

MaineDOT Traffic Signal System Engineering Worksheet

Corridor Name: Example Corridor

List of Intersections:

List each signalized intersection within the corridor.

Operating Environment

Is the system of signals located in a single or multiple jurisdictions?

☒ Single ☐ Multiple

If Multiple, is the signal timing parameters consistent?

☒ Yes ☐ No

Is there an existing agreement to define the signal timing parameters?

☒ Yes ☐ No

Is the system located in :

☒ Rural ☐ Suburban ☐ Urban

What is the Roadway Classification:

☒ Highway Interchange ☐ Arterial ☐ Collector ☐ Local Street

Specific Roadway Needs:

List unique details related to the corridor, such as railroad crossings, emergency vehicle access, evacuation routes, atypical vehicle trip generators, etc.

Movement Priorities

Are there particular movements or combination of movements that have heavier volumes ?

-

What are the notable time of day traffic patterns?

-

Are there any notable peak intervals of traffic?

-

Is traffic considered predictable?

☒ Yes ☐ No

Are there any notable intersection geometry restrictions or considerations?

List any closely spaced intersections or intersections with restrictive movements.

Is there a notable crash history at any of the intersections or within the system?

List any high crash locations or other notable safety concerns within the corridor.

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Objective Prioritization

Priority	Description	Recommended Performance Measures
Vehicle, Pedestrian, and Bicycle Safety		
1	<i>Minimize vehicle collisions, reduce