most northerly neighborhood in Newport which extends from Yaquina Head to Newport's north UGB. This neighborhood is largely residential and is projected to be a key residential growth area. However, Agate Beach also includes lodging, retail, restaurants, and other tourist attractions. A new industrial area is also developing near NE 73rd Street. Key challenges facing this area include:

- Limited connectivity outside of US 101 to downtown Newport
- High delay and side street congestion during summer
- Limited bicycle and pedestrian facilities on NW Lighthouse Drive
- Limited internal roadway connections
- Existing gravel or underdeveloped roadways
- Coastal erosion and other geologic constraints

These key challenges were used to inform the transportation projects for the Agate Beach area, summarized below in Table 2 and Figure 1.

TABLE 2: RECOMMENDED PROJECTS (AGATE BEACH)

PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
INT1	US 101/NE 73rd Street			Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions
INT12	US 101/NE 57th Street			Realign approach to align with NW 58th Street
EXT1	NW Gladys Street	NW 55th Street	NW 60th Street	Extend NW Gladys Street to create a continuous neighborhood collector street
SW17	NW 60th Street	US 101	NW Gladys Street	Complete existing sidewalk gaps
SW20	NW Gladys Street/NW 55th Street	NW 60th Street	US 101	Complete existing sidewalk gaps

TABLE 2: RECOMMENDED PROJECTS (AGATE BEACH)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SW24	NW 55th Street	NW Glady Street	NW Piney Street	Complete existing sidewalk gaps
SW26	NE Avery Street/NE 71st Street	US 101	NE Echo Court	Complete existing sidewalk gaps
TR2	US 101 (North)	NW Oceanview Drive	North UGB	Construct a shared use path on one side only. The proposed path will be located on the west side of US 101 south of NW Lighthouse Drive and on the east side of US 101 north of NW Lighthouse Drive. Sidewalk infill will be completed on the opposite side between NW 60th Street and NW Oceanview Drive. Shared use path project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path). Note the specified side and project extents are subject to modification
TR5	NW Lighthouse Drive	US 101	End	Construct a shared use path on one side only and other improvements as identified by the BLM/FHWA Note pedestrian/bicycle crossing improvements may be needed at the intersection of US 101/NW Lighthouse Drive
BR10	NW 60th Street/NW Gladys Street/NW 55th Street	US 101	US 101	Install signing and striping as needed to designate a bike route through Agate Beach
BR12	NE Avery Street/NE 71st Street	US 101	NE Echo Court	Install signing and striping as needed to designate a bike route
BR16	NW 55th Street	NW Glady Street	NW Piney Street	Install signing and striping as needed to designate a bike route

TABLE 2: RECOMMENDED PROJECTS (AGATE BEACH)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
CR1	NW 60th Street/US 101			Install an enhanced pedestrian crossing
CR3	NW 55th Street/US 101			Install an enhanced pedestrian crossing
CR8	NW 68th Street/US 101			Install an enhanced pedestrian crossing
CR9	Between NW 60th Street and NW 68th Street/US 101			Install an enhanced pedestrian crossing to serve existing transit stops and RV park
CR10	NW 58th/US 101			Install an enhanced pedestrian crossing
CR11	NW 48th/US 101			Install an enhanced pedestrian crossing
CR12	NW 43rd/US 101			Install an enhanced pedestrian crossing

Note the following abbreviations correspond to different project types:

INT: Project constructs capacity improvements at an intersection

EXT: Project extends a new roadway

REV: Project changes existing traffic patterns or striping on a roadway segment

SW: Project completes existing sidewalk gaps on a roadway segment

TR: Project constructs a new shared use path for pedestrians and bicyclists

BR: Project installs a neighborhood bike route

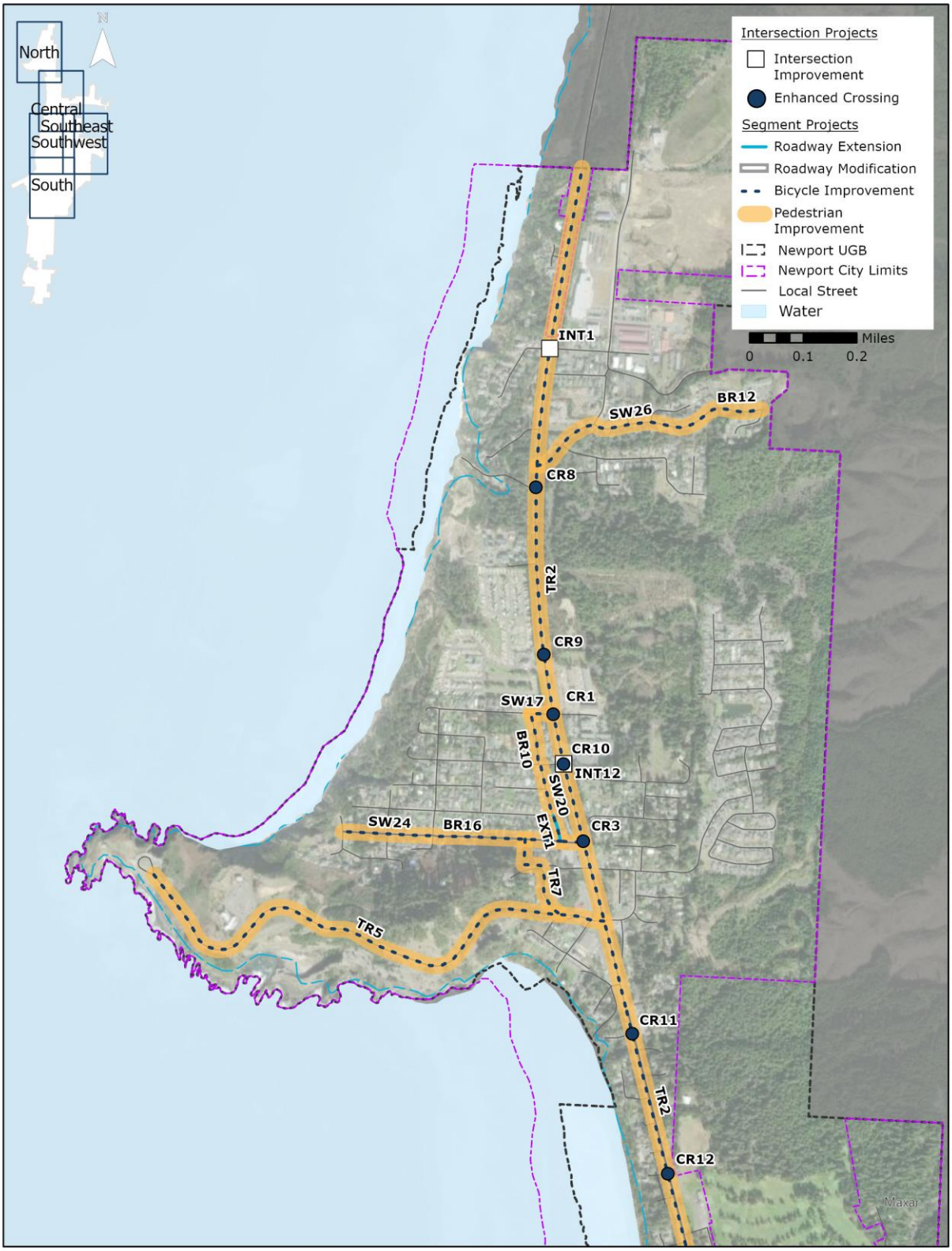
SBL: Project installs a separated bike facility

BL: Project installs on-street bike lanes

CR: Project installs an enhanced crossing for pedestrians and bicyclists

PRO: Project creates a new city program to manage the transportation system

FIGURE 1: RECOMMENDED PROJECTS (AGATE BEACH)



Oceanview/Harney Area Improvements

NW Oceanview Drive and NE Harney Street provide connections through Newport's central neighborhoods, extending from just south of Yaquina Head to the northern side of Newport's downtown. While this area is largely residential today and remains a significant residential growth area for Newport, this neighborhood also includes major retail businesses and tourist attractions. Key challenges facing this area include:

- Limited connectivity outside of US 101 to downtown Newport north of 20th Street
- High delay and side street congestion during summer
- Limited bicycle and pedestrian facilities on NW Oceanview Drive

These key challenges were used to inform the transportation projects for the Oceanview/Harney area, summarized below in Table 3 and Figure 2.

TABLE 3: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)

PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
INT3	US 101/NW Oceanview Drive			Widen the eastbound NW Oceanview Drive approach to include separate left and right turn lanes
INT8	US 101/NE 36th Street			Complete an intersection control evaluation: either a traffic signal (with separate left and right turn lanes for westbound traffic) or roundabout are potential solutions
INT11	US 101/NW 6th Street			Realign intersection

TABLE 3: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
EXT4	NE Harney Street	NE 7th Street	NE Big Creek Road	Extend NE Harney Street to a create a continuous major collector street and install a mini roundabout (i.e., roundabout with a mountable center island to accommodate school buses or large trucks) at the intersection of NE Harney Street/NE 7th Street
EXT12	NW Nye Street	NW Oceanview Drive	NW 15th Street	Extend NW Nye Street to create a continuous neighborhood collector street between NW Oceanview Drive and NW 15th Street
REV1	NE 31st Street	NE 32nd Street	NE Harney Street	Reconfigure NE 31st Street to serve pedestrians, bicycles, and emergency vehicles only Note this project is currently being refined and will only be advanced with the provision of two access points for all residents east of US 101
SW6	NE 7th Street	NE Eads Street	NE 6th Street	Complete existing sidewalk gaps
SW13	NW Nye Street	W Olive Street	NW 15th Street	Complete existing sidewalk gaps
SW14	NW/NE 11th Street	NW Spring Street	NE Eads Street	Complete existing sidewalk gaps
SW16	NW Edenview Way/NE 20th Street	NW Oceanview Drive	NE Crestview Drive	Complete existing sidewalk gaps

TABLE 3: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SW19	NW 8th Street/NW Spring Street	NW Coast Street	NW 11th Street	Complete existing sidewalk gaps
SW21	US 101	NW 25th Street	NW Oceanview Drive	Complete sidewalk infill on east side of US 101 only Note the specified side is subject to modification
SW25	NE Harney Street/NE 36th Street	US 101	NE Big Creek Road	Complete existing sidewalk gaps
SW27	NE 12th Street	US 101	NE Benton Street	Complete existing sidewalk gaps
TR1	NW Oceanview Drive	US 101	NW Nye Street Extension	Construct a shared use path on one side only
TR2	US 101 (North)	NW Oceanview Drive	North UGB	Construct a shared use path on one side only. The proposed path will be located on the west side of US 101 south of NW Lighthouse Drive and on the east side of US 101 north of NW Lighthouse Drive. Sidewalk infill will be completed on the opposite side between NW 60th Street and NW Oceanview Drive. Shared use path project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path). Note the specified side and project extents are subject to modification

TABLE 3: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
TR6	NE Big Creek Road	NE Fogarty Street	NE Harney Street	Construct a shared use path Note this project utilizes the existing roadway width but includes separation to designate one 12 ft. travel lane and an adjacent shared use path
TR11	NW Nye Street	NW Oceanview Drive	NW 15th Street	Construct a shared use path in coordination with BL2 and SW13. Note this project should only be constructed in the event EXT12 is not constructed
TR13	US 101	NW Oceanview Drive	NW 25th Street	Construct a shared use path on the west side of US 101 Note the specified side and project extents are subject to modification
BR1	NE 12th Street	US 101	NW Eads Street	Install signing and striping as needed to designate a bike route
BR2	NE Harney Street/NE 36th Street	NE Big Creek Road	US 101	Install signing and striping as needed to designate a bike route Note this project would be eliminate in favor of on-street bike lanes if the Harney Street extension is completed
BR3	NE Eads Street/NE 12th Street	NE 3rd Street	NE Fogarty Street	Install signing and striping as needed to designate a bike route

TABLE 3: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
BR9	NW Edenview Way/NE 20th Street	NW Oceanview Drive	NW Crestview Drive	Install signing and striping as needed to designate a bike route Restripe through US 101/NE 20th Street intersection to provide on-street bike lanes approximately between NW Edenview Way and the eastern Fred Meyer Driveway (project removes on-street parking on one side only)
BR19	NW Oceanview Drive/NW Spring Street/NW Coast Street	NW Nye Street Extension	W Olive Street	Install signing and striping as needed to designate a bike route
BL2	NW Nye Street	NW 15th Street	SW 2nd Street	Restripe NW Nye Street to include on-street bicycle lanes (project removes on-street parking on one side only)
BL8	NW/NE 11th Street	NW Spring Street	NE Eads Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only although on-street parking may be impacted on both sides of the street between NW Lake Street and NW Nye Street)
BL11	SW 10th Street/SE 2nd Street/SE Coos Street/NE Benton Street	SW 9th Street	NE 11th Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only between NE 11th Street and US 20) Note 5 ft. bike lanes are acceptable between US 20 and SE 2nd Street

TABLE 3: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
CR5	NW Oceanview/US 101			Install an enhanced pedestrian crossing
CR11	NW 48th/US 101			Install an enhanced pedestrian crossing
CR12	NW 43rd/US 101			Install an enhanced pedestrian crossing
CR13	Best Western Driveway/US 101			Install an enhanced pedestrian crossing
CR14	NE 17th/US 101			Install an enhanced pedestrian crossing
CR15	NW 12th/US 101			Install an enhanced pedestrian crossing
CR16	NW 8th/US 101			Install an enhanced pedestrian crossing

Note the following abbreviations correspond to different project types:

INT: Project constructs capacity improvements at an intersection

EXT: Project extends a new roadway

REV: Project changes existing traffic patterns or striping on a roadway segment

SW: Project completes existing sidewalk gaps on a roadway segment

TR: Project constructs a new shared use path for pedestrians and bicyclists

BR: Project installs a neighborhood bike route

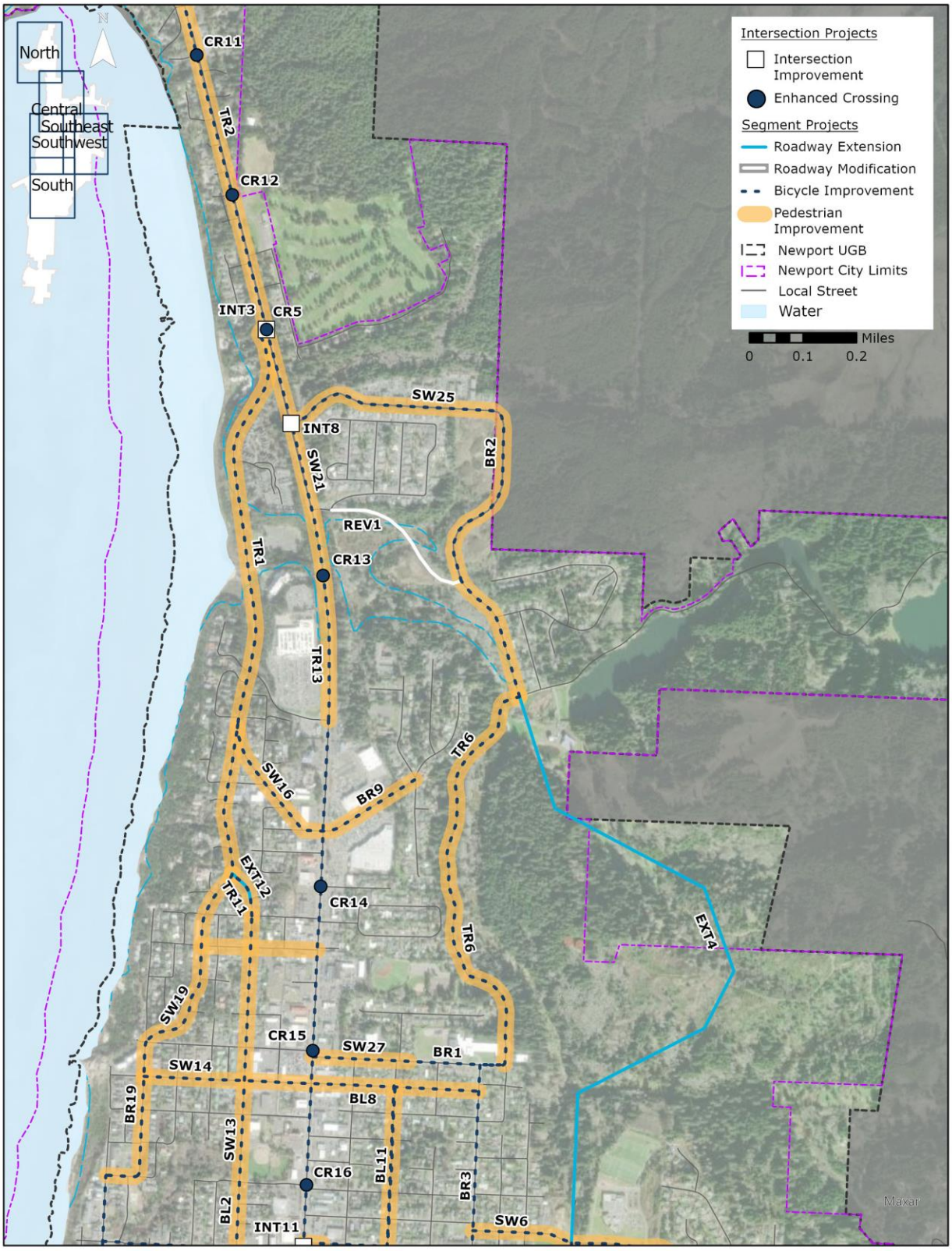
SBL: Project installs a separated bike facility

BL: Project installs on-street bike lanes

CR: Project installs an enhanced crossing for pedestrians and bicyclists

PRO: Project creates a new city program to manage the transportation system

FIGURE 2: RECOMMENDED PROJECTS (OCEANVIEW/HARNEY AREA)



Commercial Core Improvements

Newport's commercial core includes Newport's downtown area, the historic Bayfront, the southern extents of Nye Beach, the Yaquina Bay lighthouse, and adjacent land uses. This area generally features a well-connected local street network with a mix of residential, commercial, and tourist attractions. Key challenges facing this area include:

- Congestion and high side street and highway delay for both US 20 and US 101 during the summer
- Limited available right-of-way on US 101 and US 20 for future improvements
- Limited access to the hospital and businesses from US 101 and US 20 due to the congestion
- Congestion near the Newport schools
- Limited pedestrian/bicycle connectivity for alternative routes parallel to US 101
- Limited safe crossing opportunities on US 101 and US 20 for pedestrians and cyclists
- High freight volumes on Bay Boulevard with limited access to these areas from US 101 ad US 20
- Limited parking in Nye Beach and Bayfront areas
- Narrow on-street parking for US 101

These key challenges were used to inform the transportation projects for the Commercial Core area, summarized below in Table 4 and Figure 3.

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)

PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
INT4	US 101/US 20			Construct intersection improvements
INT5	US 101/SW Hurbert Street			Restripe US 101 approaches to include left turn lanes and modify signal to include protected left turn phases for US 101 (project removes on-street parking)

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
INT6	US 101/SE Moore Drive/NE Harney Street			Complete an intersection control evaluation: either a traffic signal (with separate left turn lanes on the northbound and southbound approaches) or a roundabout are potential solutions
INT7	US 101/SW Angle Street			Restripe SW Angle Street approaches to right-in/right-out only
INT10	US 20/Benton Street			Restripe northbound approach to include a right turn pocket (project removes on-street parking)
INT11	US 101/NW 6th Street			Realign intersection
EXT12	NW Nye Street	NW Oceanview Drive	NW 15th Street	Extend NW Nye Street to create a continuous neighborhood collector street between NW Oceanview Drive and NW 15th Street
REV5	Yaquina Bay Bridge Refinement Plan			Conduct a study to identify the preferred alignment of a replacement bridge, typical cross-section, implementation, and feasibility, and implement long-term recommendations from the Oregon Coast Bike Route Plan

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SW1	NW 3rd Street	NW Brook Street	NW Nye Street	Complete existing sidewalk gaps using either standard sidewalk or restripe to provide a designated pedestrian walkway in-street
SW2	NE 3rd Street	NE Eads Street	NE Harney Street	Complete existing sidewalk gaps
SW3	SW Elizabeth Street	W Olive Street	SW Government Street	Complete existing sidewalk gaps
SW5	NE 6th Street	US 101	NE Avery Street	Complete existing sidewalk gaps (project will impact off-street parking)
SW6	NE 7th Street	NE Eads Street	NE 6th Street	Complete existing sidewalk gaps
SW8	NE Harney Street	US 20	NE 3rd Street	Complete existing sidewalk gaps
SW9	US 20	NE Fogarty Street	NE Harney Street	Complete existing sidewalk gaps
SW10	SW Abbey Street/SW Harbor Way	SW 6th Street	SW 13th Street	Complete existing sidewalk gaps. Sidewalk gaps may be completed on one side only in areas with significant topography
SW12	SW 2nd Street	SW Elizabeth Street	SW Nye Street	Complete existing sidewalk gaps
SW13	NW Nye Street	W Olive Street	NW 15th Street	Complete existing sidewalk gaps
SW14	NW/NE 11th Street	NW Spring Street	NE Eads Street	Complete existing sidewalk gaps

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SW19	NW 8th Street/NW Spring Street	NW Coast Street	NW 11th Street	Complete existing sidewalk gaps
SW22	Yaquina Bay State Park Drive	SW Elizabeth Street	SW Naterlin Drive	Complete existing sidewalk gaps and install enhanced pedestrian crossings within the Yaquina Bay State Recreation Site Note proposed improvements should be consistent with the Yaquina Bay State Recreation Site Master Plan
SW23	SW Bay Boulevard	SE Fogarty Street	SE Moore Drive	Complete existing sidewalk gaps
SW27	NE 12th Street	US 101	NE Benton Street	Complete existing sidewalk gaps
SW28	SW Bayley Street	SW Elizabeth Street	US 101	Complete existing sidewalk gaps
TR6	NE Big Creek Road	NE Fogarty Street	NE Harney Street	Construct a shared use path Note this project utilizes the existing roadway width but includes separation to designate one 12 ft. travel lane and an adjacent shared use path
TR11	NW Nye Street	NW Oceanview Drive	NW 15th Street	Construct a shared use path in coordination with BL2 and SW13. Note this project should only be constructed in the event EXT12 is not constructed
TR12	SE 1st Street	SE Douglas Street	SE Fogarty Street	Construct a shared use path

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
BR1	NE 12th Street	US 101	NW Eads Street	Install signing and striping as needed to designate a bike route
BR3	NE Eads Street/NE 12th Street	NE 3rd Street	NE Fogarty Street	Install signing and striping as needed to designate a bike route
BR4	Yaquina Bay State Park Drive	SW Elizabeth Street	SW Naterlin Drive	Install signing and striping as needed to designate a bike route Note proposed improvements should be consistent with the Yaquina Bay State Recreation Site Master Plan
BR7	SW 2nd Street/SW Angle Street	SW Elizabeth Street	SW Nye Street	Install signing and striping as needed to designate a bike route
BR13	NW 3rd Street	US 101	NW Cliff Street	Install signing and striping as needed to designate a bike route
BR14	Yaquina Bay Bridge Interim Improvements			Install signing and striping as needed to designate a bike route and implement other improvements as identified in the Oregon Coast Bike Route Plan such as flashing warning lights or advisory speed signs
BR17	NW 6th Street	NW Coast Street	NW Nye Street	Install signing and striping as needed to designate a bike route
BR18	NE 7th Street	NE Eads Street	NE 6th Street	Install signing and striping as needed to designate a bike route

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
BR19	NW Oceanview Drive/NW Spring Street/NW Coast Street	NW Nye Street Extension	W Olive Street	Install signing and striping as needed to designate a bike route
SBL1	SE Moore Drive/NE Harney Street	SE Bay Boulevard	NE 7th Street	Restripe to install buffered bike lanes between SE Bay Boulevard and US 20; Widen to install buffered bike lanes between US 20 and NE Yaquina Heights Drive; Restripe and upgrade the existing on-street bike lanes between NE Yaquina Heights Drive and NE 7th Street (project removes on-street parking on one side only) Note: limited additional widening may be required to accommodate INT6 turn lanes
SBL2	US 101	Yaquina Bay Bridge	SW 9th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification
SBL3	US 101	SW 9th Street	NW 25th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
BL1	SW Canyon Way	SW 9th Street	SW Bay Boulevard	Restripe to provide on-street bike lanes in uphill direction and mark sharrows in the downhill direction (project may convert existing angle parking near SW Bay Boulevard to parallel parking)
BL2	NW Nye Street	NW 15th Street	SW 2nd Street	Restripe NW Nye Street to include on-street bicycle lanes (project removes on-street parking on one side only)
BL4	SW 9th Street	US 101	SW Angle Street	Restripe or widen as needed to provide on-street bike lanes (project removes on-street parking) Note: this project does not assume the US 101 couplet is constructed
BL5	SW Bayley Street	US 101	SW Elizabeth Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only)
BL6	SW Hurbert Street	SW 9th Street	SW 2nd Street	Restripe to provide on-street bike lanes (existing angle parking will be converted to parallel parking on one side only)
BL7	NW/NE 6th Street	NW Nye Street	NE Eads Street	Restripe or widen as needed to provide on-street bike lanes (project removes on-street parking on one side only)

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
BL8	NW/NE 11th Street	NW Spring Street	NE Eads Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only although on-street parking may be impacted on both sides of the street between NW Lake Street and NW Nye Street)
BL9	NE 3rd Street	NE Eads Street	NE Harney Street	Widen as needed to provide on-street bike lanes
BL11	SW 10th Street/SE 2nd Street/SE Coos Street/NE Benton Street	SW 9th Street	NE 11th Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only between NE 11th Street and US 20) Note 5 ft. bike lanes are acceptable between US 20 and SE 2nd Street
BL12	SW Elizabeth Street	SW Government Street	W Olive Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only)
BL13	W Olive Street	SW Elizabeth Street	US 101	Restripe to provide on-street bike lanes (project removes on-street parking on one side only) Note project requires modification of existing curb extensions at Coast Street; on-street bike lanes may terminate prior to the US 101 intersection to provide space for turn pockets
BL14	Yaquina Bay Road	SE Moore Drive	SE Running Spring	Restripe or widen as needed to provide on-street bike lanes

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
CR2	SE Coos Street/US 20			Install an enhanced pedestrian crossing
CR4	NE Eads Street/US 20			Install an enhanced pedestrian crossing
CR7	SW Naterlin Drive/US 101			Improve pedestrian connections between Yaquina Bay Bridge and downtown Newport through pedestrian wayfinding, marked crossings, and other traffic control measures
CR14	NE 17th/US 101			Install an enhanced pedestrian crossing
CR15	NW 12th/US 101			Install an enhanced pedestrian crossing
CR16	NW 8th/US 101			Install an enhanced pedestrian crossing
CR17	SW Neff/US 101			Install an enhanced pedestrian crossing
CR18	SW Bay/US 101			Install an enhanced pedestrian crossing
CR19	SE Benton/US 20			Install an enhanced pedestrian crossing

Note the following abbreviations correspond to different project types:

INT: Project constructs capacity improvements at an intersection

EXT: Project extends a new roadway

REV: Project changes existing traffic patterns or striping on a roadway segment

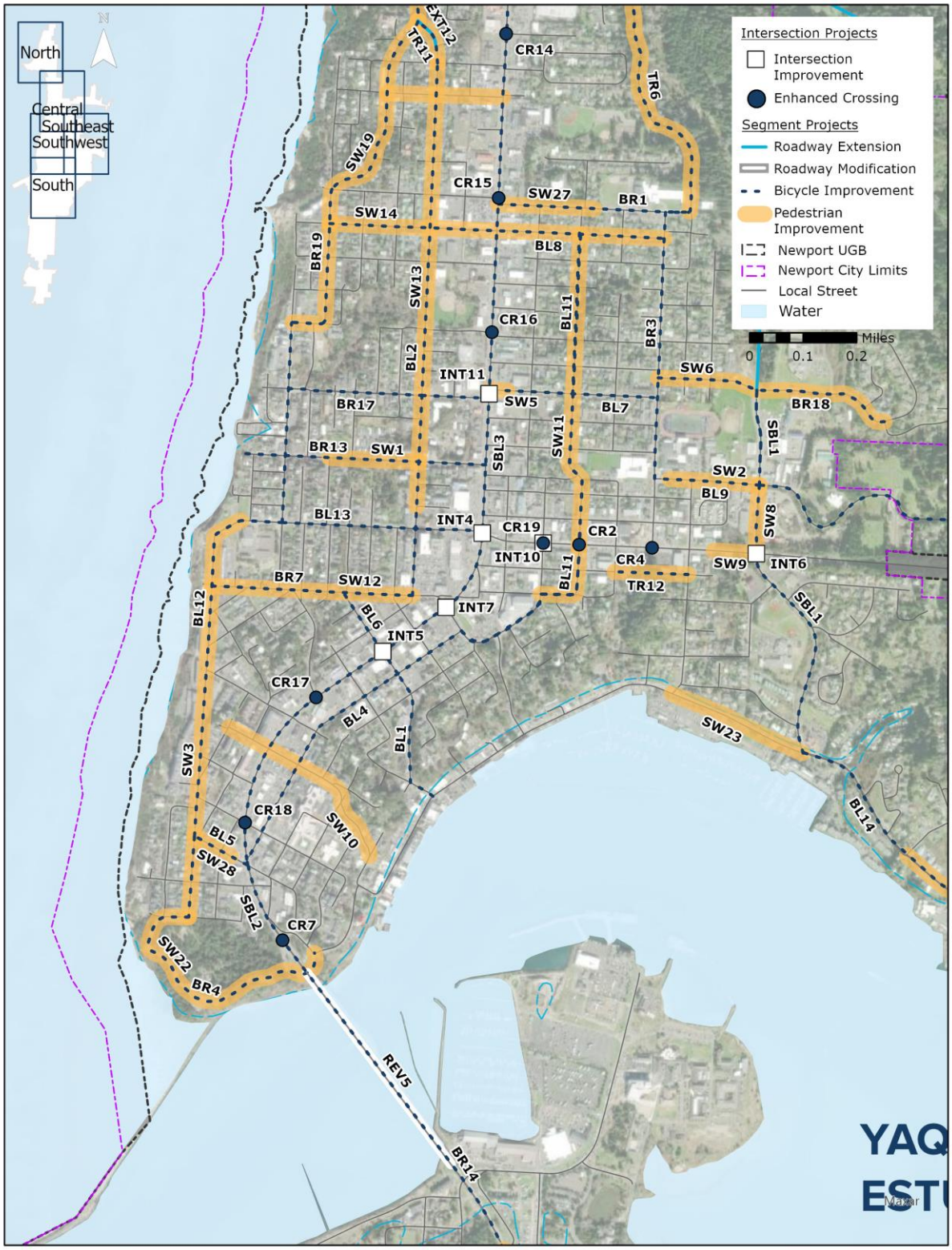
SW: Project completes existing sidewalk gaps on a roadway segment

TR: Project constructs a new shared use path for pedestrians and bicyclists

BR: Project installs a neighborhood bike route

TABLE 4: RECOMMENDED PROJECTS (COMMERCIAL CORE)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SBL: Project installs a separated bike facility				
BL: Project installs on-street bike lanes				
CR: Project installs an enhanced crossing for pedestrians and bicyclists				
PRO: Project creates a new city program to manage the transportation system				

FIGURE 3: RECOMMENDED PROJECTS (COMMERCIAL CORE)



Alternatives Evaluation for US 101/US 20 Intersection

The downtown commercial core includes the US 101/US 20 intersection which will experience high delay in the future without any improvements. High conflicting volumes on each approach limit the potential signal timing modifications which could be applied to manage congestion at this location without any roadway expansion. Several traffic management or design alternatives were considered for this location including:

- Adopting alternate mobility targets (*i.e.*, allowing a greater level of vehicle congestion at this location)
- Widening to construct a second southbound left turn lane and extending an additional eastbound receiving lane east to SE Benton Street
- Constructing a two-lane roundabout with northbound and westbound right turn bypass lanes
- Restricting Olive Street to westbound traffic only between Nye Street and US 101, rerouting eastbound Olive Street traffic to Angle Street, and upgrading the Angle Street/US 101 intersection to a signal

A comparison of these strategies is summarized below in Table 5. Each alternative was analyzed using Summer 2040 volumes, corresponding to 30th highest hour traffic volumes, except for the alternate mobility target which considered Average Weekday 2040 volumes. Adopting alternate mobility targets or travel demand management programs in coordination with each of the intersection alternatives could make each of these options feasible.

Traffic could also be managed at this intersection by adding signage to direct westbound right turning traffic to NE 1st Street as an alternative to the US 101/US 20 traffic signal in conjunction with improvements to carry the additional traffic on this street. Although diversion through the neighborhood immediately north of US 20 will likely occur by 2040 without explicit signage, adding signage can provide a designated alternate route for tourists and better manage the system capacity. Providing signage is expected to provide a modest benefit to traffic operations at US 101/US 20 although additional improvements will be needed.

TABLE 5: COMPARISON OF ALTERNATIVES FOR US 101/US 20 INTERSECTION					
ALTERNATIVE	**INTERSECTION CONFIGURATION**	**MOBILITY TARGET**	**VOLUME/ CAPACITY RATIO**	**PROS**	**CONS**
NO BUILD (BASELINE SUMMER 2040)		0.85	**0.99**	• No cost	• Does not mitigate congestion
OPTION 1: **ALTERNATE MOBILITY TARGETS (BASELINE AVERAGE WEEKDAY 2040)**		0.85	**0.91**	• No cost	• Does not mitigate congestion

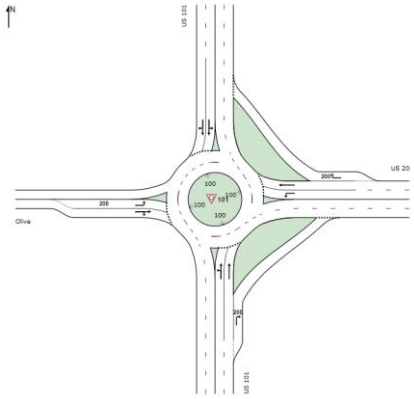
TABLE 5: COMPARISON OF ALTERNATIVES FOR US 101/US 20 INTERSECTION					
ALTERNATIVE	**INTERSECTION CONFIGURATION**	**MOBILITY TARGET**	**VOLUME/ CAPACITY RATIO**	**PROS**	**CONS**
OPTION 2: **ADDITIONAL SOUTHBOUND LEFT TURN LANE**		0.85	**0.90**		• Increases pedestrian crossing distance • Does not mitigate congestion • High cost • Potential for lane imbalances between for the dual left turn lanes
OPTION 3: TWO-LANE ROUNDABOUT		0.85	**0.91**	• Calms Traffic • Reduces conflict points • Reduces pedestrian crossing distance	• Does not mitigate congestion • High cost • Significant right-of-way or property impacts • Potential challenges with Heavy Truck or RV turning movements

TABLE 5: COMPARISON OF ALTERNATIVES FOR US 101/US 20 INTERSECTION					
ALTERNATIVE	**INTERSECTION CONFIGURATION**	**MOBILITY TARGET**	**VOLUME/ CAPACITY RATIO**	**PROS**	**CONS**
OPTION 4: **RESTRICT OLIVE STREET TO WESTBOUND TRAFFIC AND INSTALL A TRAFFIC SIGNAL AT ANGLE STREET**		US 101 & US 20: 0.85 ---- US 101 & Angle Street: 0.85 ---- US 101 & Hurbert Street: 0.85 ---- US 20 & Benton Street: 0.85/0.95	US 101 & US 20: **0.93***** **----** US 101 & Angle Street: 0.78 ---- US 101 & Hurbert Street: 0.54 ---- US 20 & Benton Street: 0.39/0.67	• Medium Cost • Reduces pedestrian crossing distance on one leg • Signalizes pedestrian/ bicycle crossing at Angle Street	• Eliminates eastbound movement along Olive Street. • Does not mitigate congestion

Note: **bolded** values indicate a location exceeds its mobility target

*Converting the proposed westbound through lane to a shared westbound through/left turn lane has the potential to further improve intersection operations, but this configuration cannot be analyzed using Synchro's implementation of Highway Capacity Manual 6th Edition's methodology for intersection capacity analysis.

One variation on Option 4 could be to reroute eastbound traffic on Olive Street to the north and install a new traffic signal at 3rd Street rather than Angle Street. This option would mitigate impacts to the planned expansion of Newport's City Hall and would likely operate similar to Option 4 at the US 101/US 20 intersection. However, additional analysis would be required if this option is advanced through the alternatives evaluation process.

East Newport Improvements

The East Newport neighborhood includes the existing residential and industrial areas between NE Harney Street/SE Moore Drive and Newport's eastern UGB. Key challenges facing this area include:

- Congestion at the US 20/NE Harney Street/SE Moore Drive intersection
- Existing gaps in the pedestrian/bicycle network on NE Harney Street between US 20 and NE 3rd Street
- Limited north-south connectivity between Yaquina Bay Road, US 20, and Yaquina Heights Drive
- Congestion near Newport's schools

These key challenges were used to inform the transportation projects for the East Newport area, summarized below in Table 6 and Figure 4.

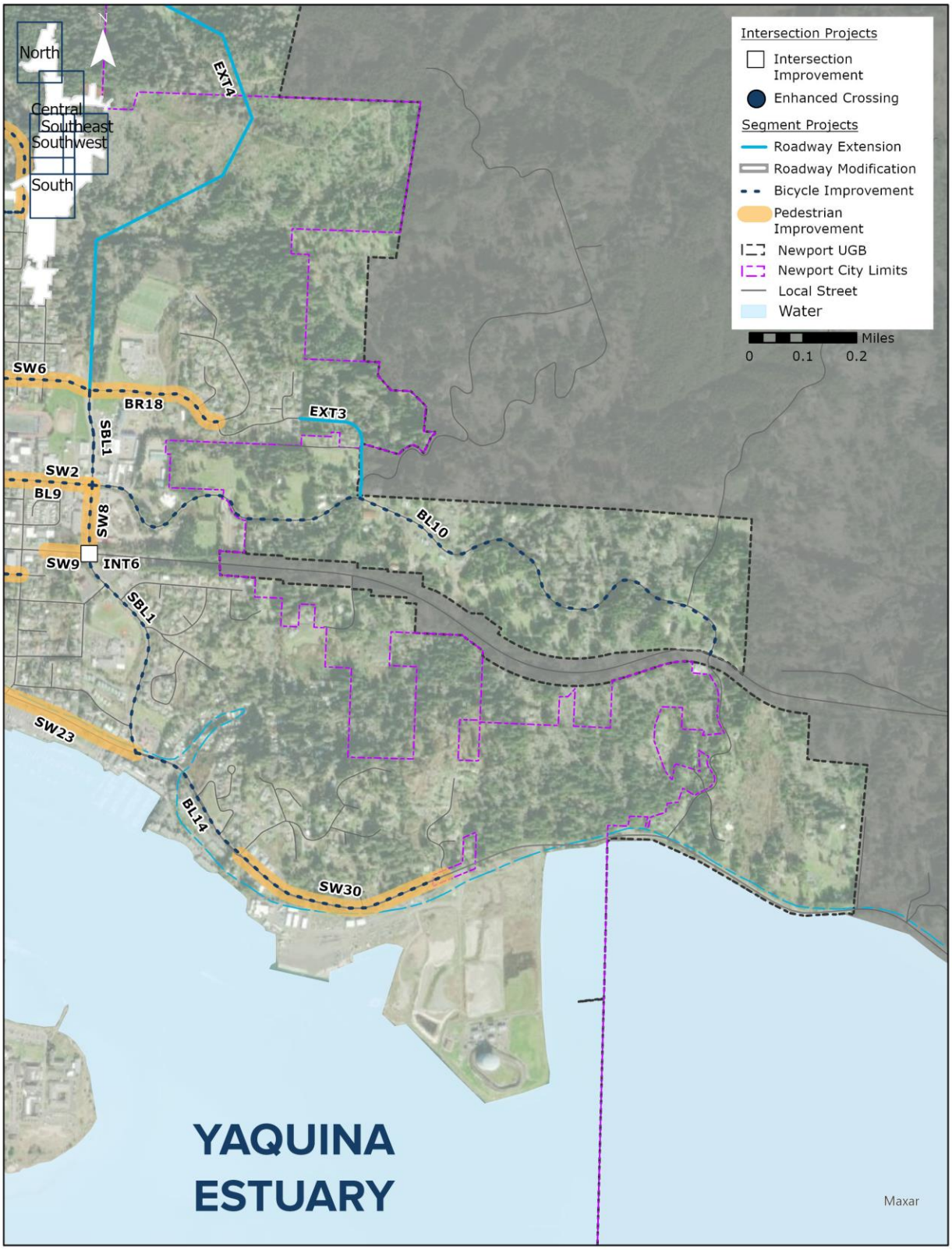
TABLE 6: RECOMMENDED PROJECTS (EAST NEWPORT)

PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
INT6	US 101/SE Moore Drive/NE Harney Street			Complete an intersection control evaluation: either a traffic signal (with separate left turn lanes on the northbound and southbound approaches) or a roundabout are potential solutions
EXT3	NE 6th Street	NE 6th Street	NE Yaquina Heights Drive	Extend NE 6th Street to create a continuous neighborhood collector
EXT4	NE Harney Street	NE 7th Street	NE Big Creek Road	Extend NE Harney Street to a create a continuous major collector street and install a mini roundabout (i.e., roundabout with a mountable center island to accommodate school buses or large trucks) at the intersection of NE Harney Street/NE 7th Street
SW2	NE 3rd Street	NE Eads Street	NE Harney Street	Complete existing sidewalk gaps

TABLE 6: RECOMMENDED PROJECTS (EAST NEWPORT)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SW6	NE 7th Street	NE Eads Street	NE 6th Street	Complete existing sidewalk gaps
SW9	US 20	NE Fogarty Street	NE Harney Street	Complete existing sidewalk gaps
SW23	SW Bay Boulevard	SE Fogarty Street	SE Moore Drive	Complete existing sidewalk gaps
SW30	Yaquina Bay Road	SE Vista Drive	SE Running Spring	Complete existing sidewalk gaps on north side only
BR18	NE 7th Street	NE Eads Street	NE 6th Street	Install signing and striping as needed to designate a bike route
SBL1	SE Moore Drive/NE Harney Street	SE Bay Boulevard	NE 7th Street	Restripe to install buffered bike lanes between SE Bay Boulevard and US 20; Widen to install buffered bike lanes between US 20 and NE Yaquina Heights Drive; Restripe and upgrade the existing on-street bike lanes between NE Yaquina Heights Drive and NE 7th Street (project removes on-street parking on one side only) Note: limited additional widening may be required to accommodate INT6 turn lanes
BL9	NE 3rd Street	NE Eads Street	NE Harney Street	Widen as needed to provide on-street bike lanes
BL10	NE Yaquina Heights Drive	NE Harney Street	US 20	Widen as needed to provide on-street bike lanes
BL14	Yaquina Bay Road	SE Moore Drive	SE Running Spring	Restripe or widen as needed to provide on-street bike lanes

TABLE 6: RECOMMENDED PROJECTS (EAST NEWPORT)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
Note the following abbreviations correspond to different project types:				
INT: Project constructs capacity improvements at an intersection				
EXT: Project extends a new roadway				
REV: Project changes existing traffic patterns or striping on a roadway segment				
SW: Project completes existing sidewalk gaps on a roadway segment				
TR: Project constructs a new shared use path for pedestrians and bicyclists				
BR: Project installs a neighborhood bike route				
SBL: Project installs a separated bike facility				
BL: Project installs on-street bike lanes				
CR: Project installs an enhanced crossing for pedestrians and bicyclists				
PRO: Project creates a new city program to manage the transportation system				

FIGURE 4: RECOMMENDED PROJECTS (EAST NEWPORT)



South Beach Improvements

Newport's South Beach neighborhood includes all areas of Newport located south of the Yaquina Bay Bridge. Most existing development is located to the north of SE 40th Street and is a mix of residential neighborhoods, recreation, employment, and industrial areas.

The transportation projects for the South Beach area were developed based on improvements identified in Newport's 2012 TSP update which focused on the South Beach area. Projects identified from this plan and any refinements completed for this plan are summarized below in Table 7 and Figure 5.

TABLE 7: RECOMMENDED PROJECTS (SOUTH BEACH)

PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
INT9	US 101/SW 40th Street			Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions
EXT7	SW 35th Street	SW Abalone Street	SE Ferry Slip Road	Extend SW 35th Street to create a continuous major collector street and construct a shared use path on one side only
EXT8	SE Ash Street	SE 40th Street	SE 42nd Street	Extend SE Ash Street to create a continuous major collector street
EXT9	SE 50th Street	US 101	SE 50th Place	Realign SE 50th Street south to create a continuous major collector street between the existing alignment and the entrance to South Beach State Park and construct a shared use path on one side only
EXT10	SE 62nd Street	End	SE 50th Street	Extend SE 62nd Street north to create a continuous major collector street between the existing terminus and SE 50th Street and construct a shared use path on one side only

TABLE 7: RECOMMENDED PROJECTS (SOUTH BEACH)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
EXT11	SE 50th Street	SE 62nd Street	SE Harborton Street	Extend SE 50th Street to create a continuous major collector street between the SE 50th/SE 62nd intersection and SE Harborton Street and construct a shared use path on one side only
REV5	Yaquina Bay Bridge Refinement Plan			Conduct a study to identify the preferred alignment of a replacement bridge, typical cross-section, implementation, and feasibility, and implement long-term recommendations from the Oregon Coast Bike Route Plan
SW18	SE 35th Street	SE Ferry Slip Road	South Beach Manor Memory Care	Complete existing sidewalk gaps on north side only
SW22	Yaquina Bay State Park Drive	SW Elizabeth Street	SW Naterlin Drive	Complete existing sidewalk gaps and install enhanced pedestrian crossings within the Yaquina Bay State Recreation Site Note proposed improvements should be consistent with the Yaquina Bay State Recreation Site Master Plan
SW29	US 101	SE Pacific Way	SW 35th Street	Complete existing sidewalks gaps Note this project is currently being constructed

TABLE 7: RECOMMENDED PROJECTS (SOUTH BEACH)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
TR3	US 101 (South)	SE 35th Street	South UGB	Construct a shared use path on the west side of US 101 and complete existing sidewalk gaps on east side of US 101 Note the specified side and project extents are subject to modification Note sidewalk on the east side of US 101 between SE 35th Street and SE Ferry Slip Road is currently being constructed
TR9	SE 40th Street	US 101	SE Harborton Street	Construct a shared use path on one side only to complete existing gap
TR14	SW Abalone Street	US 101	SW Abalone Street	Construct a shared use path on the south side of SW Abalone Street
BR4	Yaquina Bay State Park Drive	SW Elizabeth Street	SW Naterlin Drive	Install signing and striping as needed to designate a bike route Note proposed improvements should be consistent with the Yaquina Bay State Recreation Site Master Plan
BR14	Yaquina Bay Bridge Interim Improvements			Install signing and striping as needed to designate a bike route and implement other improvements as identified in the Oregon Coast Bike Route Plan such as flashing warning lights or advisory speed signs
SBL2	US 101	Yaquina Bay Bridge	SW 9th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification

TABLE 7: RECOMMENDED PROJECTS (SOUTH BEACH)				
PROJECT ID	LOCATION	EXTENTS		DESCRIPTION
		FROM	TO	
SBL4	US 101	Yaquina Bay Bridge	SE 35th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification
CR6	SE 32nd Street/US 101			Install an enhanced pedestrian crossing
CR7	SW Naterlin Drive/US 101			Improve pedestrian connections between Yaquina Bay Bridge and downtown Newport through pedestrian wayfinding, marked crossings, and other traffic control measures

Note the following abbreviations correspond to different project types:

INT: Project constructs capacity improvements at an intersection

EXT: Project extends a new roadway

REV: Project changes existing traffic patterns or striping on a roadway segment

SW: Project completes existing sidewalk gaps on a roadway segment

TR: Project constructs a new shared use path for pedestrians and bicyclists

BR: Project installs a neighborhood bike route

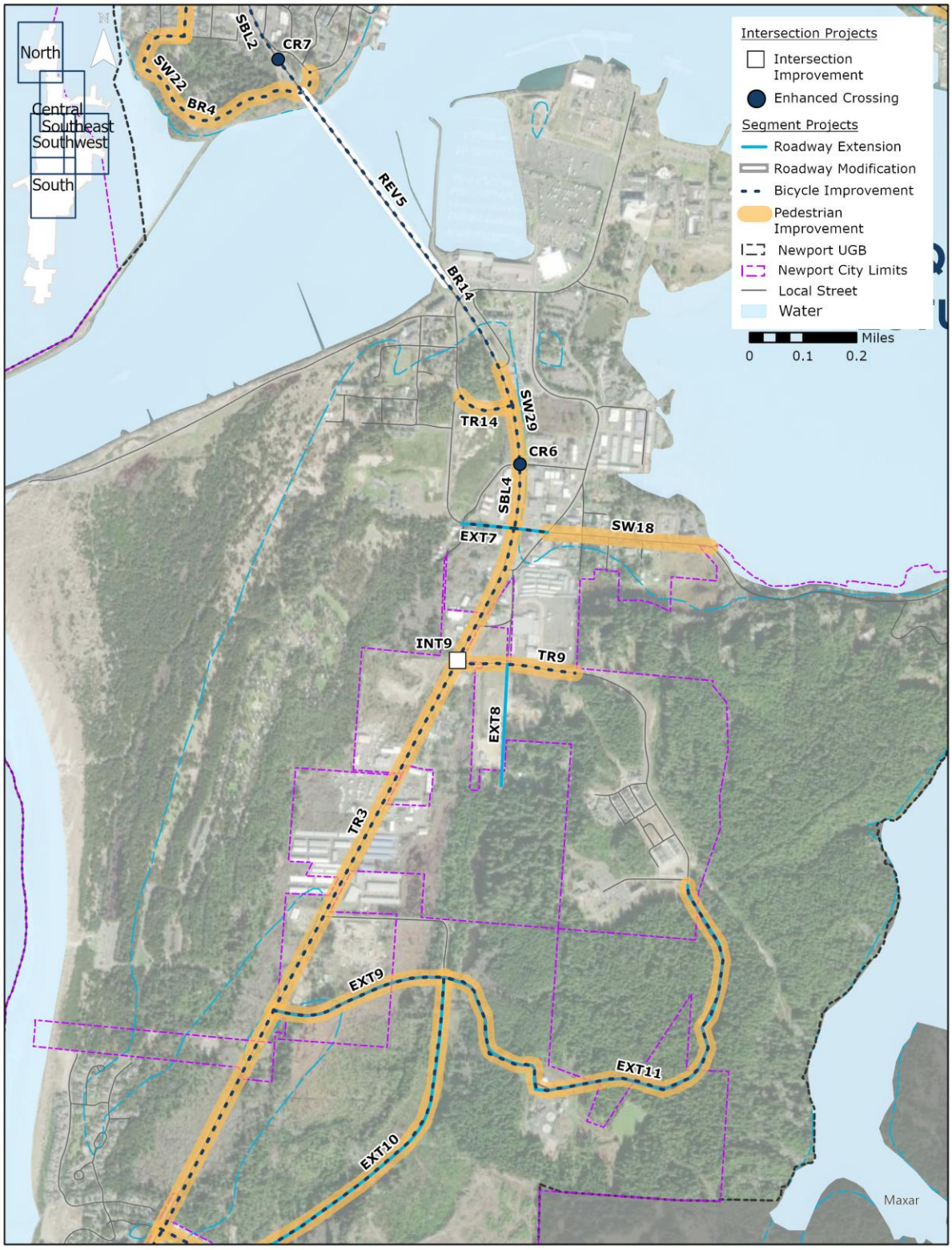
SBL: Project installs a separated bike facility

BL: Project installs on-street bike lanes

CR: Project installs an enhanced crossing for pedestrians and bicyclists

PRO: Project creates a new city program to manage the transportation system

FIGURE 5: RECOMMENDED PROJECTS (SOUTH BEACH)



Programmatic Improvements

In addition to the citywide improvements, programmatic strategies were also identified to support improved transportation system operations within Newport. These programmatic recommendations are summarized below in Table 8. Since these programmatic strategies are citywide in nature, these improvements are not shown on any particular map.

TABLE 8: RECOMMENDED PROJECTS (CITYWIDE)

PROJECT ID	LOCATION	DESCRIPTION
PRO1	Parking Management	Implement additional parking management strategies for the Nye Beach and Bayfront Areas. Strategies could include metering, permits, or other time restrictions
PRO2	Transportationd Demand Management	Implement strategies to enhance transit use in Newport. Specific strategies could include public information, stop enhancements, route refinement, or expanded service hours
PRO3	Neighborhood Traffic Management	Implement a neighborhood traffic management program Note: specific considerations for neighborhood traffic management treatments are outlined in Technical Memo #10: Transportation Standards
PRO4	Yaquina Bay Ferry Service	Implement a foot ferry for bicyclists and pedestrians across Yaquina Bay

Note the following abbreviations correspond to different project types:

INT: Project constructs capacity improvements at an intersection

EXT: Project extends a new roadway

REV: Project changes existing traffic patterns or striping on a roadway segment

SW: Project completes existing sidewalk gaps on a roadway segment

TR: Project constructs a new shared use path for pedestrians and bicyclists

BR: Project installs a neighborhood bike route

SBL: Project installs a separated bike facility

BL: Project installs on-street bike lanes

CR: Project installs an enhanced crossing for pedestrians and bicyclists

PRO: Project creates a new city program to manage the transportation system

MINOR ROADWAY IMPROVEMENT ALTERNATIVE TRANSPORTATION PERFORMANCE

The intersection improvements identified as part of the minor roadway improvement alternatives were tested in Synchro to assess their operations performance relative to the future system baseline. Operations results are summarized below in Table 9 for locations that exceed their mobility target under the baseline conditions only. Full operational results are provided in the appendix.

The minor roadway improvement alternatives resolved operational issues at most study intersections, although three intersections are still expected to exceed their mobility target in summer 2040 traffic conditions, including:

- US 101/Oceanview: this intersection is expected to be at its mobility target under summer 2040 traffic conditions. Adopting an alternate mobility target for this intersection based on average weekday traffic conditions could also be considered at this location.
- US 101/US 20: several alternatives, including an alternate mobility target, have been considered for this intersection. These solutions result in a v/c ratio between 0.91 and 0.93. While these options still exceed the mobility target, these operations are consistent with operations under existing summer traffic conditions. Implementing one of these solutions in conjunction with an alternate mobility target could be considered at this location.
- US 101/Angle: high traffic volumes on US 101 significantly delay left turn and through vehicles on Angle Street under summer 2040 traffic conditions. The proposed solution does not change left turn or through traffic operations at this intersection, but it does provide an operational benefit for right turning traffic. The existing grid system in downtown Newport provides opportunities for left turn or through traffic to access US 101 at adjacent signals, so more restrictive measures are not recommended for this location. Adopting an alternate mobility target for this intersection based on average weekday traffic conditions could also be considered at this location.

Alternate mobility targets increase the acceptable level of congestion at specific intersections rather in lieu of a capital project. As part of the 2012 South Beach TSP, alternate mobility targets were adopted for intersections on US 101 in South Beach. For a location with high seasonal traffic demands, adopting alternate mobility targets would increase the acceptable level of congestion during peak travel months. Existing traffic volume data for Newport indicates that seasonal summer traffic occurs between May and September, so adopting alternate mobility targets would permit increased vehicle traffic delay on state highway facilities for nearly half of the year.

TABLE 9: COMPARISON OF SUMMER 2040 OPERATIONAL RESULTS WITH AND WITHOUT MINOR ROADWAY IMPROVEMENTS

#	STUDY INTERSECTION	INTERSECTION CONTROL	MOBILITY TARGET	BASELINE SUMMER – 2040: V/C RATIO	SOLUTION STRATEGY	MINOR ROADWAY IMPROVEMENTS SUMMER – 2040: V/C RATIO
1	US 101/73rd	Urban 4ST	0.8/0.90	**0.55/1.57**	Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions Note: the minor roadway improvements alternative assumes a traffic signal is constructed	0.75
2	US 101/52nd*	Urban 4SG	0.8	**0.89**	Implement an alternate mobility target based on the average weekday condition	0.78
3	US 101/Oceanview	Urban 3ST	0.8/0.90	**0.72/1.12**	Widen the eastbound NW Oceanview Drive approach to include separate left and right turn lanes	**0.72/0.9**
9	US 101/US 20	Urban 4SG	0.85	**0.99**	See Table 5	**0.91 to 0.93** - See Table 5
10	US 101/Angle	Urban 4ST	0.90/0.95	**0.49/>2.00**	Restripe SW Angle Street approaches to right-in/right-out only	0.38/0.31
11	US 101/Hurbert	Urban 4SG	0.9	**0.90**	Restripe US 101 approaches to include left turn lanes and modify signal to include protected left turn phases for US 101 (project removes on-street parking)	0.55
13	US 20/Benton	Urban 4ST	0.85/0.95	**0.46/1.05**	Restripe northbound approach to include a right turn pocket (project removes on-street parking)	0.43/0.53

TABLE 9: COMPARISON OF SUMMER 2040 OPERATIONAL RESULTS WITH AND WITHOUT MINOR ROADWAY IMPROVEMENTS

#	STUDY INTERSECTION	INTERSECTION CONTROL	MOBILITY TARGET	BASELINE SUMMER – 2040: V/C RATIO	SOLUTION STRATEGY	MINOR ROADWAY IMPROVEMENTS SUMMER – 2040: V/C RATIO
14	US 20/Moore	Urban 4SG	0.85	**0.85**	Complete an intersection control evaluation: either a traffic signal (with separate left turn lanes on the northbound and southbound approaches) or a roundabout are potential solutions Note: the minor roadway improvements alternative assumes turn lanes are constructed	0.63

Note: **bolded** values indicate a location exceeds its mobility target

*Reported using HCM 2000

MAJOR ROADWAY IMPROVEMENT ALTERNATIVES

Limited local street connectivity in Newport along with a heavy seasonal traffic demand is projected to create unacceptable congestion by 2040 during the PM peak period for both US 101 and US 20. The major roadway improvement alternatives were designed to mitigate congestion on these corridors by increasing roadway capacity and constructing enhanced bicycle and pedestrian facilities.

COMMERCIAL CORE ALTERNATIVES – US 101 COUPLETS

The existing alignment and design of US 101 in downtown Newport creates significant challenges for the city, including:

- Congestion due to high vehicle volumes
- Significant delay at the US 101/US 20 intersection
- Limited access to local businesses and the hospital due to high delay for side streets
- Narrow on-street parking
- No existing bike facilities
- Limited pedestrian facilities
- Limited economic development opportunities in downtown core compared to other city districts (*e.g.* Nye Beach)

A couplet on US 101 was one solution identified to address some of the existing deficiencies of US 101 through Newport. Both a short and long couplet alternative were identified as candidate treatments; the extents of these couplets and potential project impacts are identified on the

following figures. The short couplet alternative extends from SW Fall Street to SW Angle Street while the long couplet alternative extends from SW Abbey Street to SW Angle Street. A review of these alternatives identified the following opportunities and constraints for the short and long couplet alternatives:

- The US 101 couplet appears to fix existing operational issues along portions of US 101 but will likely require additional intersection improvements for SW 9th Street (see below)
- Converting the US 101 alignment to one-way southbound will significantly reduce vehicle delay at the US 101/SW Hurbert Street signal by eliminating the existing split phasing
- Northbound traffic on US 101 that intends to travel east on US 20 is more likely to bypass the US 101/US 20 intersection with development of the couplet, instead turning right at NE Benton Street
- Creating new highway couplets can be an economic redevelopment tool by increasing the available commercial frontage along the highway and better utilizing the exiting street space to safely accommodate all modes of travel
- The proposed cross-sections for US 101 and SW 9th Street alignments should include significant enhancements for bicyclists and pedestrians
- Couplet termini:
    - The current geometry of the US 101/SW 9th Street intersection is well-designed to transition northbound traffic to SW 9th Street with minimal, if any, impacts to existing businesses. However, the recent hospital expansion includes parking access to SW 9th Street and SW Bay Street which would be impacted for southbound traffic if SW 9th Street is converted to one-way.
    - Beginning a couplet further north (*i.e.* at the SW Fall Street intersection) would mitigate the impacts to the hospital access, but would result in significantly higher right-of-way impacts
    - The US 101/SW Angle Street intersection is one option for the northern couplet terminus. This option would convert SW Angle Street to one-way between US 101 and SW 9th Street. Potential impacts could include:
        - Remove the existing angled on-street parking on one side or convert both sides to parallel parking
        - Shorten or remove the existing curb extensions on SW Angle Street at SW 9th Street and US 101
        - Remove off-street parking or open space areas if SW Angle Street is realigned to provide a smoother transition for US 101

Intersection operations for all study intersections located on the US 101 couplet were evaluated to identify spot improvements that would be needed in conjunction with implementation; these results are summarized in Table 10. Due to the potential for diversion of northbound traffic to the US 20/Benton Street intersection, operational results for this intersection are also included in Table 10. All operational deficiencies resulting from construction of the US 101 couplet are tied to existing two-way stop control intersections where higher traffic volumes lead to increased side street delay. Restricting parking adjacent to these intersections and restriping the approaches to include separate turn lanes can mitigate some of these operational deficiencies although alternate mobility targets could also be considered.

TABLE 10: COMPARISON OF SUMMER 2040 OPERATIONAL RESULTS WITH AND WITHOUT US 101 COUPLET							
#	STUDY INTERSECTION	INTERSECTION CONTROL	MOBILITY TARGET	BASELINE SUMMER – 2040: V/C RATIO	US 101 LONG COUPLET SUMMER – 2040: V/C RATIO	SOLUTION STRATEGY	US 101 LONG COUPLET WITH RECOMMENDED SOLUTIONS: V/C RATIO
10	US 101/Angle	Urban 4ST	0.90/0.95	**0.49/ >2.00**	0.38/0.06	N/A	0.38/0.06
11	US 101/Hurbert	Urban 4SG	0.9	**0.90**	0.54	N/A	0.54
12	US 101/Bayley	Urban 4ST	0.90/0.95	0.41/0.79	**0.39/1.42***	Restripe eastbound and westbound approaches to provide right turn lanes (project removes on-street parking)	**0.39/1.11***
13	US 20/Benton	Urban 4ST	0.85/0.95	**0.46/1.05**	0.22/0.64	N/A	0.22/0.64
18	Hurbert/9th	Urban 4ST	0.95/0.95	0.06/0.44	**0.48/1.23**	Restripe eastbound approach to provide a left turn lane and restripe westbound approach to provide a right turn lane (project removes on-street parking)	**0.48/1.03**
19	Abbey/9th	Urban 4ST	0.95/0.95	0.09/0.23	**0.41/1.35***	Restripe eastbound approach to provide a left turn lane and restripe westbound approach to provide a right turn lane (project removes on-street parking)	0.41/0.94*

Note: **bolded** values indicate a location exceeds its mobility target

*Intersection operations would likely not be impacted under the short couplet alternative

FIGURE 6: DOWNTOWN CIRCULATION OPTION 1 – US 101 LONG COUPLET

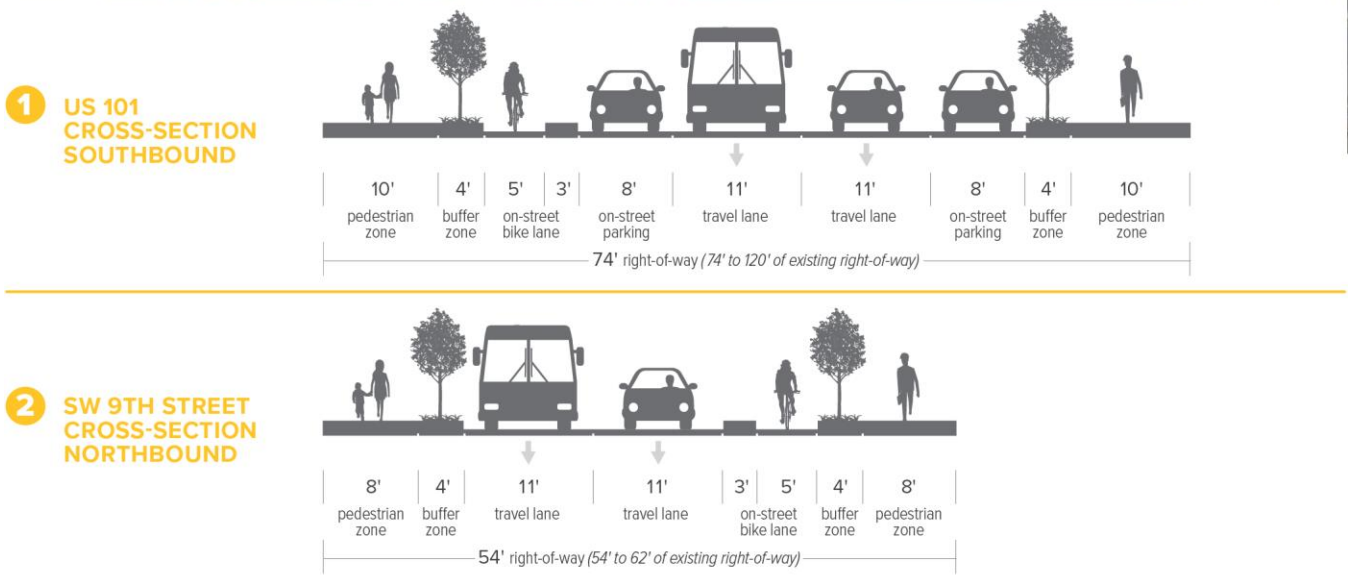
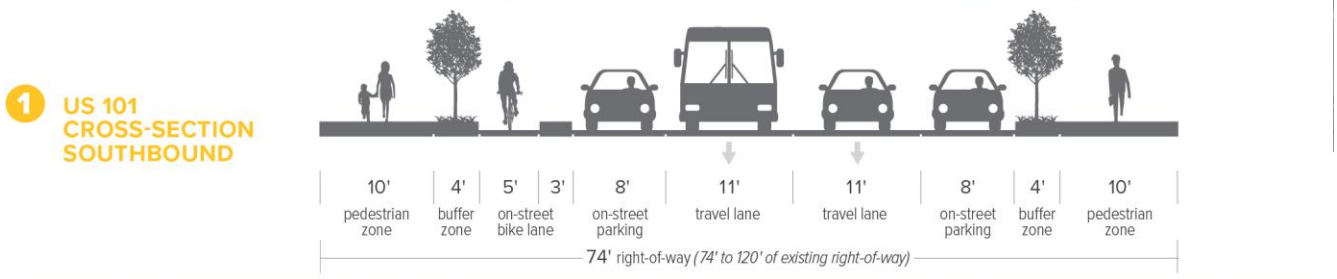
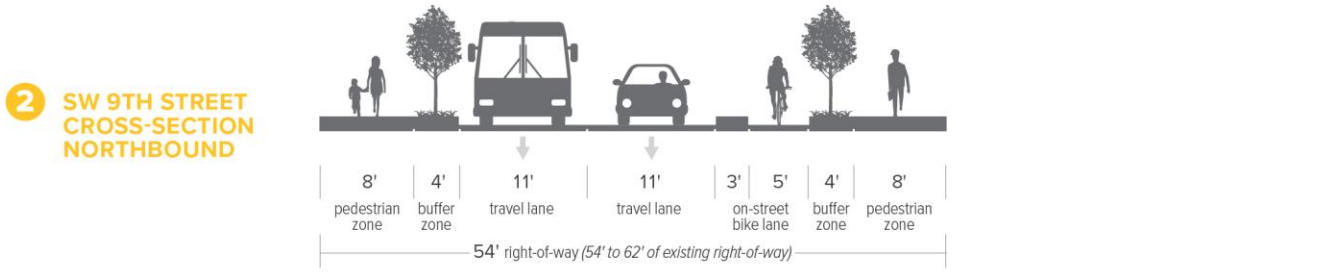


FIGURE 7: DOWNTOWN CIRCULATION OPTION 2 – US 101 SHORT COUPLET





COMMERCIAL CORE ALTERNATIVES – US 20 COUPLET

The existing alignment and design of US 20 in downtown Newport creates significant challenges for the city, including:

- Congestion due to high vehicle volumes
- Significant delay at the US 101/US 20 intersection
- Limited access to local businesses due to high delay for side streets
- Limited available right-of-way for future expansions
- No existing bike facilities
- Limited pedestrian facilities
- Limited economic development opportunities in downtown core compared to other city districts (*e.g.* Nye Beach)

A couplet on US 20 was one solution identified to address some of the existing deficiencies of US 20 through Newport. The proposed couplet will extend between Moore Drive and US 101. A review of this alternative identified the following opportunities and constraints for the US 20 couplet alternative:

- The US 20 couplet appears to fix existing operational issues along US 20 and US 101; however, the intersection of US 101/US 20 will require additional improvements
- Even with the US 20 couplet, recommended improvements at NE Harney Street and SE Moore Drive should still be made.
- Completing the US 20 couplet reduces vehicle diversion in neighborhoods to the north of US 20 since the proposed couplet will add capacity for westbound traffic
- Creating new highway couplets can be an economic redevelopment tool by increasing the available commercial frontage along the highway and better utilizing the exiting street space to safely accommodate all modes of travel
- The new cross-sections for US 20 couplet should include significant enhancements for bicyclists and pedestrians
- Couplet termini:
    - Beginning the couplet immediately west of the NE Harney Street/SE Moore Drive intersection minimizes the property impacts and new roadway construction needed.
    - Maintaining the current US 101/US 20 intersection location would require that westbound US 20 is shifted back to the current US 20 alignment prior to the intersection which would result in significant property impacts. This tie-in option would also not improve operations for the US 101/US 20 intersection

Intersection operations for all study intersections located on the US 20 couplet were evaluated to identify spot improvements that would be needed in conjunction with implementation; these results are summarized in Table 11. Operational issues related to construction of the US 20 couplet are expected at the existing traffic signals at US 101 and NE Harney Street/SE Moore Drive. Congestion near the US 101/US 20 intersection can be relieved by providing dual westbound left and right turn lanes when the westbound couplet approach is reconstructed in conjunction with signal modifications that allow for a westbound right turn overlap phase. In lieu of these dual turn lanes, previously identified solution strategies for the US 101/US 20 intersection could be applied to better manage traffic congestion with completion of the US 20 couplet. Most of the congestion at the NE Harney Street/SE Moore Drive intersection will be alleviated by completing the previously

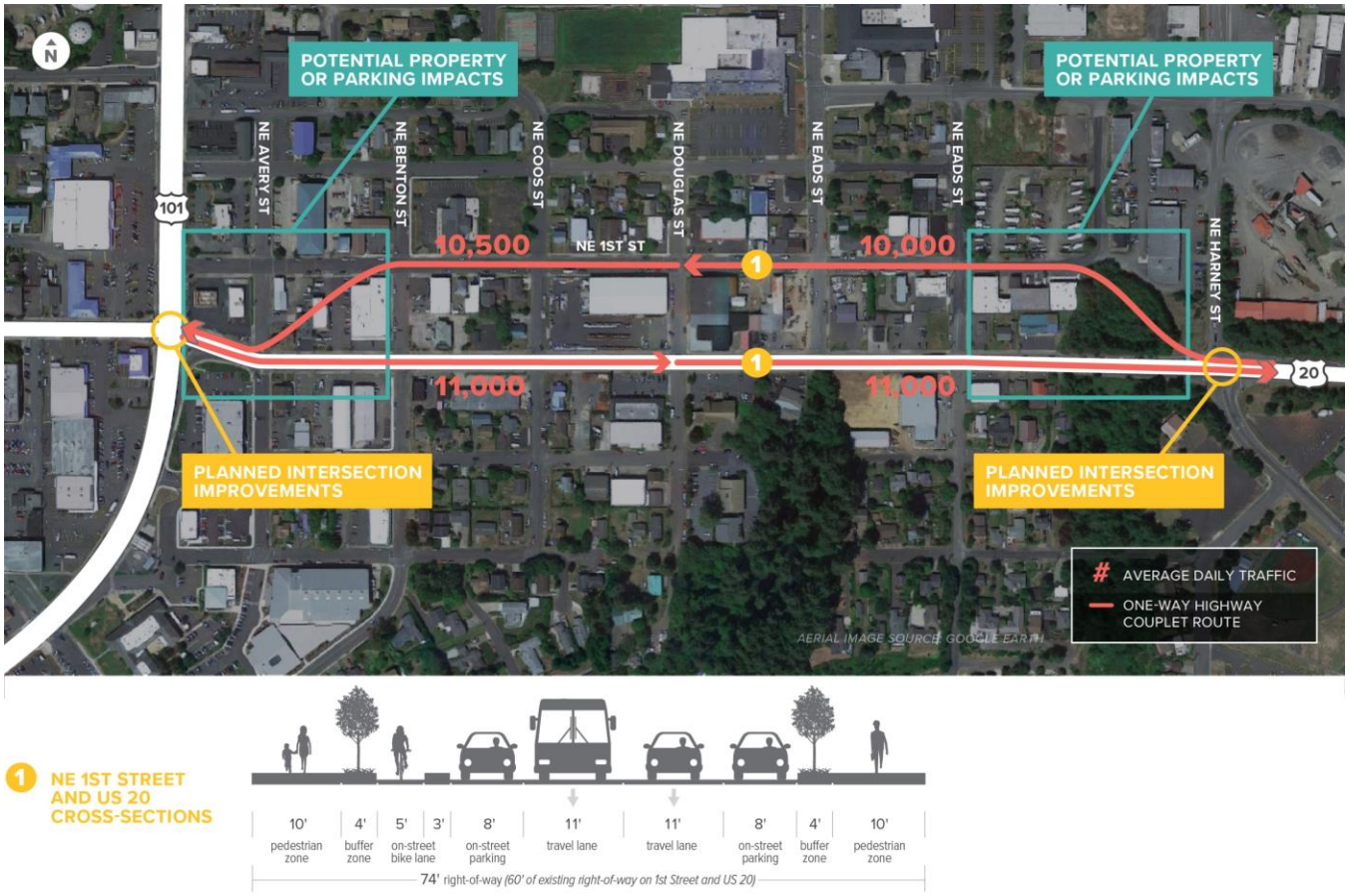
identified spot improvement at this intersection (INT6). However, restriping the westbound right turn lane to a shared through/right turn lane will also increase the capacity of this intersection.

TABLE 11: COMPARISON OF SUMMER 2040 OPERATIONAL RESULTS WITH AND WITHOUT US 20 COUPLET

#	STUDY INTERSECTION	INTERSECTION CONTROL	MOBILITY TARGET	BASELINE SUMMER – 2040: V/C RATIO	US 20 COUPLET SUMMER – 2040: V/C RATIO	SOLUTION STRATEGY	US 20 COUPLET WITH RECOMMENDED SOLUTIONS: V/C RATIO
9	US 101/US 20	Urban 4SG	0.85	**0.99**	**1.40**	Construct dual westbound right turn lanes and dual westbound left turn lanes and modify the traffic signal to include an overlap phase for westbound right turns	**0.90**
13	US 20/Benton	Urban 4ST	0.85/0.95	**0.46/1.05**	0.22/0.64	N/A	0.22/0.64
14	US 20/Harney-Moore	Urban 4SG	0.85	**0.85**	**1.22**	Widen (as necessary) and restripe to construct left turn lanes on the northbound and southbound approaches and restripe the existing westbound right turn lane to be a shared through/right-turn lane	0.64

Note: **bolded** values indicate a location exceeds its mobility target

FIGURE 8: DOWNTOWN CIRCULATION OPTION 3 – US 20 COUPLET



HARNEY STREET EXTENSION ALTERNATIVES

Newport does not have a parallel route on the east side of US 101 to connect future growth areas to the downtown core. The Harney Street Extension will construct a new minor arterial road between NE 7th Street and NE Big Creek Road before connecting to US 101 at the proposed NE 36th Street traffic signal. This extension will provide a continuous connection between US 20 and NE 36th Street with limited access to amenities along US 101 north of NE 7th Street. The Harney Street extension will also provide a critical connection to serve future growth in this area.

The proposed Harney Street Extension was evaluated for its potential impact to traffic operations on US 101 and US 20 and to identify any necessary improvements along the route. Key Findings include:

- The Harney Street Extension is expected to serve primarily regional traffic travelling between US 20 and US 101 to the north of Newport and future growth areas along this corridor. The projected ADT will be between 4,000 and 7,000 vehicles per day in 2040.
- This new extension provides limited connections for most Newport drivers since it provides an indirect connection between limited areas of the city. Constructing this extension will not significantly relieve congestion on US 101 in Newport.

Operations for study intersections along the Harney Street Extension both with and without the connection are summarized in Table 12. Constructing the Harney Street Extension does not significantly impact vehicle operations at the US 101/NE Harney Street/SE Moore Drive intersection relative to the 2040 summer baseline. The proposed spot improvements at this location (INT6) will be sufficient to resolve the anticipated congestion if the Harney Street extension is built. While the US 101/NE 36th Street intersection will not exceed its mobility target with construction of the Harney Street extension, signalization at this intersection could be desirable to facilitate access to and from this corridor. This intersection is expected to exceed its mobility target under summer 2040 conditions with construction of a traffic signal, so adopting an alternate mobility target would also be needed at this location.

TABLE 12: COMPARISON OF SUMMER 2040 OPERATIONAL RESULTS WITH AND WITHOUT US 20 COUPLET

#	STUDY INTERSECTION	INTERSECTION CONTROL	MOBILITY TARGET	BASELINE SUMMER – 2040: V/C RATIO	HARNEY STREET EXTENSION SUMMER – 2040: V/C RATIO	SOLUTION STRATEGY	HARNEY STREET EXTENSION WITH RECOMMENDED SOLUTIONS: V/C RATIO
4	US 101/36th	Urban 3ST	0.8/0.95	0.68/0.24	0.69/0.75	Install a traffic signal*	**0.87**

TABLE 12: COMPARISON OF SUMMER 2040 OPERATIONAL RESULTS WITH AND WITHOUT US 20 COUPLET							
#	STUDY INTERSECTION	INTERSECTION CONTROL	MOBILITY TARGET	BASELINE SUMMER – 2040: V/C RATIO	HARNEY STREET EXTENSION SUMMER – 2040: V/C RATIO	SOLUTION STRATEGY	HARNEY STREET EXTENSION WITH RECOMMENDED SOLUTIONS: V/C RATIO
14	US 20/Moore	Urban 4SG	0.85	**0.85**	**0.92**	Widen (as necessary) and restripe to construct left turn lanes on the northbound and southbound approaches	0.70
17	Harney/7th	Urban 4ST - AWSC	0.95	0.22	0.88	Retain the existing all-way stop control or construct a mini-roundabout	0.88

Note: **bolded** values indicate a location exceeds its mobility target

*Although the NE 36th Street approach does not exceed its mobility target with the Harney Street Extension, high side-street delay makes signalization desirable for a major parallel route to US 101

FIGURE 9: PROPOSED HARNEY STREET ALIGNMENT

COMPARISON OF IDENTIFIED TRANSPORTATION SOLUTIONS

Four major sets of solutions were identified for Newport, including:

- **Minor roadway improvements** which include spot motor vehicle improvements, minor roadway extensions, enhancements to the pedestrian and bicycle network, and other programmatic improvements
- **Major roadway improvements** which include the previously identified minor roadway improvements and one of the following major street improvement projects:
  - **US 101 Couplets**
  - **US 20 Couplet**
  - **Harney Street Extension**

A detailed evaluation for each of these solution strategies is included in the prior sections. This analysis was used to compare each solution strategy to each other and to highlight key differences between each of the alternatives. This comparison is summarized below in Table 13.

TABLE 13: SOLUTION STRATEGY COMPARISON

EVALUATION CRITERIA	EXPLANATION	MINOR ROADWAY IMPROVEMENTS	US 101 LONG COUPLET	US 101 SHORT COUPLET	US 20 COUPLET	HARNEY STREET EXTENSION
PEDESTRIAN TRAVEL ON LOCAL STREETS	All scenarios include sidewalk infill on the local street network resulting in *better* conditions for pedestrians.	▲	▲	▲	▲	▲
PEDESTRIAN TRAVEL ON HIGHWAY	All scenarios recommend construction of shared use paths along US 101 for *better* pedestrian facilities. The couplet scenarios also include streetscape and pedestrian improvements along the highway in downtown Newport resulting in the *best* conditions for pedestrians.	▲	▲▲	▲▲	▲▲	▲
BICYCLE TRAVEL ON LOCAL STREETS	All scenarios include new bicycle facilities on the local street network resulting in *better* conditions for cyclists.	▲	▲	▲	▲	▲

TABLE 13: SOLUTION STRATEGY COMPARISON						
EVALUATION CRITERIA	**EXPLANATION**	**MINOR ROADWAY IMPROVEMENTS**	**US 101 LONG COUPLET**	**US 101 SHORT COUPLET**	**US 20 COUPLET**	**HARNEY STREET EXTENSION**
BICYCLE TRAVEL ON HIGHWAY	All scenarios recommend construction of shared use paths along US 101 for *better* bicycle facilities. The couplet scenarios also include bicycle lanes on the highway in downtown Newport resulting in the *best* conditions for bicyclists.	▲	▲▲	▲▲	▲▲	▲
VEHICLE OPERATIONS	All scenarios recommend construction of intersection enhancements and minor roadway extensions which can increase the capacity of the existing transportation system. These improvements result in *better* conditions for motor vehicles. The couplet scenarios and the Harney Street extension provide significant new capacity for motor vehicles resulting in the *best* conditions for motor vehicles.	▲▲	▲▲	▲▲	▲▲	▲▲

TABLE 13: SOLUTION STRATEGY COMPARISON						
EVALUATION CRITERIA	**EXPLANATION**	**MINOR ROADWAY IMPROVEMENTS**	**US 101 LONG COUPLET**	**US 101 SHORT COUPLET**	**US 20 COUPLET**	**HARNEY STREET EXTENSION**
HOSPITAL ACCESS	The US 101 long couplet alternative significantly increases volumes on SW 9th Street in front of the hospital. Increased traffic volumes can make it more challenging for people on foot or in vehicles to reach the hospital in the event of an emergency, resulting in *worse* access conditions. All other alternatives will not significantly change access conditions for the hospital.	–	▼	–	–	–

TABLE 13: SOLUTION STRATEGY COMPARISON						
EVALUATION CRITERIA	**EXPLANATION**	**MINOR ROADWAY IMPROVEMENTS**	**US 101 LONG COUPLET**	**US 101 SHORT COUPLET**	**US 20 COUPLET**	**HARNEY STREET EXTENSION**
ECONOMIC REDEVELOPMENT POTENTIAL	Increasing developable land fronting a highway can spur economic growth and redevelopment through increased traffic. Both the US 20 and US 101 short couplet alternatives will increase properties fronting the highway resulting in *better* conditions for economic redevelopment. The US 101 long couplet increases the total length and provides even more development opportunities which can create the *best* redevelopment conditions. Both the minor roadway improvements and Harney Street extension scenarios will not significantly increase access to developable commercial lands.	–	▲▲	▲	▲	–

TABLE 13: SOLUTION STRATEGY COMPARISON						
EVALUATION CRITERIA	**EXPLANATION**	**MINOR ROADWAY IMPROVEMENTS**	**US 101 LONG COUPLET**	**US 101 SHORT COUPLET**	**US 20 COUPLET**	**HARNEY STREET EXTENSION**
STREETSCAPE POTENTIAL	The revised roadway standards for Newport will ensure that new or improved roadways will provide *better* streetscape opportunities under all scenarios. Developing new couplets for both US 101 and US 20 provides an opportunity to also improve the existing roadway streetscape along the highway. These alternatives have the *best* streetscape potential.	▲	▲▲	▲▲	▲▲	▲

COST	The minor roadway improvements alternative does not include any large capital projects, so this alternative is comparatively *low* cost. The US 101 long couplet alternative includes a major capital project but utilizes the existing roadway network to minimize right-of-way costs relative to the other major capital projects. This alternative is comparatively *medium* cost. The US 101 short couplet, US 20 couplet, and Harney Street extension alternatives are all expected to require significant capital funds for construction due to either right-of-way costs or topographical constraints. These alternatives are comparatively *high* cost. Detailed cost estimates will be prepared during the next project phase.	$	$$	$$$	$$$	$$$

NOTES:

▲▲ = ALTERNATIVE PROVIDES *BEST* OUTCOME FOR EVALUATION CRITERIA

TABLE 13: SOLUTION STRATEGY COMPARISON

EVALUATION CRITERIA	EXPLANATION	MINOR ROADWAY IMPROVEMENTS	US 101 LONG COUPLET	US 101 SHORT COUPLET	US 20 COUPLET	HARNEY STREET EXTENSION
▲ = ALTERNATIVE PROVIDES *BETTER* OUTCOME FOR EVALUATION CRITERIA						
▬ = ALTERNATIVE PROVIDES *NEUTRAL* OUTCOME FOR EVALUATION CRITERIA						
▼ = ALTERNATIVE PROVIDES *WORSE* OUTCOME FOR EVALUATION CRITERIA						
$ = LOW-COST ALTERNATIVE						
$$ = MEDIUM-COST ALTERNATIVE						
$$$ = HIGH-COST ALTERNATIVE						

APPENDIX

CONTENTS

DKS

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SECTION 1. EVALUATION CRITERIA DEFINITIONS

SECTION 2. PROJECT LIST

Project ID	Location	Extents		Description
		From	To	
INT1	US 101/NE 73rd Street			Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions
INT3	US 101/NW Oceanview Drive			Widen the eastbound NW Oceanview Drive approach to include spearate left and right turn lanes
INT4	US 101/US 20			Construct intersection improvements
INT5	US 101/SW Hurbert Street			Restripe US 101 approaches to include left turn lanes and modify signal to include protected left turn phases for US 101 (project removes on-street parking)
INT6	US 101/SE Moore Drive/NE Harney Street			Complete an intersection control evaluation: either a traffic signal (with separate left turn lanes on the northbound and southbound approaches) or a roudnabout are potential solutions
INT7	US 101/SW Angle Street			Restripe SW Angle Street approaches to right-in/right-out only
INT8	US 101/NE 36th Street			Complete an intersection control evaluation: either a Itraffic signal (with separate left and right turn lanes for westbound traffic) or roundabout are potential solutions
INT9	US 101/SW 40th Street			Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions
INT10	US 20/Benton Street			Restripe northbound approach to include a right turn pocket (project removes on-street parking)
INT11	US 101/NW 6th Street			Realign intersection
INT12	US 101/NE 57th Street			Realign approach to align with NW 58th Street
EXT1	NW Gladys Street	NW 55th Street	NW 60th Street	Extend NW Gladys Street to create a continuous neighborhood collector street
EXT3	NE 6th Street	NE 6th Street	NE Yaquina Heights Drive	Extend NE 6th Street to create a continuous neighborhood collector
EXT4	NE Harney Street	NE 7th Street	NE Big Creek Road	Extend NE Harney Street to a create a continuous major collector street and install a mini roundabout (i.e., roundabout with a mountable center island to accommodate school buses or large trucks) at the intersection of NE Harney Street/NE 7th Street
EXT7	SW 35th Street	SW Abalone Street	SE Ferry Slip Road	Extend SW 35th Street to create a continuous major collector street and construct a shared use path on one side only
EXT8	SE Ash Street	SE 40th Street	SE 42nd Street	Extend SE Ash Street to create a continuous major collector street
EXT9	SE 50th Street	US 101	SE 50th Place	Realign SE 50th Street south to create a continuous major collector street between the existing alignment and the entrance to South Beach State Park and construct a shared use path on one side only
EXT10	SE 62nd Street	End	SE 50th Street	Extend SE 62nd Street north to create a continuous major collector street between the existing terminus and SE 50th Street and construct a shared use path on one side only
EXT11	SE 50th Street	SE 62nd Street	SE Harborton Street	Extend SE 50th Street to create a continuous major collector street between the SE 50th/SE 62nd intersection and SE Harborton Street and construct a shared use path on one side only
EXT12	NW Nye Street	NW Oceanview Drive	NW 15th Street	Extend NW Nye Street to create a continuous neighborhood collector street between NW Oceanview Drive and NW 15th Street
REV1	NE 31st Street	NE 32nd Street	NE Harney Street	Reconfigure NE 31st Street to serve pedestrians, bicycles, and emergency vehicles only Note this project is currently being refined and will only be advanced with the provision of two access points for all residents east of US 101

Project ID	Location	Extents From	To	Description
REV5	Yaquina Bay Bridge Refinment Plan			Conduct a study to identify the preferred alignment of a replacement bridge, typical cross-section, implementation, and feasibility, and implement long-term recommendations from the Oregon Coast Bike Route Plan
SW1	NW 3rd Street	NW Brook Street	NW Nye Street	Complete existing sidewalk gaps using either standard sidewalk or restripe to provide a designated pedestrian walkway in-street
SW2	NE 3rd Street	NE Eads Street	NE Harney Street	Complete existing sidewalk gaps
SW3	SW Elizabeth Street	W Olive Street	SW Government Street	Complete existing sidewalk gaps
SW5	NE 6th Street	US 101	NE Avery Street	Complete existing sidewalk gaps (project will impacat off-street parking)
SW6	NE 7th Street	NE Eads Street	NE 6th Street	Complete existing sidewalk gaps
SW8	NE Harney Street	US 20	NE 3rd Street	Complete existing sidewalk gaps
SW9	US 20	NE Fogarty Street	NE Harney Street	Complete existing sidewalk gaps
SW10	SW Abbey Street/SW Harbor Way	SW 6th Street	SW 13th Street	Complete existing sidewalk gaps. Sidewalk gaps may be completed on one side only in areas with significant topography
SW11	SE Benton Street/SE 2nd Street/SE Coos Street/NE Benton Street	SE 10th Street	NE 12th Street	Complete existing sidewalk gaps
SW12	SW 2nd Street	SW Elizabeth Street	SW Nye Street	Complete existing sidewalk gaps
SW13	NW Nye Street	W Olive Street	NW 15th Street	Complete existing sidewalk gaps
SW14	NW/NE 11th Street	NW Spring Street	NE Eads Street	Complete existing sidewalk gaps
SW16	NW Edenview Way/NE 20th Street	NW Oceanview Drive	NE Crestview Drive	Complete existing sidewalk gaps
SW17	NW 60th Street	US 101	NW Gladys Street	Complete existing sidewalk gaps
SW18	SE 35th Street	SE Ferry Slip Road	South Beach Manor Memory Care	Complete existing sidewalk gaps on north side only
SW19	NW 8th Street/NW Spring Street	NW Coast Street	NW 11th Street	Complete existing sidewalk gaps
SW20	NW Gladys Street/NW 55th Street	NW 60th Street	US 101	Complete existing sidewalk gaps
SW21	US 101	NW 25th Street	NW Oceanview Drive	Complete sidewalk infill on east side of US 101 only Note the specified side is subject to modification
SW22	Yaquina Bay State Park Drive	SW Elizabeth Street	SW Naterlin Drive	Complete existing sidewalk gaps and install enhanced pedestrian crossings within the Yaquina Bay State Recreation Site Note proposed improvements should be consistent with the Yaquina Bay State Recreation Site Master Plan
SW23	SW Bay Boulevard	SE Fogarty Street	SE Moore Drive	Complete existing sidewalk gaps
SW24	NW 55th Street	NW Glady Street	NW Piney Street	Complete existing sidewalk gaps
SW25	NE Harney Street/NE 36th Street	US 101	NE Big Creek Road	Complete existing sidewalk gaps
SW26	NE Avery Street/NE 71st Street	US 101	NE Echo Court	Complete existing sidewalk gaps
SW27	NE 12th Street	US 101	NE Benton Street	Complete existing sidewalk gaps
SW28	SW Bayley Street	SW Elizabeth Street	US 101	Complete existing sidewalk gaps
SW29	US 101	SE Pacific Way	SW 35th Street	Complete existing sidewalks gaps Note this project is currently being constructed
SW30	Yaquina Bay Road	SE Vista Drive	SE Running Spring	Complete existing sidewalk gaps on north side only
TR1	NW Oceanview Drive	US 101	NW Nye Street Extension	Construct a shared use path on one side only

Project ID	Location	Extents From	Extents To	Description
TR2	US 101 (North)	NW Oceanview Drive	North UGB	Construct a shared use path on one side only. The proposed path will be located on the west side of US 101 south of NW Lighthouse Drive and on the east side of US 101 north of NW Lighthouse Drive. Sidewalk infill will be completed on the opposite side between NW 60th Street and NW Oceanview Drive. Shared use path project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path). Note the specified side and project extents are subject to modification
TR3	US 101 (South)	SE 35th Street	South UGB	Construct a shared use path on the west side of US 101 and complete existing sidewalk gaps on east side of US 101 Note the specidied side and project extents are subject to modification Note sidewalk on the east side of US 101 between SE 35th Street and SE Ferry Slip Road is currently being constructed
TR5	NW Lighthouse Drive	US 101	End	Construct a shared use path on one side only and other improvements as identified by the BLM/FHWA Note pedestrian/bicycle crossing improvements may be needed at the intersection of US 101/NW Lighthouse Drive
TR6	NE Big Creek Road	NE Fogarty Street	NE Harney Street	Construct a shared use path Note this project utilizes the existing roadway width but includes separation to designate one 12 ft. travel lane and an adjacent shared use path
TR7	NW Rocky Way	NW 55th Street	NW Lighhouse Drive	Construct a shared use path and other improvements as identified by the BLM/FHWA
TR9	SE 40th Street	US 101	SE Harborton Street	Construct a shared use path on one side only to complete existing gap
TR11	NW Nye Street	NW Oceanview Drive	NW 15th Street	Construct a shared use path in coordination with BL2 and SW13. Note this project should only be constructed in the event EXT12 is not constructed
TR12	SE 1st Street	SE Douglas Street	SE Fogarty Street	Construct a shared use path
TR13	US 101	NW Oceanview Drive	NW 25th Street	Construct a shared use path on the west side of US 101 Note the specified side and project extents are subject to modification
TR14	SW Abalone Street	US 101	SW Abalone Strett	Construct a shared use path on the south side of SW Abalone Street
BR1	NE 12th Street	US 101	NW Eads Street	Install signing and striping as needed to designate a bike route
BR2	NE Harney Street/NE 36th Street	NE Big Creek Road	US 101	Install signing and striping as needed to designate a bike route Note this project would be eliminate in favor of on-street bike lanes if the Harney Street extension is completed
BR3	NE Eads Street/NE 12th Street	NE 3rd Street	NE Fogarty Street	Install signing and striping as needed to designate a bike route
BR4	Yaquina Bay State Park Drive	SW Elizabeth Street	SW Naterlin Drive	Install signing and striping as needed to designate a bike route Note proposed improvements should be consistent with the Yaquina Bay State Recreation Site Master Plan
BR7	SW 2nd Street/SW Angle Street	SW Elizabeth Street	SW Nye Street	Install signing and striping as needed to designate a bike route

Project ID	Location	Extents		Description
		From	To	
BR9	NW Edenview Way/NE 20th Street	NW Oceanview Drive	NW Crestview Drive	Install signing and striping as needed to designate a bike route Restripe through US 101/NE 20th Street intersection to provide on-street bike lanes approximately between NW Edenview Way and the eastern Fred Meyer Driveway (project removes on-street parking on one side only)
BR10	NW 60th Street/NW Gladys Street/NW 55th Street	US 101	US 101	Install signing and striping as needed to designate a bike route through Agate Beach
BR12	NE Avery Street/NE 71st Street	US 101	NE Echo Court	Install signing and striping as needed to designate a bike route
BR13	NW 3rd Street	US 101	NW Cliff Street	Install signing and striping as needed to designate a bike route
BR14	Yaquina Bay Bridge Interim Improvements			Install signing and striping as needed to designate a bike route and implement other improvements as identified in the Oregon Coast Bike Route Plan such as flashing warning lights or advisory speed signs
BR15	NW Oceanview Drive Interim Improvements	US 101	NW Nye Street Extension	Install signing and striping as needed to designate a bike route and implement other improvements as identified in the Oregon Coast Bike Route Plan
BR16	NW 55th Street	NW Glady Street	NW Piney Street	Install signing and striping as needed to designate a bike route
BR17	NW 6th Street	NW Coast Street	NW Nye Street	Install signing and striping as needed to designate a bike route
BR18	NE 7th Street	NE Eads Street	NE 6th Street	Install signing and striping as needed to designate a bike route
BR19	NW Oceanview Drive/NW Spring Street/NW Coast Street	NW Nye Street Extension	W Olive Street	Install signing and striping as needed to designate a bike route
SBL1	SE Moore Drive/NE Harney Street	SE Bay Boulevard	NE 7th Street	Restripe to install buffered bike lanes between SE Bay Boulevard and US 20; Widen to install buffered bike lanes between US 20 and NE Yaquina Heights Drive; Restripe and upgrade the existing on-street bike lanes between NE Yaquina Heights Drive and NE 7th Street (project removes on-street parking on one side only) Note: limited additional widening may be required to accommodate INT6 turn lanes
SBL2	US 101	Yaquina Bay Bridge	SW 9th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification
SBL3	US 101	SW 9th Street	NW 25th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification
SBL4	US 101	Yaquina Bay Bridge	SE 35th Street	Construct a separated bicycle facility on US 101 Note the specified facility design and project extents are subject to review and modification
BL1	SW Canyon Way	SW 9th Street	SW Bay Bouelvard	Restripe to provide on-street bike lanes in uphill direction and mark sharrows in the downhill direction (project may convert existing angle parking near SW Bay Boulevard to parallel parking)
BL2	NW Nye Street	NW 15th Street	SW 2nd Street	Restripe NW Nye Street to include on-street bicycle lanes (project removes on-street parking on one side only)
BL4	SW 9th Street	US 101	SW Angle Street	Restripe or widen as needed to provide on-street bike lanes (project removes on-street parking) Note: this project does not assume the US 101 couplet is constructed
BL5	SW Bayley Street	US 101	SW Elizabeth Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only)
BL6	SW Hurbert Street	SW 9th Street	SW 2nd Street	Restripe to provide on-street bike lanes (existing angle parking will be converted to parallel parking on one side only)

Project ID	Location	Extents		Description
		From	To	
BL7	NW/NE 6th Street	NW Nye Street	NE Eads Street	Restripe or widen as needed to provide on-street bike lanes (project removes on-street parking on one side only)
BL8	NW/NE 11th Street	NW Spring Street	NE Eads Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only although on-street parking may be impacted on both sides of the street between NW Lake Street and NW Nye Street)
BL9	NE 3rd Street	NE Eads Street	NE Harney Street	Widen as needed to provide on-street bike lanes
BL10	NE Yaquina Heights Drive	NE Harney Street	US 20	Widen as needed to provide on-street bike lanes
BL11	SW 10th Street/SE 2nd Street/SE Coos Street/NE Benton Street	SW 9th Street	NE 11th Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only between NE 11th Street and US 20) Note 5 ft. bike lanes are acceptable between US 20 and SE 2nd Street
BL12	SW Elizabeth Street	SW Government Street	W Olive Street	Restripe to provide on-street bike lanes (project removes on-street parking on one side only)
BL13	W Olive Street	SW Elizabeth Street	US 101	Restripe to provide on-street bike lanes (project removes on-street parking on one side only) Note project requires modification of existing curb extensions at Coast Street; on-street bike lanes may terminate prior to the US 101 intersection to provide space for turn pockets
BL14	Yaquina Bay Road	SE Moore Drive	SE Running Spring	Restripe or widen as needed to provide on-street bike lanes
CR1	NW 60th Street/US 101			Install an enhanced pedestrian crossing
CR2	SE Coos Street/US 20			Install an enhanced pedestrian crossing
CR3	NW 55th Street/US 101			Install an enhanced pedestrian crossing
CR4	NE Eads Street/US 20			Install an enhanced pedestrian crossing
CR5	NW Oceanview/US 101			Install an enhanced pedestrian crossing
CR6	SE 32nd Street/US 101			Install an enhanced pedestrian crossing
CR7	SW Naterlin Drive/US 101			Improve pedestrian connections between Yaquina Bay Bridge and downtown Newport through pedestrian wayfinding, marked crossings, and other traffic control measures
CR8	NW 68th Street/US 101			Install an enhanced pedestrian crossing
CR9	Between NW 60th Street and NW 68th Street/US 101			Install an enhanced pedestrian crossing to serve existing transit stops and RV park
CR10	NW 58th/US 101			Install an enhanced pedestrian crossing
CR11	NW 48th/US 101			Install an enhanced pedestrian crossing
CR12	NW 43rd/US 101			Install an enhanced pedestrian crossing
CR13	Best Western Driveway/US 101			Install an enhanced pedestrian crossing
CR14	NE 17th/US 101			Install an enhanced pedestrian crossing
CR15	NW 12th/US 101			Install an enhanced pedestrian crossing
CR16	NW 8th/US 101			Install an enhanced pedestrian crossing
CR17	SW Neff/US 101			Install an enhanced pedestrian crossing
CR18	SW Bay/US 101			Install an enhanced pedestrian crossing
CR19	SE Benton/US 20			Install an enhanced pedestrian crossing
PRO1	Parking Management			Implement additional parking management strategies for the Nye Beach and Bayfront Areas. Strategies could include metering, permits, or other time restrictions
PRO2	Transportationd Demand Management			Implement strategies to enhance transit use in Newport. Specific strategies could include public information, stop enhancements, route refinement, or expanded service hours
PRO3	Neighborhood Traffic Management			Implement a neighborhood traffic calming program
PRO4	Yaquina Bay Ferry Service			Implement a foot ferry for bicyclists and pedestrians across Yaquina Bay

SECTION 3: OPERATIONS RESULTS

2040 SUMMER BASELINE RESULTS

Intersection	
Int Delay, s/veh	25.3

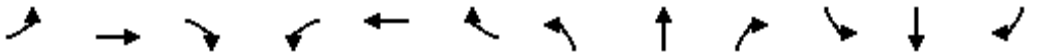
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕		↰	↑	↗	↰	↕	
Traffic Vol, veh/h	1	0	5	95	0	15	5	885	60	20	690	2
Future Vol, veh/h	1	0	5	95	0	15	5	885	60	20	690	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	7	0	0	0	3	38	69	3	0
Mvmt Flow	1	0	5	100	0	16	5	932	63	21	726	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1751	1774	727	1714	1712	932	728	0	0	995	0	0
Stage 1	769	769	-	942	942	-	-	-	-	-	-	-
Stage 2	982	1005	-	772	770	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.17	6.5	6.2	4.1	-	-	4.79	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.17	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.17	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.563	4	3.3	2.2	-	-	2.821	-	-
Pot Cap-1 Maneuver	68	84	427	~ 69	91	326	885	-	-	489	-	-
Stage 1	397	413	-	309	344	-	-	-	-	-	-	-
Stage 2	302	322	-	385	413	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	62	80	427	~ 66	87	326	885	-	-	489	-	-
Mov Cap-2 Maneuver	62	80	-	~ 66	87	-	-	-	-	-	-	-
Stage 1	395	395	-	307	342	-	-	-	-	-	-	-
Stage 2	286	320	-	364	395	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.2	$ 405.2	0	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	885	-	-	216	74	489	-	-
HCM Lane V/C Ratio	0.006	-	-	0.029	1.565	0.043	-	-
HCM Control Delay (s)	9.1	-	-	22.2	$ 405.2	12.7	-	-
HCM Lane LOS	A	-	-	C	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	9.7	0.1	-	-

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



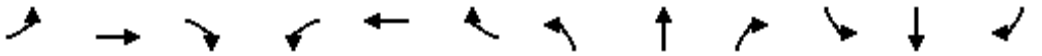
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	90	95	0	15	55	1080	120	30	850	30
Future Volume (veh/h)	35	5	90	95	0	15	55	1080	120	30	850	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		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	1695	1682	1750	1750	1695	1750
Adj Flow Rate, veh/h	37	5	95	100	0	16	58	1137	0	32	895	0
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	4	5	0	0	4	0
Cap, veh/h	55	4	297	59	0	299	79	1123		52	1102	
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.05	0.67	0.00	0.03	0.65	0.00
Sat Flow, veh/h	0	19	1457	0	0	1468	1615	1682	1483	1667	1695	1483
Grp Volume(v), veh/h	42	0	95	100	0	16	58	1137	0	32	895	0
Grp Sat Flow(s),veh/h/ln	19	0	1457	0	0	1468	1615	1682	1483	1667	1695	1483
Q Serve(g_s), s	0.0	0.0	6.8	0.0	0.0	1.1	4.4	82.0	0.0	2.3	48.1	0.0
Cycle Q Clear(g_c), s	24.5	0.0	6.8	24.5	0.0	1.1	4.4	82.0	0.0	2.3	48.1	0.0
Prop In Lane	0.88		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	297	59	0	299	79	1123		52	1102	
V/C Ratio(X)	0.71	0.00	0.32	1.71	0.00	0.05	0.74	1.01		0.62	0.81	
Avail Cap(c_a), veh/h	59	0	297	59	0	299	79	1123		81	1132	
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	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.9	0.0	41.7	61.2	0.0	39.4	57.7	20.4	0.0	58.8	15.9	0.0
Incr Delay (d2), s/veh	31.4	0.0	0.5	379.7	0.0	0.1	28.8	30.0	0.0	8.5	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.5	8.0	0.0	0.4	2.4	35.7	0.0	1.1	17.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.3	0.0	42.1	440.9	0.0	39.4	86.5	50.4	0.0	67.3	21.0	0.0
LnGrp LOS	F	A	D	F	A	D	F	F		E	C	
Approach Vol, veh/h		137			116			1195	A		927	A
Approach Delay, s/veh		56.9			385.5			52.2			22.6	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	83.8		29.0	7.8	86.0		29.0				
Change Period (Y+Rc), s	4.5	6.0		4.5	4.5	6.0		4.5				
Max Green Setting (Gmax), s	5.5	80.0		24.5	5.5	80.0		24.5				
Max Q Clear Time (g_c+I1), s	6.4	50.1		26.5	4.3	84.0		26.5				
Green Ext Time (p_c), s	0.0	13.4		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		57.2
HCM 6th LOS		E

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	90	95	0	15	55	1080	120	30	850	30
Future Volume (vph)	35	5	90	95	0	15	55	1080	120	30	850	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.97	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes		0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1663	1440		1659	1442	1599	1667	1457	1662	1683	1488
Flt Permitted		0.68	1.00		0.73	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1176	1440		1274	1442	1599	1667	1457	1662	1683	1488
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	5	95	100	0	16	58	1137	126	32	895	32
RTOR Reduction (vph)	0	0	83	0	0	14	0	0	19	0	0	9
Lane Group Flow (vph)	0	42	12	0	100	2	58	1137	107	32	895	23
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	4%	5%	0%	0%	4%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Actuated Green, G (s)		13.7	13.7		13.7	13.7	4.4	83.3	83.3	3.2	82.1	82.1
Effective Green, g (s)		14.2	14.2		14.2	14.2	4.9	85.3	85.3	3.7	84.1	84.1
Actuated g/C Ratio		0.12	0.12		0.12	0.12	0.04	0.74	0.74	0.03	0.73	0.73
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.5	4.8	4.8	2.5	4.8	4.8
Lane Grp Cap (vph)		144	177		157	177	68	1234	1078	53	1228	1086
v/s Ratio Prot							c0.04	c0.68		0.02	0.53	
v/s Ratio Perm		0.04	0.01		c0.08	0.00			0.07			0.02
v/c Ratio		0.29	0.07		0.64	0.01	0.85	0.92	0.10	0.60	0.73	0.02
Uniform Delay, d1		45.9	44.6		48.0	44.3	54.8	12.2	4.2	55.0	9.0	4.3
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.8	0.1		7.2	0.0	60.3	11.7	0.1	15.3	2.6	0.0
Delay (s)		46.7	44.8		55.3	44.4	115.1	23.9	4.3	70.3	11.6	4.3
Level of Service		D	D		E	D	F	C	A	E	B	A
Approach Delay (s)		45.4			53.7			26.1			13.3	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	115.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	12.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	60	20	1150	970	55
Future Vol, veh/h	130	60	20	1150	970	55
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	-	300	-	-	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	5	4	4
Mvmt Flow	138	64	21	1223	1032	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2297	1032	1091	0	-	0
Stage 1	1032	-	-	-	-	-
Stage 2	1265	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	~ 43	285	607	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 41	285	607	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	268	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	156.9	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	607	-	180	-	-
HCM Lane V/C Ratio	0.035	-	1.123	-	-
HCM Control Delay (s)	11.1	-	156.9	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	10.2	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	15	1085	40	10	995
Future Vol, veh/h	25	15	1085	40	10	995
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	-	-	125	275	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	31	4	0	0	3
Mvmt Flow	27	16	1154	43	11	1059

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2235	1154	0	0	1197	0
Stage 1	1154	-	-	-	-	-
Stage 2	1081	-	-	-	-	-
Critical Hdwy	6.4	6.51	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.579	-	-	2.2	-
Pot Cap-1 Maneuver	47	210	-	-	590	-
Stage 1	303	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	46	210	-	-	590	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	322	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.5	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	178	590	-
HCM Lane V/C Ratio	-	-	0.239	0.018	-
HCM Control Delay (s)	-	-	31.5	11.2	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

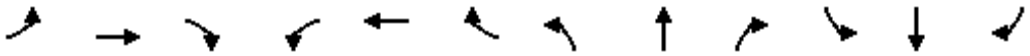
Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	10	1115	90	20	995
Future Vol, veh/h	35	10	1115	90	20	995
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	-	-	50	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	14	5	0	0	3
Mvmt Flow	38	11	1212	98	22	1082

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2338	1212	0	0	1310	0
Stage 1	1212	-	-	-	-	-
Stage 2	1126	-	-	-	-	-
Critical Hdwy	6.4	6.34	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.426	-	-	2.2	-
Pot Cap-1 Maneuver	41	209	-	-	535	-
Stage 1	284	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	39	209	-	-	535	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	284	-	-	-	-	-
Stage 2	300	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.8	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	161	535	-
HCM Lane V/C Ratio	-	-	0.304	0.041	-
HCM Control Delay (s)	-	-	36.8	12	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	55	80	325	30	90	60	1325	115	80	1075	20
Future Volume (vph)	40	55	80	325	30	90	60	1325	115	80	1075	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1694	1405	1564	1495		1630	3162		1614	3218	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1694	1405	1564	1495		1630	3162		1614	3218	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	43	59	86	349	32	97	65	1425	124	86	1156	22
RTOR Reduction (vph)	0	0	78	0	22	0	0	5	0	0	1	0
Lane Group Flow (vph)	0	102	8	244	212	0	65	1544	0	86	1177	0
Confl. Peds. (#/hr)	4		4	4		4	7		2	2		7
Heavy Vehicles (%)	0%	2%	4%	1%	0%	2%	2%	4%	0%	3%	3%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)		10.5	10.5	22.1	22.1		6.7	60.3		8.6	62.2	
Effective Green, g (s)		11.0	11.0	22.6	22.6		7.2	61.3		9.1	63.2	
Actuated g/C Ratio		0.09	0.09	0.19	0.19		0.06	0.51		0.08	0.53	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5		2.5	5.1		2.5	5.1	
Lane Grp Cap (vph)		155	128	294	281		97	1615		122	1694	
v/s Ratio Prot		c0.06		c0.16	0.14		0.04	c0.49		c0.05	0.37	
v/s Ratio Perm			0.01									
v/c Ratio		0.66	0.06	0.83	0.75		0.67	0.96		0.70	0.69	
Uniform Delay, d1		52.7	49.8	46.9	46.1		55.2	28.1		54.1	21.2	
Progression Factor		1.00	1.00	1.00	1.00		1.07	0.58		1.00	1.00	
Incremental Delay, d2		8.7	0.1	17.0	10.4		12.0	11.7		15.8	2.4	
Delay (s)		61.4	49.9	63.9	56.5		70.9	27.9		69.9	23.6	
Level of Service		E	D	E	E		E	C		E	C	
Approach Delay (s)		56.1			60.3			29.6			26.7	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	15	25	30	10	50	10	1500	15	15	1445	25
Future Volume (veh/h)	75	15	25	30	10	50	10	1500	15	15	1445	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1750	1750	1750	1750	1709	1709	1750	1709	1709
Adj Flow Rate, veh/h	79	16	26	32	11	53	11	1579	16	16	1521	26
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	0	0	0	0	0	3	3	0	3	3
Cap, veh/h	147	28	34	84	36	99	24	2525	26	30	2515	43
Arrive On Green	0.11	0.12	0.11	0.11	0.12	0.11	0.03	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	845	245	298	382	315	858	1667	3292	33	1667	3265	56
Grp Volume(v), veh/h	121	0	0	96	0	0	11	778	817	16	755	792
Grp Sat Flow(s),veh/h/ln	1388	0	0	1554	0	0	1667	1624	1702	1667	1624	1697
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	10.3	0.0	0.0	6.9	0.0	0.0	0.8	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.65		0.21	0.33		0.55	1.00		0.02	1.00		0.03
Lane Grp Cap(c), veh/h	204	0	0	213	0	0	24	1245	1305	30	1251	1308
V/C Ratio(X)	0.59	0.00	0.00	0.45	0.00	0.00	0.46	0.62	0.63	0.53	0.60	0.61
Avail Cap(c_a), veh/h	336	0	0	349	0	0	83	1245	1305	83	1251	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.41	0.41	0.41	0.65	0.65	0.65
Uniform Delay (d), s/veh	51.7	0.0	0.0	50.2	0.0	0.0	57.8	0.0	0.0	57.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.1	0.0	0.0	4.1	1.0	0.9	7.0	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0	2.8	0.0	0.0	0.4	0.3	0.3	0.5	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	0.0	51.3	0.0	0.0	61.9	1.0	0.9	64.3	1.4	1.4
LnGrp LOS	D	A	A	D	A	A	E	A	A	E	A	A
Approach Vol, veh/h		121			96			1606			1563	
Approach Delay, s/veh		53.8			51.3			1.4			2.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	96.4		17.8	6.2	96.0		17.8
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	5.5	76.0		24.5	5.5	76.0		24.5
Max Q Clear Time (g_c+I1), s	2.8	2.0		8.9	3.1	2.0		12.3
Green Ext Time (p_c), s	0.0	51.9		0.3	0.0	54.0		0.4

Intersection Summary		
HCM 6th Ctrl Delay		5.0
HCM 6th LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	35	30	75	20	35	35	1445	25	25	1400	30
Future Volume (veh/h)	90	35	30	75	20	35	35	1445	25	25	1400	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1750	1750	1750	1750	1750	1750	1750	1709	1709	1750	1695	1695
Adj Flow Rate, veh/h	100	39	33	83	22	39	39	1606	28	28	1556	33
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	0	0	0	0	0	0	3	3	0	4	4
Cap, veh/h	127	50	42	113	30	53	55	1907	33	41	1855	39
Arrive On Green	0.12	0.13	0.12	0.10	0.12	0.10	0.03	0.58	0.57	0.05	1.00	1.00
Sat Flow, veh/h	954	372	315	932	247	438	1667	3265	57	1667	3225	68
Grp Volume(v), veh/h	172	0	0	144	0	0	39	797	837	28	776	813
Grp Sat Flow(s),veh/h/ln	1641	0	0	1617	0	0	1667	1624	1698	1667	1611	1682
Q Serve(g_s), s	12.2	0.0	0.0	10.4	0.0	0.0	2.8	48.2	48.5	2.0	0.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0	10.4	0.0	0.0	2.8	48.2	48.5	2.0	0.0	0.0
Prop In Lane	0.58		0.19	0.58		0.27	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	219	0	0	195	0	0	55	948	992	41	927	968
V/C Ratio(X)	0.79	0.00	0.00	0.74	0.00	0.00	0.71	0.84	0.84	0.69	0.84	0.84
Avail Cap(c_a), veh/h	219	0	0	216	0	0	83	948	992	83	927	968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.30	0.30	0.30	0.75	0.75	0.75
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	57.4	20.4	20.5	56.6	0.0	0.0
Incr Delay (d2), s/veh	16.5	0.0	0.0	10.5	0.0	0.0	3.7	2.9	2.8	10.9	6.9	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	4.9	0.0	0.0	1.2	17.6	18.6	0.9	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	0.0	0.0	62.3	0.0	0.0	61.1	23.3	23.3	67.6	6.9	6.7
LnGrp LOS	E	A	A	E	A	A	E	C	C	E	A	A
Approach Vol, veh/h		172			144			1673			1617	
Approach Delay, s/veh		67.7			62.3			24.2			7.8	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	73.5		18.5	6.9	74.6		20.0
Change Period (Y+Rc), s	4.5	6.5		6.0	4.5	6.5		6.0
Max Green Setting (Gmax), s	5.5	63.5		14.0	5.5	63.5		14.0
Max Q Clear Time (g_c+I1), s	4.8	2.0		12.4	4.0	50.5		14.2
Green Ext Time (p_c), s	0.0	32.1		0.1	0.0	12.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Future Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1736	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	218	207	37	271	176	298	80	957	0	356	1037	85
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	1	1	7	2	2	0	4	10	4	3	3
Cap, veh/h	250	238	43	276	330	270	106	991		350	1396	114
Arrive On Green	0.15	0.17	0.16	0.17	0.19	0.19	0.06	0.31	0.00	0.07	0.15	0.15
Sat Flow, veh/h	1654	1423	254	1576	1723	1410	1667	3221	1367	1615	3032	248
Grp Volume(v), veh/h	218	0	244	271	176	298	80	957	0	356	555	567
Grp Sat Flow(s),veh/h/ln	1654	0	1678	1576	1723	1410	1667	1611	1367	1615	1624	1657
Q Serve(g_s), s	15.5	0.0	17.0	20.6	11.0	23.0	5.7	35.1	0.0	26.0	39.2	39.3
Cycle Q Clear(g_c), s	15.5	0.0	17.0	20.6	11.0	23.0	5.7	35.1	0.0	26.0	39.2	39.3
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	250	0	281	276	330	270	106	991		350	748	763
V/C Ratio(X)	0.87	0.00	0.87	0.98	0.53	1.10	0.75	0.97		1.02	0.74	0.74
Avail Cap(c_a), veh/h	289	0	294	276	330	270	153	991		350	748	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.43	0.43	0.43
Uniform Delay (d), s/veh	49.8	0.0	48.7	49.3	43.7	48.5	55.2	40.9	0.0	55.7	44.1	44.1
Incr Delay (d2), s/veh	21.2	0.0	22.1	49.2	1.7	85.6	9.5	21.4	0.0	36.0	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	8.9	11.8	4.9	14.5	2.7	16.8	0.0	14.8	17.8	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	0.0	70.8	98.5	45.4	134.1	64.7	62.4	0.0	91.7	47.0	47.0
LnGrp LOS	E	A	E	F	D	F	E	E		F	D	D
Approach Vol, veh/h		462			745			1037	A		1478	
Approach Delay, s/veh		70.9			100.2			62.5			57.8	
Approach LOS		E			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	59.3	22.1	27.0	30.0	40.9	25.0	24.1
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	10.5	50.0	20.5	20.5	25.5	35.0	20.5	20.5
Max Q Clear Time (g_c+I1), s	7.7	41.3	17.5	25.0	28.0	37.1	22.6	19.0
Green Ext Time (p_c), s	0.0	6.6	0.1	0.0	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	69.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

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

Intersection	
Int Delay, s/veh	25.2

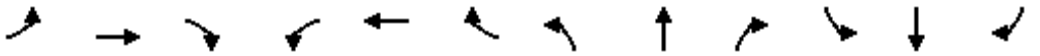
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	15	20	20	10	10	120	10	1080	15	60	1135	55
Future Vol, veh/h	15	20	20	10	10	120	10	1080	15	60	1135	55
Conflicting Peds, #/hr	0	0	17	17	0	0	22	0	11	11	0	22
Sign Control	Stop	Stop	Stop	Stop	Stop	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	14	0	2	0	4	0	4	2	2
Mvmt Flow	16	22	22	11	11	132	11	1187	16	66	1247	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2052	2667	693	2012	2689	613	1329	0	0	1214	0	0
Stage 1	1431	1431	-	1228	1228	-	-	-	-	-	-	-
Stage 2	621	1236	-	784	1461	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.78	6.5	6.94	4.1	-	-	4.18	-	-
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	3.3	3.64	4	3.32	2.2	-	-	2.24	-	-
Pot Cap-1 Maneuver	33	23	390	30	22	435	526	-	-	559	-	-
Stage 1	144	202	-	171	253	-	-	-	-	-	-	-
Stage 2	446	250	-	327	195	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	0	~ 12	376	-	11	430	515	-	-	553	-	-
Mov Cap-2 Maneuver	0	~ 12	-	-	11	-	-	-	-	-	-	-
Stage 1	132	109	-	158	234	-	-	-	-	-	-	-
Stage 2	276	232	-	134	105	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	1092.8		0.5	2.9
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	515	-	-	23	-	553	-	-
HCM Lane V/C Ratio	0.021	-	-	2.628	-	0.119	-	-
HCM Control Delay (s)	12.1	0.4	-	$ 1092.8	-	12.4	2.5	-
HCM Lane LOS	B	A	-	F	-	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	7.6	-	0.4	-	-

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)	40	25	35	70	40	45	20	965	10	45	1080	20
Future Volume (veh/h)	40	25	35	70	40	45	20	965	10	45	1080	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.98	1.00		0.96	1.00		0.94
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	1682	1682	1682	1695	1695	1695	1723	1723	1723
Adj Flow Rate, veh/h	41	26	36	72	41	46	21	995	10	46	1113	21
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	5	5	5	4	4	4	2	2	2
Cap, veh/h	105	67	70	124	62	58	23	1135	12	52	1330	26
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.34	0.35	0.34	0.40	0.41	0.40
Sat Flow, veh/h	441	471	490	564	439	408	66	3279	35	127	3232	64
Grp Volume(v), veh/h	103	0	0	159	0	0	538	0	488	619	0	561
Grp Sat Flow(s),veh/h/ln	1403	0	0	1411	0	0	1692	0	1687	1716	0	1707
Q Serve(g_s), s	0.0	0.0	0.0	5.1	0.0	0.0	36.6	0.0	31.9	39.9	0.0	34.5
Cycle Q Clear(g_c), s	8.0	0.0	0.0	13.1	0.0	0.0	36.6	0.0	31.9	39.9	0.0	34.5
Prop In Lane	0.40		0.35	0.45		0.29	0.04		0.02	0.07		0.04
Lane Grp Cap(c), veh/h	235	0	0	238	0	0	586	0	584	706	0	702
V/C Ratio(X)	0.44	0.00	0.00	0.67	0.00	0.00	0.92	0.00	0.84	0.88	0.00	0.80
Avail Cap(c_a), veh/h	271	0	0	273	0	0	592	0	591	706	0	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.6	0.0	0.0	49.9	0.0	0.0	37.6	0.0	36.1	32.5	0.0	31.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	4.4	0.0	0.0	20.4	0.0	11.5	14.4	0.0	9.2
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	3.0	0.0	0.0	5.0	0.0	0.0	18.4	0.0	15.0	19.3	0.0	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	0.0	0.0	54.3	0.0	0.0	58.0	0.0	47.6	46.9	0.0	40.2
LnGrp LOS	D	A	A	D	A	A	E	A	D	D	A	D
Approach Vol, veh/h		103			159			1026			1180	
Approach Delay, s/veh		48.5			54.3			53.0			43.7	
Approach LOS		D			D			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		53.4		21.1		45.6		21.1				
Change Period (Y+Rc), s		5.0		4.5		5.0		4.5				
Max Green Setting (Gmax), s		45.0		19.5		41.0		19.5				
Max Q Clear Time (g_c+I1), s		41.9		15.1		38.6		10.0				
Green Ext Time (p_c), s		2.6		0.3		2.0		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			48.5									
HCM 6th LOS			D									

Notes

User approved pedestrian interval to be less than phase max green.

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	15	0	60	10	0	30	25	1110	10	10	1195	20
Future Vol, veh/h	15	0	60	10	0	30	25	1110	10	10	1195	20
Conflicting Peds, #/hr	10	0	0	0	0	10	13	0	8	8	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
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	4	3	0	0	2	0
Mvmt Flow	17	0	67	11	0	33	28	1233	11	11	1328	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2057	2682	688	1989	2688	640	1363	0	0	1252	0	0
Stage 1	1374	1374	-	1303	1303	-	-	-	-	-	-	-
Stage 2	683	1308	-	686	1385	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.18	-	-	4.1	-	-
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	3.3	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	33	22	393	37	22	423	490	-	-	563	-	-
Stage 1	156	215	-	173	233	-	-	-	-	-	-	-
Stage 2	410	231	-	408	213	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	19	388	27	19	416	484	-	-	559	-	-
Mov Cap-2 Maneuver	27	19	-	27	19	-	-	-	-	-	-	-
Stage 1	145	196	-	162	218	-	-	-	-	-	-	-
Stage 2	352	216	-	311	194	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	110.6	79	0.3	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	484	-	-	106	90	559	-	-
HCM Lane V/C Ratio	0.057	-	-	0.786	0.494	0.02	-	-
HCM Control Delay (s)	12.9	-	-	110.6	79	11.6	0.4	-
HCM Lane LOS	B	-	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.3	2.1	0.1	-	-

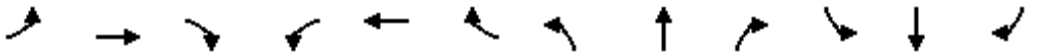
Intersection	
Int Delay, s/veh	17.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Future Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	5	4	4	0	6	0	3	0	0	3
Mvmt Flow	16	732	47	126	658	5	21	5	221	5	11	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	780	0	0	1729	1705	758	1816	1726	663
Stage 1	-	-	-	-	-	-	789	789	-	914	914	-
Stage 2	-	-	-	-	-	-	940	916	-	902	812	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.16	6.5	6.23	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.554	4	3.327	3.5	4	3.327
Pot Cap-1 Maneuver	935	-	-	828	-	-	68	92	405	61	90	459
Stage 1	-	-	-	-	-	-	378	405	-	330	355	-
Stage 2	-	-	-	-	-	-	311	354	-	335	395	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	934	-	-	827	-	-	48	77	404	23	75	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	77	-	23	75	-
Stage 1	-	-	-	-	-	-	371	398	-	324	301	-
Stage 2	-	-	-	-	-	-	231	300	-	147	388	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.6	118.2	55.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	235	934	-	-	827	-	-	126
HCM Lane V/C Ratio	1.053	0.017	-	-	0.153	-	-	0.459
HCM Control Delay (s)	118.2	8.9	-	-	10.1	-	-	55.8
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	10.4	0.1	-	-	0.5	-	-	2.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Future Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1614	1723	1723	1709	1709	1654	1723	1723	1695	1750	1750	1750
Adj Flow Rate, veh/h	65	908	147	82	620	212	136	87	82	190	71	43
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, %	10	2	2	3	3	7	2	2	4	0	0	0
Cap, veh/h	87	1228	199	106	758	622	340	202	529	265	95	49
Arrive On Green	0.06	0.44	0.42	0.06	0.44	0.44	0.36	0.37	0.37	0.36	0.37	0.36
Sat Flow, veh/h	1537	2821	457	1628	1709	1402	749	545	1431	546	256	132
Grp Volume(v), veh/h	65	527	528	82	620	212	223	0	82	304	0	0
Grp Sat Flow(s),veh/h/ln	1537	1637	1641	1628	1709	1402	1294	0	1431	934	0	0
Q Serve(g_s), s	3.9	24.8	24.8	4.6	29.3	9.2	0.0	0.0	3.5	18.5	0.0	0.0
Cycle Q Clear(g_c), s	3.9	24.8	24.8	4.6	29.3	9.2	12.0	0.0	3.5	30.5	0.0	0.0
Prop In Lane	1.00		0.28	1.00		1.00	0.61		1.00	0.62		0.14
Lane Grp Cap(c), veh/h	87	712	714	106	758	622	535	0	529	404	0	0
V/C Ratio(X)	0.74	0.74	0.74	0.78	0.82	0.34	0.42	0.00	0.15	0.75	0.00	0.00
Avail Cap(c_a), veh/h	100	797	799	106	832	683	639	0	635	504	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	42.9	21.7	21.9	42.6	22.5	16.9	22.1	0.0	19.5	32.4	0.0	0.0
Incr Delay (d2), s/veh	21.1	6.0	6.0	28.7	8.8	1.2	0.4	0.0	0.1	4.9	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	2.0	10.2	10.3	2.7	12.9	3.1	3.7	0.0	1.2	7.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	27.8	27.9	71.3	31.3	18.1	22.5	0.0	19.6	37.3	0.0	0.0
LnGrp LOS	E	C	C	E	C	B	C	A	B	D	A	A
Approach Vol, veh/h		1120			914			305			304	
Approach Delay, s/veh		30.0			31.8			21.7			37.3	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	44.2		38.2	9.2	45.0		38.2				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	5.5	44.0		40.5	5.5	44.0		40.5				
Max Q Clear Time (g_c+I1), s	6.6	26.8		32.5	5.9	31.3		14.0				
Green Ext Time (p_c), s	0.0	12.4		1.2	0.0	8.0		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		30.5	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

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	0	0	0	80	0	70	0	110	100	20	90	0
Future Vol, veh/h	0	0	0	80	0	70	0	110	100	20	90	0
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	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	7	0	0	0	0	0	0	2	0
Mvmt Flow	0	0	0	99	0	86	0	136	123	25	111	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	402	421	111	360	360	199	111	0	0	260	0	0
Stage 1	161	161	-	199	199	-	-	-	-	-	-	-
Stage 2	241	260	-	161	161	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.17	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.17	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.17	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.563	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	562	527	948	586	570	847	1492	-	-	1316	-	-
Stage 1	846	769	-	791	740	-	-	-	-	-	-	-
Stage 2	767	697	-	829	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	497	516	948	577	558	846	1492	-	-	1315	-	-
Mov Cap-2 Maneuver	497	516	-	577	558	-	-	-	-	-	-	-
Stage 1	846	754	-	790	739	-	-	-	-	-	-	-
Stage 2	689	696	-	812	754	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	12.3	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1492	-	-	-	678	1315	-	-
HCM Lane V/C Ratio	-	-	-	-	0.273	0.019	-	-
HCM Control Delay (s)	0	-	-	0	12.3	7.8	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	1.1	0.1	-	-

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	30	5	15	25	10	15	100	55	15	60	5
Future Vol, veh/h	5	30	5	15	25	10	15	100	55	15	60	5
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	2	2	0	1
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	38	6	19	31	13	19	125	69	19	75	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	44	0	0	44	0	0	170	135	43	228	132	39
Stage 1	-	-	-	-	-	-	53	53	-	76	76	-
Stage 2	-	-	-	-	-	-	117	82	-	152	56	-
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	1577	-	-	1577	-	-	798	760	1033	731	762	1038
Stage 1	-	-	-	-	-	-	965	855	-	938	836	-
Stage 2	-	-	-	-	-	-	892	831	-	855	852	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1577	-	-	1577	-	-	723	748	1031	586	750	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	723	748	-	586	750	-
Stage 1	-	-	-	-	-	-	961	852	-	934	826	-
Stage 2	-	-	-	-	-	-	796	821	-	677	849	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	2.2	10.9	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	818	1577	-	-	1577	-	-	725
HCM Lane V/C Ratio	0.26	0.004	-	-	0.012	-	-	0.138
HCM Control Delay (s)	10.9	7.3	0	-	7.3	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0	-	-	0	-	-	0.5

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	40	135	25	30	0	125	0	35	0	1	0
Future Vol, veh/h	1	40	135	25	30	0	125	0	35	0	1	0
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, %	0	0	0	0	0	0	1	0	0	0	0	0
Mvmt Flow	1	45	152	28	34	0	140	0	39	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	8.1	8.1	9.3	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	1%	45%	0%
Vol Thru, %	0%	0%	23%	55%	100%
Vol Right, %	0%	100%	77%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	35	176	55	1
LT Vol	125	0	1	25	0
Through Vol	0	0	40	30	1
RT Vol	0	35	135	0	0
Lane Flow Rate	140	39	198	62	1
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.217	0.048	0.219	0.08	0.001
Departure Headway (Hd)	5.569	4.374	3.995	4.672	4.79
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	645	823	902	768	746
Service Time	3.297	2.074	2.009	2.694	2.826
HCM Lane V/C Ratio	0.217	0.047	0.22	0.081	0.001
HCM Control Delay	9.8	7.3	8.1	8.1	7.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.8	0.2	0.8	0.3	0

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	55	10	5	70	20	20	215	15	20	100	70
Future Vol, veh/h	10	55	10	5	70	20	20	215	15	20	100	70
Conflicting Peds, #/hr	4	0	15	15	0	4	2	0	11	11	0	2
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	2	0	0	0	0	6	2	23	0	6	0
Mvmt Flow	11	63	11	6	80	23	23	244	17	23	114	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	107	0	0	89	0	0	309	225	95	340	219	98
Stage 1	-	-	-	-	-	-	106	106	-	108	108	-
Stage 2	-	-	-	-	-	-	203	119	-	232	111	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.16	6.52	6.43	7.1	6.56	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.1	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.1	5.56	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.554	4.018	3.507	3.5	4.054	3.3
Pot Cap-1 Maneuver	1497	-	-	1519	-	-	636	674	907	618	672	963
Stage 1	-	-	-	-	-	-	890	807	-	902	798	-
Stage 2	-	-	-	-	-	-	790	797	-	775	796	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1491	-	-	1497	-	-	492	654	885	420	652	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	492	654	-	420	652	-
Stage 1	-	-	-	-	-	-	870	789	-	891	792	-
Stage 2	-	-	-	-	-	-	617	791	-	515	778	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.4	14.8	12.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	647	1491	-	-	1497	-	-	693
HCM Lane V/C Ratio	0.439	0.008	-	-	0.004	-	-	0.312
HCM Control Delay (s)	14.8	7.4	0	-	7.4	0	-	12.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.2	0	-	-	0	-	-	1.3

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	25	35	15	1	75	45	20	80	10	40	45	15
Future Vol, veh/h	25	35	15	1	75	45	20	80	10	40	45	15
Conflicting Peds, #/hr	23	0	27	27	0	23	8	0	34	34	0	8
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	3	0	4	0	6	0	7
Mvmt Flow	30	42	18	1	90	54	24	96	12	48	54	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	167	0	0	87	0	0	301	307	112	341	289	148
Stage 1	-	-	-	-	-	-	138	138	-	142	142	-
Stage 2	-	-	-	-	-	-	163	169	-	199	147	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.54	6.2	7.16	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.54	-	6.16	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.54	-	6.16	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.036	3.3	3.554	4	3.363
Pot Cap-1 Maneuver	1423	-	-	1522	-	-	655	604	947	605	624	886
Stage 1	-	-	-	-	-	-	870	779	-	851	783	-
Stage 2	-	-	-	-	-	-	844	755	-	794	779	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1392	-	-	1483	-	-	566	562	893	482	581	860
Mov Cap-2 Maneuver	-	-	-	-	-	-	566	562	-	482	581	-
Stage 1	-	-	-	-	-	-	829	742	-	814	765	-
Stage 2	-	-	-	-	-	-	761	738	-	645	742	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	0.1	13	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	582	1392	-	-	1483	-	-	562
HCM Lane V/C Ratio	0.228	0.022	-	-	0.001	-	-	0.214
HCM Control Delay (s)	13	7.6	0	-	7.4	0	-	13.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0	-	-	0.8

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	100	145	160	155	110
Future Vol, veh/h	65	100	145	160	155	110
Conflicting Peds, #/hr	2	9	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	100	-	-	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	0	0	3	3	8
Mvmt Flow	72	111	161	178	172	122

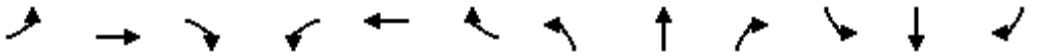
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	674	181	172	0	-	0
Stage 1	172	-	-	-	-	-
Stage 2	502	-	-	-	-	-
Critical Hdwy	6.44	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	417	867	1417	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	369	860	1417	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	3.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1417	-	564	-	-
HCM Lane V/C Ratio	0.114	-	0.325	-	-
HCM Control Delay (s)	7.9	-	14.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.4	-	-

SECTION 3: OPERATIONS RESULTS

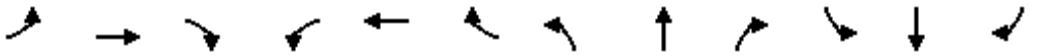
2040 MINOR ROADWAY IMPROVEMENTS RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	5	95	0	15	5	885	60	20	690	2
Future Volume (veh/h)	1	0	5	95	0	15	5	885	60	20	690	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1654	1750	1750	1750	1709	1231	808	1709	1750
Adj Flow Rate, veh/h	1	0	5	100	0	16	5	932	63	21	726	2
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	0	7	0	0	0	3	38	69	3	0
Cap, veh/h	88	15	133	251	0	21	452	1086	663	212	1114	3
Arrive On Green	0.10	0.00	0.10	0.10	0.00	0.10	0.02	0.64	0.64	0.04	0.65	0.62
Sat Flow, veh/h	109	149	1288	1249	0	200	1667	1709	1043	770	1704	5
Grp Volume(v), veh/h	6	0	0	116	0	0	5	932	63	21	0	728
Grp Sat Flow(s),veh/h/ln	1546	0	0	1448	0	0	1667	1709	1043	770	0	1708
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	0.1	24.0	1.3	0.5	0.0	14.1
Cycle Q Clear(g_c), s	0.2	0.0	0.0	4.3	0.0	0.0	0.1	24.0	1.3	0.5	0.0	14.1
Prop In Lane	0.17		0.83	0.86		0.14	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	236	0	0	271	0	0	452	1086	663	212	0	1117
V/C Ratio(X)	0.03	0.00	0.00	0.43	0.00	0.00	0.01	0.86	0.09	0.10	0.00	0.65
Avail Cap(c_a), veh/h	592	0	0	620	0	0	592	1646	1005	263	0	1645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	0.0	24.0	0.0	0.0	5.1	8.0	3.9	9.0	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.0	3.1	0.1	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	1.5	0.0	0.0	0.0	4.1	0.1	0.1	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	0.0	25.1	0.0	0.0	5.1	11.1	3.9	9.2	0.0	6.4
LnGrp LOS	C	A	A	C	A	A	A	B	A	A	A	A
Approach Vol, veh/h		6			116			1000			749	
Approach Delay, s/veh		22.3			25.1			10.6			6.5	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	39.0		9.7	5.4	40.0		9.7				
Change Period (Y+Rc), s	5.0	6.0		4.0	5.0	6.0		4.0				
Max Green Setting (Gmax), s	5.0	51.0		19.0	5.0	51.0		19.0				
Max Q Clear Time (g_c+I1), s	2.5	26.0		2.2	2.1	16.1		6.3				
Green Ext Time (p_c), s	0.0	6.9		0.0	0.0	4.8		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			9.9									
HCM 6th LOS			A									



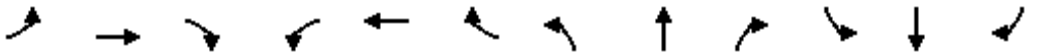
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	75	85	0	15	45	915	130	30	720	25
Future Volume (veh/h)	30	5	75	85	0	15	45	915	130	30	720	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	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	1695	1682	1750	1750	1695	1750
Adj Flow Rate, veh/h	32	5	79	89	0	16	47	963	0	32	758	0
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	4	5	0	0	4	0
Cap, veh/h	60	5	325	64	0	328	65	1072		54	1067	
Arrive On Green	0.22	0.22	0.22	0.22	0.00	0.22	0.04	0.64	0.00	0.03	0.63	0.00
Sat Flow, veh/h	0	22	1458	0	0	1470	1615	1682	1483	1667	1695	1483
Grp Volume(v), veh/h	37	0	79	89	0	16	47	963	0	32	758	0
Grp Sat Flow(s),veh/h/ln	22	0	1458	0	0	1470	1615	1682	1483	1667	1695	1483
Q Serve(g_s), s	0.0	0.0	5.0	0.0	0.0	1.0	3.2	54.5	0.0	2.1	33.6	0.0
Cycle Q Clear(g_c), s	24.5	0.0	5.0	24.5	0.0	1.0	3.2	54.5	0.0	2.1	33.6	0.0
Prop In Lane	0.86		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	0	325	64	0	328	65	1072		54	1067	
V/C Ratio(X)	0.57	0.00	0.24	1.39	0.00	0.05	0.72	0.90		0.59	0.71	
Avail Cap(c_a), veh/h	65	0	325	64	0	328	86	1230		89	1240	
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	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.6	0.0	35.8	55.8	0.0	34.2	53.2	17.3	0.0	53.5	13.9	0.0
Incr Delay (d2), s/veh	9.9	0.0	0.3	244.8	0.0	0.0	15.0	9.3	0.0	7.3	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.8	6.2	0.0	0.4	1.5	20.2	0.0	1.0	11.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.4	0.0	36.0	300.6	0.0	34.2	68.2	26.5	0.0	60.8	16.1	0.0
LnGrp LOS	E	A	D	F	A	C	E	C		E	B	
Approach Vol, veh/h		116			105			1010	A		790	A
Approach Delay, s/veh		44.5			260.0			28.4			17.9	
Approach LOS		D			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	74.6		29.0	7.7	75.4		29.0				
Change Period (Y+Rc), s	4.5	6.0		4.5	4.5	6.0		4.5				
Max Green Setting (Gmax), s	5.5	80.0		24.5	5.5	80.0		24.5				
Max Q Clear Time (g_c+I1), s	5.2	35.6		26.5	4.1	56.5		26.5				
Green Ext Time (p_c), s	0.0	11.9		0.0	0.0	13.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			37.3									
HCM 6th LOS			D									

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	75	85	0	15	45	915	130	30	720	25
Future Volume (vph)	30	5	75	85	0	15	45	915	130	30	720	25
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.97	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes		0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1667	1441		1660	1445	1599	1667	1457	1662	1683	1488
Flt Permitted		0.71	1.00		0.73	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1242	1441		1280	1445	1599	1667	1457	1662	1683	1488
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	5	79	89	0	16	47	963	137	32	758	26
RTOR Reduction (vph)	0	0	70	0	0	14	0	0	27	0	0	8
Lane Group Flow (vph)	0	37	9	0	89	2	47	963	110	32	758	18
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	4%	5%	0%	0%	4%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Actuated Green, G (s)		9.9	9.9		9.9	9.9	4.2	61.3	61.3	2.6	59.7	59.7
Effective Green, g (s)		10.4	10.4		10.4	10.4	4.7	63.3	63.3	3.1	61.7	61.7
Actuated g/C Ratio		0.12	0.12		0.12	0.12	0.05	0.71	0.71	0.03	0.69	0.69
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.5	4.8	4.8	2.5	4.8	4.8
Lane Grp Cap (vph)		145	168		149	169	84	1188	1038	58	1169	1033
v/s Ratio Prot							c0.03	c0.58		0.02	0.45	
v/s Ratio Perm		0.03	0.01		c0.07	0.00			0.08			0.01
v/c Ratio		0.26	0.06		0.60	0.01	0.56	0.81	0.11	0.55	0.65	0.02
Uniform Delay, d1		35.7	34.8		37.2	34.7	41.0	8.7	4.0	42.2	7.5	4.2
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.7	0.1		5.3	0.0	6.3	4.8	0.1	8.8	1.6	0.0
Delay (s)		36.4	34.9		42.5	34.7	47.4	13.5	4.0	51.0	9.2	4.2
Level of Service		D	C		D	C	D	B	A	D	A	A
Approach Delay (s)		35.4			41.3			13.7			10.6	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	60	20	1150	970	55
Future Vol, veh/h	130	60	20	1150	970	55
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	50	300	-	-	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	5	4	4
Mvmt Flow	138	64	21	1223	1032	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2297	1032	1091	0	-	0
Stage 1	1032	-	-	-	-	-
Stage 2	1265	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	~ 43	285	607	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 41	285	607	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	268	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	78.7	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	607	-	154	285	-	-
HCM Lane V/C Ratio	0.035	-	0.898	0.224	-	-
HCM Control Delay (s)	11.1	-	105.3	21.2	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	6.3	0.8	-	-

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)	170	170	25	220	140	250	60	825	205	330	870	70
Future Volume (veh/h)	170	170	25	220	140	250	60	825	205	330	870	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1736	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	181	181	27	234	149	266	64	878	0	351	926	74
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	1	1	7	2	2	0	4	10	4	3	3
Cap, veh/h	217	232	35	265	337	276	88	1086		308	1445	115
Arrive On Green	0.13	0.16	0.15	0.17	0.20	0.20	0.05	0.34	0.00	0.19	0.48	0.47
Sat Flow, veh/h	1654	1467	219	1576	1723	1411	1667	3221	1367	1615	3039	243
Grp Volume(v), veh/h	181	0	208	234	149	266	64	878	0	351	495	505
Grp Sat Flow(s),veh/h/ln	1654	0	1685	1576	1723	1411	1667	1611	1367	1615	1624	1658
Q Serve(g_s), s	11.7	0.0	13.0	16.0	8.4	20.6	4.2	27.3	0.0	21.0	25.3	25.3
Cycle Q Clear(g_c), s	11.7	0.0	13.0	16.0	8.4	20.6	4.2	27.3	0.0	21.0	25.3	25.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	217	0	267	265	337	276	88	1086		308	772	788
V/C Ratio(X)	0.84	0.00	0.78	0.88	0.44	0.96	0.73	0.81		1.14	0.64	0.64
Avail Cap(c_a), veh/h	286	0	322	272	337	276	167	1086		308	772	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.60	0.60	0.60
Uniform Delay (d), s/veh	46.6	0.0	44.5	44.7	39.0	43.9	51.3	33.2	0.0	44.5	21.8	21.8
Incr Delay (d2), s/veh	13.7	0.0	8.9	26.2	0.9	44.4	8.2	6.5	0.0	83.8	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	6.1	8.1	3.6	10.6	1.9	11.6	0.0	15.6	10.1	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	0.0	53.4	70.9	39.9	88.3	59.5	39.7	0.0	128.3	24.2	24.3
LnGrp LOS	E	A	D	E	D	F	E	D		F	C	C
Approach Vol, veh/h		389			649			942	A		1351	
Approach Delay, s/veh		56.6			70.9			41.0			51.3	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	56.3	18.4	25.5	25.0	41.1	22.5	21.4
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	10.5	42.0	18.5	20.5	20.5	32.0	18.5	20.5
Max Q Clear Time (g_c+I1), s	6.2	27.3	13.7	22.6	23.0	29.3	18.0	15.0
Green Ext Time (p_c), s	0.0	9.3	0.2	0.0	0.0	2.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

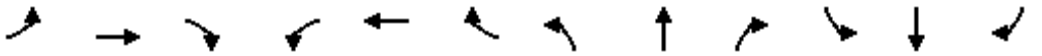
Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
9: US 101 & Olive St/US 20

04/16/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Future Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1695	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	218	207	37	271	176	298	80	957	0	356	1037	85
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	1	4	7	2	2	0	4	10	4	3	3
Cap, veh/h	250	246	44	298	364	299	107	1114		496	1334	109
Arrive On Green	0.15	0.17	0.17	0.19	0.21	0.21	0.02	0.11	0.00	0.05	0.15	0.14
Sat Flow, veh/h	1654	1424	255	1576	1723	1414	1667	3221	1367	3132	3032	248
Grp Volume(v), veh/h	218	0	244	271	176	298	80	957	0	356	555	567
Grp Sat Flow(s),veh/h/ln	1654	0	1678	1576	1723	1414	1667	1611	1367	1566	1624	1657
Q Serve(g_s), s	15.5	0.0	16.9	20.2	10.8	25.3	5.7	35.0	0.0	13.4	39.5	39.6
Cycle Q Clear(g_c), s	15.5	0.0	16.9	20.2	10.8	25.3	5.7	35.0	0.0	13.4	39.5	39.6
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	250	0	291	298	364	299	107	1114		496	714	729
V/C Ratio(X)	0.87	0.00	0.84	0.91	0.48	1.00	0.75	0.86		0.72	0.78	0.78
Avail Cap(c_a), veh/h	317	0	322	302	364	299	111	1114		496	714	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.43	0.43	0.43
Uniform Delay (d), s/veh	49.8	0.0	48.0	47.6	41.6	47.3	57.8	50.3	0.0	54.2	45.6	45.7
Incr Delay (d2), s/veh	17.6	0.0	15.8	29.0	1.0	51.6	22.2	8.7	0.0	3.9	3.6	3.6
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	7.7	0.0	8.4	10.3	4.7	13.2	3.2	16.6	0.0	5.9	18.0	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	63.9	76.6	42.6	98.9	80.0	58.9	0.0	58.1	49.3	49.2
LnGrp LOS	E	A	E	E	D	F	F	E		E	D	D
Approach Vol, veh/h		462			745			1037	A		1478	
Approach Delay, s/veh		65.5			77.5			60.6			51.4	
Approach LOS		E			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	56.8	22.2	29.3	23.0	45.5	26.7	24.8
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	7.5	49.0	22.5	22.5	18.5	38.0	22.5	22.5
Max Q Clear Time (g_c+I1), s	7.7	41.6	17.5	27.3	15.4	37.0	22.2	18.9
Green Ext Time (p_c), s	0.0	5.7	0.2	0.0	0.8	0.8	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

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

MOVEMENT SUMMARY

Site: 101 [US 101/US 20 Summer 2040 Baseline 30 HV]

New Site
Site Category: (None)
Roundabout

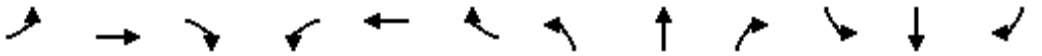
Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: US 101												
3	L2	80	0.0	0.789	27.7	LOS D	8.4	214.6	0.88	1.45	2.12	20.0
8	T1	957	4.0	0.789	26.7	LOS D	8.7	224.0	0.87	1.46	2.12	20.0
18	R2	229	10.0	0.292	7.9	LOS A	1.1	29.0	0.56	0.55	0.56	24.7
Approach		1266	4.8	0.789	23.4	LOS C	8.7	224.0	0.81	1.29	1.84	20.7
East: US 20												
1	L2	271	7.0	0.615	23.4	LOS C	3.2	84.6	0.83	1.07	1.53	21.3
6	T1	176	2.0	0.437	17.9	LOS C	1.9	47.4	0.80	0.92	1.16	23.1
16	R2	298	2.0	0.601	20.6	LOS C	3.4	85.1	0.82	1.04	1.45	21.6
Approach		745	3.8	0.615	21.0	LOS C	3.4	85.1	0.82	1.03	1.41	21.9
North: US 101												
7	L2	356	4.0	0.908	36.7	LOS E	19.7	505.9	1.00	2.10	3.08	19.2
4	T1	1037	3.0	0.908	35.2	LOS E	20.9	534.3	1.00	2.11	3.08	18.5
14	R2	85	3.0	0.908	34.4	LOS D	20.9	534.3	1.00	2.12	3.09	18.3
Approach		1479	3.2	0.908	35.5	LOS E	20.9	534.3	1.00	2.11	3.08	18.7
West: Olive												
5	L2	218	1.0	0.801	54.7	LOS F	4.7	118.3	0.95	1.42	2.25	15.9
2	T1	207	1.0	0.760	43.1	LOS E	4.3	108.9	0.93	1.35	2.07	18.4
12	R2	37	4.0	0.760	43.4	LOS E	4.3	108.9	0.93	1.35	2.07	17.1
Approach		463	1.2	0.801	48.6	LOS E	4.7	118.3	0.94	1.38	2.15	17.0
All Vehicles		3952	3.6	0.908	30.4	LOS D	20.9	534.3	0.90	1.56	2.26	19.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
9: US 101 & Olive St/US 20

04/16/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	255	165	280	75	1105	315	395	915	80
Future Volume (veh/h)	0	0	0	255	165	280	75	1105	315	395	915	80
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h				271	176	298	80	1176	0	420	973	85
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				7	2	2	0	4	10	4	3	3
Cap, veh/h				355	388	319	105	1315		431	1845	161
Arrive On Green				0.22	0.22	0.22	0.13	0.82	0.00	0.09	0.20	0.20
Sat Flow, veh/h				1576	1723	1417	1667	3221	1367	1615	3016	263
Grp Volume(v), veh/h				271	176	298	80	1176	0	420	524	534
Grp Sat Flow(s),veh/h/ln				1576	1723	1417	1667	1611	1367	1615	1624	1656
Q Serve(g_s), s				19.3	10.6	24.8	5.6	29.8	0.0	31.1	34.6	34.6
Cycle Q Clear(g_c), s				19.3	10.6	24.8	5.6	29.8	0.0	31.1	34.6	34.6
Prop In Lane				1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h				355	388	319	105	1315		431	993	1013
V/C Ratio(X)				0.76	0.45	0.93	0.76	0.89		0.98	0.53	0.53
Avail Cap(c_a), veh/h				355	388	319	181	1315		431	993	1013
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)				1.00	1.00	1.00	0.68	0.68	0.00	0.43	0.43	0.43
Uniform Delay (d), s/veh				43.5	40.1	45.6	51.5	9.2	0.0	54.3	32.4	32.4
Incr Delay (d2), s/veh				9.2	0.6	33.6	5.6	6.9	0.0	23.1	0.9	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
%ile BackOfQ(50%),veh/ln				8.4	4.6	20.6	2.4	4.8	0.0	16.3	15.3	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.7	40.8	79.2	57.1	16.1	0.0	77.4	33.3	33.3
LnGrp LOS				D	D	E	E	B		E	C	C
Approach Vol, veh/h					745			1256	A		1478	
Approach Delay, s/veh					60.5			18.7			45.8	
Approach LOS					E			B			D	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	11.6	77.4		31.0	36.0	53.0
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s	12.5	67.0		26.5	31.5	48.0
Max Q Clear Time (g_c+I1), s	7.6	36.6		26.8	33.1	31.8
Green Ext Time (p_c), s	0.0	16.0		0.0	0.0	11.7

Intersection Summary		
HCM 6th Ctrl Delay		39.2
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	115	55	10	10	120	0	1080	15	0	1100	55
Future Volume (veh/h)	320	115	55	10	10	120	0	1080	15	0	1100	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.99	0.97		0.96	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1559	1750	1723	0	1695	1750	0	1723	1723
Adj Flow Rate, veh/h	352	126	60	11	11	132	0	1187	16	0	1209	60
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	14	0	2	0	4	0	0	2	2
Cap, veh/h	486	407	194	39	21	166	0	1849	25	0	1802	89
Arrive On Green	0.20	0.36	0.36	0.13	0.13	0.13	0.00	1.00	1.00	0.00	1.00	1.00
Sat Flow, veh/h	1667	1115	531	50	156	1239	0	3339	44	0	3256	157
Grp Volume(v), veh/h	352	0	186	154	0	0	0	587	616	0	624	645
Grp Sat Flow(s),veh/h/ln	1667	0	1646	1445	0	0	0	1611	1687	0	1637	1691
Q Serve(g_s), s	20.9	0.0	9.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	9.7	12.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.32	0.07		0.86	0.00		0.03	0.00		0.09
Lane Grp Cap(c), veh/h	486	0	601	226	0	0	0	915	959	0	930	961
V/C Ratio(X)	0.72	0.00	0.31	0.68	0.00	0.00	0.00	0.64	0.64	0.00	0.67	0.67
Avail Cap(c_a), veh/h	587	0	741	260	0	0	0	915	959	0	930	961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.88	0.88	0.00	0.77	0.77
Uniform Delay (d), s/veh	32.3	0.0	27.3	50.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.3	5.8	0.0	0.0	0.0	3.0	2.9	0.0	3.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.0	3.9	4.9	0.0	0.0	0.0	0.8	0.8	0.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	27.6	56.1	0.0	0.0	0.0	3.0	2.9	0.0	3.0	2.9
LnGrp LOS	D	A	C	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		538			154			1203			1269	
Approach Delay, s/veh		33.0			56.1			3.0			2.9	
Approach LOS		C			E			A			A	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	72.2	47.8	72.2	27.7	20.1
Change Period (Y+Rc), s	5.0	4.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	57.0	54.0	57.0	31.0	19.0
Max Q Clear Time (g_c+I1), s	2.0	11.7	2.0	22.9	14.3
Green Ext Time (p_c), s	12.1	1.3	13.3	0.7	0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	25	35	70	40	45	30	955	10	45	1080	20
Future Volume (veh/h)	40	25	35	70	40	45	30	955	10	45	1080	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.98	1.00		0.96
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	1641	1750	1750	1709	1682	1750	1750	1695	1750	1750	1723	1750
Adj Flow Rate, veh/h	41	26	36	72	41	46	31	985	10	46	1113	21
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, %	8	0	0	3	5	0	0	4	0	0	2	0
Cap, veh/h	106	68	71	125	64	59	69	2325	24	58	2315	44
Arrive On Green	0.14	0.15	0.14	0.14	0.15	0.14	0.04	0.71	0.70	0.07	1.00	1.00
Sat Flow, veh/h	445	470	492	564	442	410	1667	3266	33	1667	3283	62
Grp Volume(v), veh/h	103	0	0	159	0	0	31	486	509	46	555	579
Grp Sat Flow(s),veh/h/ln	1406	0	0	1416	0	0	1667	1611	1689	1667	1637	1708
Q Serve(g_s), s	0.0	0.0	0.0	5.1	0.0	0.0	2.2	14.9	14.9	3.3	0.0	0.0
Cycle Q Clear(g_c), s	8.0	0.0	0.0	13.0	0.0	0.0	2.2	14.9	14.9	3.3	0.0	0.0
Prop In Lane	0.40		0.35	0.45		0.29	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	240	0	0	243	0	0	69	1147	1202	58	1154	1204
V/C Ratio(X)	0.43	0.00	0.00	0.65	0.00	0.00	0.45	0.42	0.42	0.79	0.48	0.48
Avail Cap(c_a), veh/h	405	0	0	402	0	0	69	1147	1202	139	1154	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.68	0.68	0.68
Uniform Delay (d), s/veh	47.2	0.0	0.0	49.5	0.0	0.0	56.1	7.1	7.1	55.4	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	2.2	0.0	0.0	11.3	1.1	1.1	28.8	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	4.8	0.0	0.0	1.1	5.2	5.4	1.8	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	0.0	51.7	0.0	0.0	67.5	8.3	8.2	84.2	1.0	0.9
LnGrp LOS	D	A	A	D	A	A	E	A	A	F	A	A
Approach Vol, veh/h		103			159			1026			1180	
Approach Delay, s/veh		48.1			51.7			10.0			4.2	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	88.6		21.4	9.2	89.4		21.4
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5
Max Green Setting (Gmax), s	5.0	70.0		30.5	10.0	65.0		30.5
Max Q Clear Time (g_c+I1), s	4.2	2.0		15.0	5.3	16.9		10.0
Green Ext Time (p_c), s	0.0	25.0		0.6	0.1	20.2		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	600	105	120	625	5	20	5	305	5	10	40
Future Vol, veh/h	15	600	105	120	625	5	20	5	305	5	10	40
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	0	100	-	-	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	5	4	4	0	6	0	3	0	0	3
Mvmt Flow	16	632	111	126	658	5	21	5	321	5	11	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	744	0	0	1605	1581	634	1798	1690	663
Stage 1	-	-	-	-	-	-	665	665	-	914	914	-
Stage 2	-	-	-	-	-	-	940	916	-	884	776	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.16	6.5	6.23	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.554	4	3.327	3.5	4	3.327
Pot Cap-1 Maneuver	935	-	-	855	-	-	83	110	477	63	94	459
Stage 1	-	-	-	-	-	-	443	461	-	330	355	-
Stage 2	-	-	-	-	-	-	311	354	-	343	410	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	934	-	-	854	-	-	59	92	476	17	79	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	59	92	-	17	79	-
Stage 1	-	-	-	-	-	-	435	453	-	324	302	-
Stage 2	-	-	-	-	-	-	232	301	-	108	403	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.6	32	71.6
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	64	476	934	-	-	854	-	-	108
HCM Lane V/C Ratio	0.411	0.674	0.017	-	-	0.148	-	-	0.536
HCM Control Delay (s)	96	26.8	8.9	-	-	9.9	-	-	71.6
HCM Lane LOS	F	D	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.6	5	0.1	-	-	0.5	-	-	2.5

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	120	0	1080	15	0	1135	55
Future Vol, veh/h	0	0	20	0	0	120	0	1080	15	0	1135	55
Conflicting Peds, #/hr	0	0	17	17	0	0	22	0	11	11	0	22
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
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	14	0	2	0	4	0	4	2	2
Mvmt Flow	0	0	22	0	0	132	0	1187	16	0	1247	60

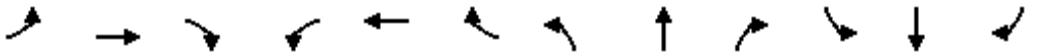
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	693	-	-	613	1329	0	0	1214	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.94	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.32	2.2	-	-	2.24	-	-
Pot Cap-1 Maneuver	0	0	390	0	0	435	526	-	-	559	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	376	-	-	430	515	-	-	553	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	17	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	515	-	-	376	430	553	-	-
HCM Lane V/C Ratio	-	-	-	0.058	0.307	-	-	-
HCM Control Delay (s)	0	-	-	15.2	17	0	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.3	0	-	-

HCM 6th Signalized Intersection Summary
11: US 101 & Hurbert St

07/30/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	25	35	80	50	45	30	965	10	45	1080	20
Future Volume (veh/h)	40	25	35	80	50	45	30	965	10	45	1080	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.98	1.00		0.96
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	1641	1750	1750	1709	1682	1750	1750	1695	1750	1750	1723	1750
Adj Flow Rate, veh/h	41	26	36	82	52	46	31	995	10	46	1113	21
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, %	8	0	0	3	5	0	0	4	0	0	2	0
Cap, veh/h	111	71	75	134	74	56	69	2288	23	58	2277	43
Arrive On Green	0.15	0.16	0.15	0.15	0.16	0.15	0.04	0.70	0.69	0.07	1.00	1.00
Sat Flow, veh/h	439	453	479	579	473	361	1667	3266	33	1667	3283	62
Grp Volume(v), veh/h	103	0	0	180	0	0	31	491	514	46	555	579
Grp Sat Flow(s),veh/h/ln	1371	0	0	1412	0	0	1667	1611	1689	1667	1637	1708
Q Serve(g_s), s	0.0	0.0	0.0	6.9	0.0	0.0	2.2	15.7	15.7	3.3	0.0	0.0
Cycle Q Clear(g_c), s	8.0	0.0	0.0	14.9	0.0	0.0	2.2	15.7	15.7	3.3	0.0	0.0
Prop In Lane	0.40		0.35	0.46		0.26	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	251	0	0	259	0	0	69	1128	1183	58	1135	1185
V/C Ratio(X)	0.41	0.00	0.00	0.70	0.00	0.00	0.45	0.43	0.43	0.79	0.49	0.49
Avail Cap(c_a), veh/h	398	0	0	403	0	0	69	1128	1183	139	1135	1185
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	0.0	0.0	49.1	0.0	0.0	56.1	7.7	7.7	55.4	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	2.5	0.0	0.0	11.3	1.2	1.2	39.1	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	5.5	0.0	0.0	1.1	5.5	5.8	2.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	0.0	0.0	51.6	0.0	0.0	67.5	9.0	8.9	94.5	1.5	1.4
LnGrp LOS	D	A	A	D	A	A	E	A	A	F	A	A
Approach Vol, veh/h		103			180			1036			1180	
Approach Delay, s/veh		46.8			51.6			10.7			5.1	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	87.2		22.8	9.2	88.1		22.8				
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5				
Max Green Setting (Gmax), s	5.0	70.0		30.5	10.0	65.0		30.5				
Max Q Clear Time (g_c+I1), s	4.2	2.0		16.9	5.3	17.7		10.0				
Green Ext Time (p_c), s	0.0	25.0		0.7	0.1	20.3		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		12.5	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.

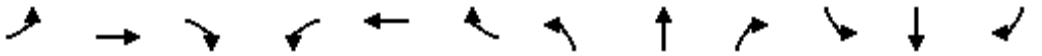
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Future Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	0	100	-	-	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	5	4	4	0	6	0	3	0	0	3
Mvmt Flow	16	732	47	126	658	5	21	5	221	5	11	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	780	0	0	1705	1681	734	1816	1726	663
Stage 1	-	-	-	-	-	-	765	765	-	914	914	-
Stage 2	-	-	-	-	-	-	940	916	-	902	812	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.16	6.5	6.23	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.554	4	3.327	3.5	4	3.327
Pot Cap-1 Maneuver	935	-	-	828	-	-	71	96	418	61	90	459
Stage 1	-	-	-	-	-	-	390	415	-	330	355	-
Stage 2	-	-	-	-	-	-	311	354	-	335	395	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	934	-	-	827	-	-	50	80	417	24	75	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	80	-	24	75	-
Stage 1	-	-	-	-	-	-	383	408	-	324	301	-
Stage 2	-	-	-	-	-	-	231	300	-	153	388	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.6	33.7	54.5
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	54	417	934	-	-	827	-	-	128
HCM Lane V/C Ratio	0.487	0.53	0.017	-	-	0.153	-	-	0.452
HCM Control Delay (s)	123.4	23	8.9	-	-	10.1	-	-	54.5
HCM Lane LOS	F	C	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.9	3	0.1	-	-	0.5	-	-	2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Future Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		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	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	65	908	147	82	620	212	136	87	82	190	71	43
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, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	88	1396	226	112	866	711	377	233	219	327	291	176
Arrive On Green	0.06	0.50	0.48	0.07	0.51	0.51	0.28	0.29	0.29	0.28	0.29	0.28
Sat Flow, veh/h	1537	2821	457	1628	1709	1402	1270	813	767	1221	1017	616
Grp Volume(v), veh/h	65	527	528	82	620	212	136	0	169	190	0	114
Grp Sat Flow(s),veh/h/ln	1537	1637	1641	1628	1709	1402	1270	0	1580	1221	0	1633
Q Serve(g_s), s	3.3	19.2	19.3	4.0	22.5	7.0	7.4	0.0	6.8	11.9	0.0	4.3
Cycle Q Clear(g_c), s	3.3	19.2	19.3	4.0	22.5	7.0	11.7	0.0	6.8	18.7	0.0	4.3
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.49	1.00		0.38
Lane Grp Cap(c), veh/h	88	810	812	112	866	711	377	0	452	327	0	467
V/C Ratio(X)	0.74	0.65	0.65	0.73	0.72	0.30	0.36	0.00	0.37	0.58	0.00	0.24
Avail Cap(c_a), veh/h	154	1002	1004	224	1110	911	521	0	631	466	0	652
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	1.00
Uniform Delay (d), s/veh	37.1	15.1	15.2	36.5	15.3	11.5	26.9	0.0	22.9	30.8	0.0	22.0
Incr Delay (d2), s/veh	8.6	3.4	3.4	6.6	4.3	0.9	0.4	0.0	0.4	1.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.2	7.3	1.7	8.9	2.2	2.3	0.0	2.5	3.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	18.5	18.6	43.1	19.6	12.4	27.3	0.0	23.2	32.4	0.0	22.3
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1120			914			305			304	
Approach Delay, s/veh		20.1			20.0			25.0			28.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	43.6		26.9	8.6	44.6		26.9				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	48.0		31.5	7.5	51.0		31.5				
Max Q Clear Time (g_c+I1), s	6.0	21.3		20.7	5.3	24.5		13.7				
Green Ext Time (p_c), s	0.0	17.4		1.0	0.0	13.3		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		21.6	
HCM 6th LOS		C	

Notes

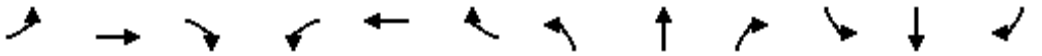
User approved pedestrian interval to be less than phase max green.

SECTION 3: OPERATIONS RESULTS

2040 US 101 AND US 20 COUPLETS RESULTS

HCM 6th Signalized Intersection Summary
9: US 101 & Olive St/US 20

04/16/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	300	35	295	125	605	70	1000	55	380	855	70
Future Volume (veh/h)	280	300	35	295	125	605	70	1000	55	380	855	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1695	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	298	319	37	314	133	644	74	1064	0	404	910	74
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	1	4	7	2	2	0	4	10	4	3	3
Cap, veh/h	289	291	34	276	330	270	99	913		350	1336	109
Arrive On Green	0.17	0.19	0.19	0.17	0.19	0.19	0.06	0.28	0.00	0.43	0.88	0.86
Sat Flow, veh/h	1654	1521	176	1576	1723	1410	1667	3221	1367	1615	3034	247
Grp Volume(v), veh/h	298	0	356	314	133	644	74	1064	0	404	487	497
Grp Sat Flow(s),veh/h/ln	1654	0	1697	1576	1723	1410	1667	1611	1367	1615	1624	1657
Q Serve(g_s), s	21.0	0.0	23.0	21.0	8.1	23.0	5.2	34.0	0.0	26.0	10.7	10.9
Cycle Q Clear(g_c), s	21.0	0.0	23.0	21.0	8.1	23.0	5.2	34.0	0.0	26.0	10.7	10.9
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	289	0	325	276	330	270	99	913		350	715	730
V/C Ratio(X)	1.03	0.00	1.09	1.14	0.40	2.38	0.74	1.17		1.15	0.68	0.68
Avail Cap(c_a), veh/h	289	0	325	276	330	270	153	913		350	715	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.45	0.45	0.45
Uniform Delay (d), s/veh	49.5	0.0	48.5	49.5	42.5	48.5	55.5	43.0	0.0	34.0	4.6	4.8
Incr Delay (d2), s/veh	60.8	0.0	77.6	96.9	0.6	633.9	7.9	86.6	0.0	84.0	2.4	2.3
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	13.6	0.0	16.8	15.6	3.5	55.7	2.4	24.5	0.0	16.5	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	110.3	0.0	126.2	146.4	43.1	682.4	63.5	129.6	0.0	118.0	7.0	7.1
LnGrp LOS	F	A	F	F	D	F	E	F		F	A	A
Approach Vol, veh/h		654			1091			1138	A		1388	
Approach Delay, s/veh		118.9			450.2			125.3			39.3	
Approach LOS		F			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	56.8	25.0	27.0	30.0	38.0	25.0	27.0
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	10.5	48.0	20.5	22.5	25.5	33.0	20.5	22.5
Max Q Clear Time (g_c+I1), s	7.2	12.9	23.0	25.0	28.0	36.0	23.0	25.0
Green Ext Time (p_c), s	0.0	15.8	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	179.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

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

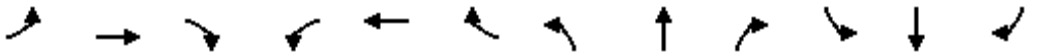
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	1025	0	0	0	0	1145	45
Future Vol, veh/h	0	0	20	0	0	1025	0	0	0	0	1145	45
Conflicting Peds, #/hr	0	0	17	17	0	0	22	0	11	11	0	22
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	16979	-	-	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	14	0	2	0	4	0	4	2	2
Mvmt Flow	0	0	22	0	0	1126	0	0	0	0	1258	49

Major/Minor	Minor2					Major2		
Conflicting Flow All	1305	1305	693			-	-	0
Stage 1	1305	1305	-			-	-	-
Stage 2	0	0	-			-	-	-
Critical Hdwy	6.8	6.5	6.9			-	-	-
Critical Hdwy Stg 1	5.8	5.5	-			-	-	-
Critical Hdwy Stg 2	-	-	-			-	-	-
Follow-up Hdwy	3.5	4	3.3			-	-	-
Pot Cap-1 Maneuver	154	162	390			0	-	-
Stage 1	222	232	-			0	-	-
Stage 2	-	-	-			0	-	-
Platoon blocked, %							-	-
Mov Cap-1 Maneuver	148	0	382			-	-	-
Mov Cap-2 Maneuver	148	0	-			-	-	-
Stage 1	217	0	-			-	-	-
Stage 2	-	0	-			-	-	-

Approach	EB	SB
HCM Control Delay, s	15	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	382	-	-
HCM Lane V/C Ratio	0.058	-	-
HCM Control Delay (s)	15	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	30	50	70	60	0	0	0	0	45	1085	20
Future Volume (veh/h)	0	30	50	70	60	0	0	0	0	45	1085	20
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.98		1.00				1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1750	1750	1709	1682	0				1750	1723	1750
Adj Flow Rate, veh/h	0	31	52	72	62	0				46	1119	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	3	5	0				0	2	0
Cap, veh/h	0	89	149	126	94	0				99	2521	50
Arrive On Green	0.00	0.15	0.15	0.15	0.15	0.00				0.77	0.78	0.77
Sat Flow, veh/h	0	579	972	522	610	0				127	3234	64
Grp Volume(v), veh/h	0	0	83	134	0	0				622	0	564
Grp Sat Flow(s),veh/h/ln	0	0	1552	1132	0	0				1716	0	1708
Q Serve(g_s), s	0.0	0.0	5.8	8.9	0.0	0.0				15.1	0.0	13.0
Cycle Q Clear(g_c), s	0.0	0.0	5.8	14.7	0.0	0.0				15.1	0.0	13.0
Prop In Lane	0.00		0.63	0.54		0.00				0.07		0.04
Lane Grp Cap(c), veh/h	0	0	239	215	0	0				1338	0	1332
V/C Ratio(X)	0.00	0.00	0.35	0.62	0.00	0.00				0.47	0.00	0.42
Avail Cap(c_a), veh/h	0	0	401	365	0	0				1338	0	1332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	45.5	50.4	0.0	0.0				4.6	0.0	4.4
Incr Delay (d2), s/veh	0.0	0.0	0.6	2.2	0.0	0.0				1.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.3	4.1	0.0	0.0				5.0	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	46.2	52.6	0.0	0.0				5.8	0.0	5.3
LnGrp LOS	A	A	D	D	A	A				A	A	A
Approach Vol, veh/h		83			134						1186	
Approach Delay, s/veh		46.2			52.6						5.6	
Approach LOS		D			D						A	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		97.5		22.5				22.5				
Change Period (Y+Rc), s		5.0		4.5				4.5				
Max Green Setting (Gmax), s		80.0		30.5				30.5				
Max Q Clear Time (g_c+I1), s		17.1		16.7				7.8				
Green Ext Time (p_c), s		26.3		0.5				0.3				

Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	18.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	110	10	0	35	50	1120	10	10	1130	35
Future Vol, veh/h	25	0	110	10	0	35	50	1120	10	10	1130	35
Conflicting Peds, #/hr	10	0	0	0	0	10	13	0	8	8	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
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	4	3	0	0	2	0
Mvmt Flow	28	0	122	11	0	39	56	1244	11	11	1256	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2055	2686	661	2020	2700	646	1308	0	0	1263	0	0
Stage 1	1311	1311	-	1370	1370	-	-	-	-	-	-	-
Stage 2	744	1375	-	650	1330	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.18	-	-	4.1	-	-
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	3.3	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	33	22	410	35	22	419	514	-	-	557	-	-
Stage 1	171	231	-	157	216	-	-	-	-	-	-	-
Stage 2	377	215	-	429	226	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 25	18	405	21	18	412	508	-	-	553	-	-
Mov Cap-2 Maneuver	~ 25	18	-	21	18	-	-	-	-	-	-	-
Stage 1	150	212	-	139	191	-	-	-	-	-	-	-
Stage 2	301	190	-	278	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 306.6	106.3	0.5	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	508	-	-	106	80	553	-	-
HCM Lane V/C Ratio	0.109	-	-	1.415	0.625	0.02	-	-
HCM Control Delay (s)	13	-	-	$ 306.6	106.3	11.6	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	10.7	2.8	0.1	-	-

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

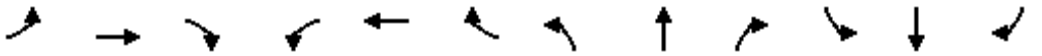
Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	645	75	0	0	0	0	25	325	5	95	0
Future Vol, veh/h	15	645	75	0	0	0	0	25	325	5	95	0
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
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	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	5	4	4	0	6	0	3	0	0	3
Mvmt Flow	16	679	79	0	0	0	0	26	342	5	100	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	1	0	0	-	753	381	387	792	-
Stage 1	-	-	-	-	752	-	1	1	-
Stage 2	-	-	-	-	1	-	386	791	-
Critical Hdwy	4.1	-	-	-	6.5	6.96	7.5	6.5	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	-	4	3.33	3.5	4	-
Pot Cap-1 Maneuver	1635	-	-	0	341	614	551	324	0
Stage 1	-	-	-	0	421	-	-	-	0
Stage 2	-	-	-	0	-	-	614	404	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	1633	-	-	-	335	613	226	318	-
Mov Cap-2 Maneuver	-	-	-	-	335	-	226	318	-
Stage 1	-	-	-	-	413	-	-	-	-
Stage 2	-	-	-	-	-	-	250	397	-

Approach	EB	NB	SB
HCM Control Delay, s	0.2	21.5	22.3
HCM LOS		C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1
Capacity (veh/h)	579	1633	-	-	312
HCM Lane V/C Ratio	0.636	0.01	-	-	0.337
HCM Control Delay (s)	21.5	7.2	0.1	-	22.3
HCM Lane LOS	C	A	A	-	C
HCM 95th %tile Q(veh)	4.5	0	-	-	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	875	205	75	750	15	180	50	70	155	65	40
Future Volume (veh/h)	60	875	205	75	750	15	180	50	70	155	65	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	65	951	223	82	815	16	196	54	76	168	71	43
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, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	87	1324	310	110	879	721	338	76	447	149	56	27
Arrive On Green	0.06	0.50	0.49	0.07	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1537	2632	616	1628	1709	1402	882	243	1430	298	179	86
Grp Volume(v), veh/h	65	591	583	82	815	16	250	0	76	282	0	0
Grp Sat Flow(s),veh/h/ln	1537	1637	1612	1628	1709	1402	1125	0	1430	562	0	0
Q Serve(g_s), s	4.3	28.8	29.0	5.1	45.4	0.6	0.0	0.0	4.0	11.2	0.0	0.0
Cycle Q Clear(g_c), s	4.3	28.8	29.0	5.1	45.4	0.6	20.3	0.0	4.0	31.5	0.0	0.0
Prop In Lane	1.00		0.38	1.00		1.00	0.78		1.00	0.60		0.15
Lane Grp Cap(c), veh/h	87	823	811	110	879	721	408	0	447	229	0	0
V/C Ratio(X)	0.75	0.72	0.72	0.75	0.93	0.02	0.61	0.00	0.17	1.23	0.00	0.00
Avail Cap(c_a), veh/h	90	823	811	175	901	739	408	0	447	229	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	47.6	19.8	20.0	46.9	23.1	12.2	31.4	0.0	25.6	44.6	0.0	0.0
Incr Delay (d2), s/veh	26.8	4.8	5.0	7.3	16.8	0.0	2.4	0.0	0.1	136.7	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	2.3	11.5	11.5	2.3	21.1	0.2	5.8	0.0	1.4	14.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.4	24.6	25.0	54.2	39.9	12.3	33.8	0.0	25.7	181.3	0.0	0.0
LnGrp LOS	E	C	C	D	D	B	C	A	C	F	A	A
Approach Vol, veh/h		1239			913			326			282	
Approach Delay, s/veh		27.4			40.7			31.9			181.3	
Approach LOS		C			D			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	55.6		36.0	9.8	56.7		36.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	48.0		31.5	5.5	53.0		31.5				
Max Q Clear Time (g_c+I1), s	7.1	31.0		33.5	6.3	47.4		22.3				
Green Ext Time (p_c), s	0.0	13.3		0.0	0.0	4.3		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		48.0	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	19.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Future Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Conflicting Peds, #/hr	4	0	15	15	0	4	2	0	11	11	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	2	0	0	0	0	6	2	23	0	6	0
Mvmt Flow	11	63	0	0	80	68	57	1494	28	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	907	1649	-	-	1635	776	2	0	0
Stage 1	2	2	-	-	1633	-	-	-	-
Stage 2	905	1647	-	-	2	-	-	-	-
Critical Hdwy	7.5	6.54	-	-	6.5	6.9	4.22	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.02	-	-	4	3.3	2.26	-	-
Pot Cap-1 Maneuver	234	98	0	0	102	345	1590	-	-
Stage 1	-	-	0	0	161	-	-	-	-
Stage 2	302	155	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	74	-	-	~ 77	341	1587	-	-
Mov Cap-2 Maneuver	-	74	-	-	~ 77	-	-	-	-
Stage 1	-	-	-	-	121	-	-	-	-
Stage 2	63	117	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		226	1
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	1587	-	-	-	120
HCM Lane V/C Ratio	0.036	-	-	-	1.231
HCM Control Delay (s)	7.4	0.8	-	-	226
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	9.4

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

Intersection	
Int Delay, s/veh	27.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	40	0	0	5	190	20	1105	15	0	0	0
Future Vol, veh/h	75	40	0	0	5	190	20	1105	15	0	0	0
Conflicting Peds, #/hr	23	0	27	27	0	23	8	0	34	34	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
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	3	0	4	0	6	0	7
Mvmt Flow	90	48	0	0	6	229	24	1331	18	0	0	0

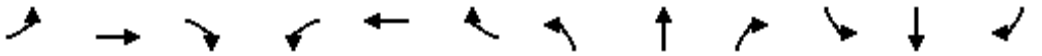
Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	748	1439	-	-	1430	732	8	0	0
Stage 1	8	8	-	-	1422	-	-	-	-
Stage 2	740	1431	-	-	8	-	-	-	-
Critical Hdwy	7.5	6.5	-	-	6.5	6.96	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	-	-	4	3.33	2.2	-	-
Pot Cap-1 Maneuver	305	134	0	0	136	361	1625	-	-
Stage 1	-	-	0	0	204	-	-	-	-
Stage 2	379	202	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	96	121	-	-	123	349	1613	-	-
Mov Cap-2 Maneuver	96	121	-	-	123	-	-	-	-
Stage 1	-	-	-	-	186	-	-	-	-
Stage 2	119	184	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	282.5	38	0.3
HCM LOS	F	E	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	1613	-	-	103	333
HCM Lane V/C Ratio	0.015	-	-	1.345	0.706
HCM Control Delay (s)	7.3	0.2	-	282.5	38
HCM Lane LOS	A	A	-	F	E
HCM 95th %tile Q(veh)	0	-	-	9.8	5.1

HCM 6th Signalized Intersection Summary
9: US 101 & Olive St/US 20

04/16/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	300	35	295	125	605	70	1000	55	380	855	70
Future Volume (veh/h)	280	300	35	295	125	605	70	1000	55	380	855	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.94	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1695	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	298	319	37	314	133	644	74	1064	0	404	910	74
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	1	4	7	2	2	0	4	10	4	3	3
Cap, veh/h	276	342	40	357	301	1000	99	966		363	1412	115
Arrive On Green	0.17	0.22	0.22	0.12	0.17	0.17	0.06	0.30	0.00	0.45	0.93	0.91
Sat Flow, veh/h	1654	1522	176	3057	1723	2408	1667	3221	1367	1615	3034	247
Grp Volume(v), veh/h	298	0	356	314	133	644	74	1064	0	404	487	497
Grp Sat Flow(s),veh/h/ln	1654	0	1698	1528	1723	1204	1667	1611	1367	1615	1624	1657
Q Serve(g_s), s	20.0	0.0	24.7	12.1	8.3	21.0	5.2	36.0	0.0	27.0	6.2	6.4
Cycle Q Clear(g_c), s	20.0	0.0	24.7	12.1	8.3	21.0	5.2	36.0	0.0	27.0	6.2	6.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	276	0	382	357	301	1000	99	966		363	756	771
V/C Ratio(X)	1.08	0.00	0.93	0.88	0.44	0.64	0.74	1.10		1.11	0.64	0.64
Avail Cap(c_a), veh/h	276	0	382	357	301	1000	153	966		363	756	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.45	0.45	0.45
Uniform Delay (d), s/veh	50.0	0.0	45.6	52.2	44.3	29.5	55.5	42.0	0.0	33.0	2.4	2.5
Incr Delay (d2), s/veh	77.5	0.0	29.2	21.3	0.8	1.3	7.9	60.7	0.0	67.1	1.9	1.9
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	14.2	0.0	13.5	5.7	3.6	7.8	2.4	22.4	0.0	15.3	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	127.5	0.0	74.8	73.5	45.0	30.8	63.5	102.7	0.0	100.1	4.4	4.4
LnGrp LOS	F	A	E	E	D	C	E	F		F	A	A
Approach Vol, veh/h		654			1091			1138	A		1388	
Approach Delay, s/veh		98.8			44.8			100.1			32.2	
Approach LOS		F			D			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	59.8	24.0	25.0	31.0	40.0	18.0	31.0
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	10.5	51.0	19.5	20.5	26.5	35.0	13.5	26.5
Max Q Clear Time (g_c+I1), s	7.2	8.4	22.0	23.0	29.0	38.0	14.1	26.7
Green Ext Time (p_c), s	0.0	17.2	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	63.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

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

Intersection	
Int Delay, s/veh	6.8

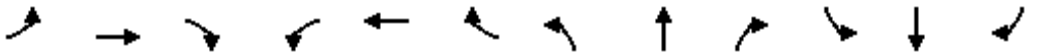
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	110	10	0	35	50	1120	10	10	1130	35
Future Vol, veh/h	25	0	110	10	0	35	50	1120	10	10	1130	35
Conflicting Peds, #/hr	10	0	0	0	0	10	13	0	8	8	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	50	-	-	-	-	-
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	4	3	0	0	2	0
Mvmt Flow	28	0	122	11	0	39	56	1244	11	11	1256	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2055	2686	661	2020	2700	646	1308	0	0	1263	0	0
Stage 1	1311	1311	-	1370	1370	-	-	-	-	-	-	-
Stage 2	744	1375	-	650	1330	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.18	-	-	4.1	-	-
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	3.3	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	33	22	410	35	22	419	514	-	-	557	-	-
Stage 1	171	231	-	157	216	-	-	-	-	-	-	-
Stage 2	377	215	-	429	226	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 25	18	405	21	18	412	508	-	-	553	-	-
Mov Cap-2 Maneuver	~ 25	18	-	21	18	-	-	-	-	-	-	-
Stage 1	150	212	-	139	191	-	-	-	-	-	-	-
Stage 2	301	190	-	278	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	96.6	77.7	0.5	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	508	-	-	25	405	21	412	553	-	-
HCM Lane V/C Ratio	0.109	-	-	1.111	0.302	0.529	0.094	0.02	-	-
HCM Control Delay (s)	13	-	-	$ 443.5	17.7	298.6	14.6	11.6	-	-
HCM Lane LOS	B	-	-	F	C	F	B	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	3.4	1.3	1.5	0.3	0.1	-	-

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)	60	875	205	75	750	15	180	50	70	155	65	40
Future Volume (veh/h)	60	875	205	75	750	15	180	50	70	155	65	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	65	951	223	82	815	16	196	54	76	168	71	43
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, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	88	1379	323	112	1745	34	340	167	236	323	264	160
Arrive On Green	0.06	0.52	0.51	0.07	0.54	0.54	0.25	0.26	0.26	0.25	0.26	0.25
Sat Flow, veh/h	1537	2632	616	1628	3257	64	1273	645	908	1265	1018	617
Grp Volume(v), veh/h	65	591	583	82	406	425	196	0	130	168	0	114
Grp Sat Flow(s),veh/h/ln	1537	1637	1612	1628	1624	1698	1273	0	1553	1265	0	1635
Q Serve(g_s), s	3.4	21.9	22.1	4.0	12.6	12.6	11.9	0.0	5.5	10.2	0.0	4.5
Cycle Q Clear(g_c), s	3.4	21.9	22.1	4.0	12.6	12.6	16.4	0.0	5.5	15.7	0.0	4.5
Prop In Lane	1.00		0.38	1.00		0.04	1.00		0.58	1.00		0.38
Lane Grp Cap(c), veh/h	88	858	845	112	870	909	340	0	403	323	0	424
V/C Ratio(X)	0.74	0.69	0.69	0.73	0.47	0.47	0.58	0.00	0.32	0.52	0.00	0.27
Avail Cap(c_a), veh/h	189	985	970	220	997	1042	510	0	610	492	0	642
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	1.00
Uniform Delay (d), s/veh	37.8	14.4	14.6	37.2	11.7	11.7	31.0	0.0	24.4	31.1	0.0	24.1
Incr Delay (d2), s/veh	8.6	3.9	4.0	6.6	1.5	1.4	1.1	0.0	0.3	1.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.2	8.2	1.8	4.5	4.7	3.7	0.0	2.0	3.2	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	18.3	18.6	43.8	13.2	13.1	32.1	0.0	24.7	32.4	0.0	24.4
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1239			913			326			282	
Approach Delay, s/veh		19.9			15.9			29.2			29.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	46.7		25.1	8.7	47.6		25.1				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	48.0		31.5	9.5	49.0		31.5				
Max Q Clear Time (g_c+I1), s	6.0	24.1		17.7	5.4	14.6		18.4				
Green Ext Time (p_c), s	0.0	17.6		1.0	0.0	15.5		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		20.6	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

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	10	55	0	0	70	60	50	1315	25	0	0	0
Future Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Conflicting Peds, #/hr	4	0	15	15	0	4	2	0	11	11	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	2	0	0	0	0	6	2	23	0	6	0
Mvmt Flow	11	63	0	0	80	68	57	1494	28	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	907	1649	-	-	1635	776	2	0	0
Stage 1	2	2	-	-	1633	-	-	-	-
Stage 2	905	1647	-	-	2	-	-	-	-
Critical Hdwy	7.5	6.54	-	-	6.5	6.9	4.22	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.02	-	-	4	3.3	2.26	-	-
Pot Cap-1 Maneuver	234	98	0	0	102	345	1590	-	-
Stage 1	-	-	0	0	161	-	-	-	-
Stage 2	302	155	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	74	-	-	~ 77	341	1587	-	-
Mov Cap-2 Maneuver	-	74	-	-	~ 77	-	-	-	-
Stage 1	-	-	-	-	121	-	-	-	-
Stage 2	63	117	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		119.8	1
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2
Capacity (veh/h)	1587	-	-	-	74	77	341
HCM Lane V/C Ratio	0.036	-	-	-	0.845	1.033	0.2
HCM Control Delay (s)	7.4	0.8	-	-	159.1	206.8	18.2
HCM Lane LOS	A	A	-	-	F	F	C
HCM 95th %tile Q(veh)	0.1	-	-	-	4.2	5.6	0.7

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

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	40	0	0	5	190	20	1105	15	0	0	0
Future Vol, veh/h	75	40	0	0	5	190	20	1105	15	0	0	0
Conflicting Peds, #/hr	23	0	27	27	0	23	8	0	34	34	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
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	3	0	4	0	6	0	7
Mvmt Flow	90	48	0	0	6	229	24	1331	18	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	748	1439	-	-	1430	732	8	0	0
Stage 1	8	8	-	-	1422	-	-	-	-
Stage 2	740	1431	-	-	8	-	-	-	-
Critical Hdwy	7.5	6.5	-	-	6.5	6.96	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	-	-	4	3.33	2.2	-	-
Pot Cap-1 Maneuver	305	134	0	0	136	361	1625	-	-
Stage 1	-	-	0	0	204	-	-	-	-
Stage 2	379	202	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	96	121	-	-	123	349	1613	-	-
Mov Cap-2 Maneuver	96	121	-	-	123	-	-	-	-
Stage 1	-	-	-	-	186	-	-	-	-
Stage 2	119	184	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	120.2	33.1	0.3
HCM LOS	F	D	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2
Capacity (veh/h)	1613	-	-	96	121	123	349
HCM Lane V/C Ratio	0.015	-	-	0.941	0.398	0.049	0.656
HCM Control Delay (s)	7.3	0.2	-	156	53.2	35.8	33
HCM Lane LOS	A	A	-	F	F	E	D
HCM 95th %tile Q(veh)	0	-	-	5.5	1.7	0.2	4.4

SECTION 3: OPERATIONS RESULTS

2040 HARNEY STREET EXTENSION RESULTS

Intersection	
Int Delay, s/veh	3.8

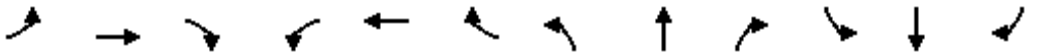
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	50	1100	40	10	975
Future Vol, veh/h	75	50	1100	40	10	975
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	125	275	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	31	4	0	0	3
Mvmt Flow	80	53	1170	43	11	1037

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2229	1170	0	0	1213	0
Stage 1	1170	-	-	-	-	-
Stage 2	1059	-	-	-	-	-
Critical Hdwy	6.4	6.51	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.579	-	-	2.2	-
Pot Cap-1 Maneuver	~ 48	205	-	-	582	-
Stage 1	298	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 47	205	-	-	582	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	298	-	-	-	-	-
Stage 2	330	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	68.5	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	178	582	-
HCM Lane V/C Ratio	-	-	0.747	0.018	-
HCM Control Delay (s)	-	-	68.5	11.3	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	4.8	0.1	-

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)	60	760	145	65	495	290	130	75	70	300	100	40
Future Volume (veh/h)	60	760	145	65	495	290	130	75	70	300	100	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	65	826	158	71	538	315	141	82	76	326	109	43
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, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	87	960	184	95	602	494	447	247	679	401	114	45
Arrive On Green	0.06	0.35	0.34	0.06	0.35	0.35	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1537	2741	524	1628	1709	1402	822	520	1432	721	241	95
Grp Volume(v), veh/h	65	493	491	71	538	315	223	0	76	478	0	0
Grp Sat Flow(s),veh/h/ln	1537	1637	1628	1628	1709	1402	1342	0	1432	1058	0	0
Q Serve(g_s), s	4.3	28.8	28.8	4.4	30.5	19.3	0.0	0.0	3.0	35.5	0.0	0.0
Cycle Q Clear(g_c), s	4.3	28.8	28.8	4.4	30.5	19.3	10.5	0.0	3.0	46.0	0.0	0.0
Prop In Lane	1.00		0.32	1.00		1.00	0.63		1.00	0.68		0.09
Lane Grp Cap(c), veh/h	87	573	570	95	602	494	687	0	679	556	0	0
V/C Ratio(X)	0.75	0.86	0.86	0.75	0.89	0.64	0.32	0.00	0.11	0.86	0.00	0.00
Avail Cap(c_a), veh/h	90	590	587	95	616	505	692	0	684	560	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	47.7	31.0	31.2	47.6	31.4	27.8	17.0	0.0	15.0	31.6	0.0	0.0
Incr Delay (d2), s/veh	26.9	14.8	14.8	26.0	17.6	5.4	0.2	0.0	0.1	12.8	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	2.3	13.4	13.4	2.5	15.2	7.1	3.4	0.0	1.0	13.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.6	45.8	46.0	73.6	49.0	33.2	17.2	0.0	15.0	44.4	0.0	0.0
LnGrp LOS	E	D	D	E	D	C	B	A	B	D	A	A
Approach Vol, veh/h		1049			924			299			478	
Approach Delay, s/veh		47.7			45.5			16.6			44.4	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	40.0		52.7	9.8	40.2		52.7				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	5.5	36.0		48.5	5.5	36.0		48.5				
Max Q Clear Time (g_c+I1), s	6.4	30.8		48.0	6.3	32.5		12.5				
Green Ext Time (p_c), s	0.0	4.2		0.2	0.0	2.5		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		43.0	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	25.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	40	265	30	30	5	310	155	35	5	15	5
Future Vol, veh/h	5	40	265	30	30	5	310	155	35	5	15	5
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, %	0	0	0	0	0	0	1	0	0	0	0	0
Mvmt Flow	6	45	298	34	34	6	348	174	39	6	17	6
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	13.8	10.3	36.3	9.5
HCM LOS	B	B	E	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	67%	0%	2%	46%	20%
Vol Thru, %	33%	0%	13%	46%	60%
Vol Right, %	0%	100%	85%	8%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	465	35	310	65	25
LT Vol	310	0	5	30	5
Through Vol	155	0	40	30	15
RT Vol	0	35	265	5	5
Lane Flow Rate	522	39	348	73	28
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.883	0.055	0.511	0.128	0.048
Departure Headway (Hd)	6.087	5.025	5.281	6.329	6.113
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	596	713	679	564	583
Service Time	3.817	2.754	3.336	4.399	4.177
HCM Lane V/C Ratio	0.876	0.055	0.513	0.129	0.048
HCM Control Delay	38.4	8	13.8	10.3	9.5
HCM Lane LOS	E	A	B	B	A
HCM 95th-tile Q	10.3	0.2	2.9	0.4	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	75	50	1100	40	10	975	
Future Volume (veh/h)	75	50	1100	40	10	975	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1750	1327	1695	1750	1750	1709	
Adj Flow Rate, veh/h	80	53	1170	43	11	1037	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	0	31	4	0	0	3	
Cap, veh/h	98	65	1257	1099	191	1383	
Arrive On Green	0.10	0.10	0.74	0.74	0.02	0.81	
Sat Flow, veh/h	949	629	1695	1483	1667	1709	
Grp Volume(v), veh/h	134	0	1170	43	11	1037	
Grp Sat Flow(s),veh/h/ln	1589	0	1695	1483	1667	1709	
Q Serve(g_s), s	7.6	0.0	52.8	0.7	0.1	27.0	
Cycle Q Clear(g_c), s	7.6	0.0	52.8	0.7	0.1	27.0	
Prop In Lane	0.60	0.40		1.00	1.00		
Lane Grp Cap(c), veh/h	164	0	1257	1099	191	1383	
V/C Ratio(X)	0.82	0.00	0.93	0.04	0.06	0.75	
Avail Cap(c_a), veh/h	347	0	1518	1327	260	1716	
HCM Platoon Ratio	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	
Uniform Delay (d), s/veh	40.2	0.0	9.9	3.2	19.1	4.2	
Incr Delay (d2), s/veh	9.4	0.0	9.5	0.0	0.1	1.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	3.3	0.0	14.7	0.1	0.1	4.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	49.6	0.0	19.4	3.2	19.2	5.7	
LnGrp LOS	D	A	B	A	B	A	
Approach Vol, veh/h	134		1213			1048	
Approach Delay, s/veh	49.6		18.8			5.8	
Approach LOS	D		B			A	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.2	71.9				78.1	13.5
Change Period (Y+Rc), s	5.0	6.0				6.0	4.0
Max Green Setting (Gmax), s	5.0	80.0				90.0	20.0
Max Q Clear Time (g_c+I1), s	2.1	54.8				29.0	9.6
Green Ext Time (p_c), s	0.0	11.2				10.6	0.2

Intersection Summary		
HCM 6th Ctrl Delay	14.8	
HCM 6th LOS	B	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	760	145	65	495	290	130	75	70	300	100	40
Future Volume (veh/h)	60	760	145	65	495	290	130	75	70	300	100	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	65	826	158	71	538	315	141	82	76	326	109	43
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, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	88	1175	225	97	738	605	456	305	283	449	443	175
Arrive On Green	0.06	0.43	0.42	0.06	0.43	0.43	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1537	2741	524	1628	1709	1402	1229	821	761	1235	1192	470
Grp Volume(v), veh/h	65	493	491	71	538	315	141	0	158	326	0	152
Grp Sat Flow(s),veh/h/ln	1537	1637	1628	1628	1709	1402	1229	0	1582	1235	0	1662
Q Serve(g_s), s	3.6	21.2	21.2	3.7	22.4	14.1	7.8	0.0	6.0	21.7	0.0	5.4
Cycle Q Clear(g_c), s	3.6	21.2	21.2	3.7	22.4	14.1	13.2	0.0	6.0	27.7	0.0	5.4
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.48	1.00		0.28
Lane Grp Cap(c), veh/h	88	702	698	97	738	605	456	0	588	449	0	617
V/C Ratio(X)	0.74	0.70	0.70	0.73	0.73	0.52	0.31	0.00	0.27	0.73	0.00	0.25
Avail Cap(c_a), veh/h	125	820	815	133	856	702	600	0	774	594	0	813
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	1.00
Uniform Delay (d), s/veh	39.9	20.1	20.2	39.7	20.2	17.9	23.6	0.0	18.8	28.9	0.0	18.7
Incr Delay (d2), s/veh	10.4	5.1	5.1	10.0	5.5	2.7	0.3	0.0	0.2	3.0	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	1.6	8.6	8.6	1.7	9.5	4.8	2.3	0.0	2.2	6.6	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	25.1	25.3	49.7	25.8	20.5	23.9	0.0	19.0	31.9	0.0	18.9
LnGrp LOS	D	C	C	D	C	C	C	A	B	C	A	B
Approach Vol, veh/h		1049			924			299			478	
Approach Delay, s/veh		26.8			25.8			21.3			27.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	40.8		35.9	8.9	41.1		35.9
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	6.5	42.0		41.5	6.5	42.0		41.5
Max Q Clear Time (g_c+I1), s	5.7	23.2		29.7	5.6	24.4		15.2
Green Ext Time (p_c), s	0.0	12.6		1.7	0.0	10.0		1.2

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.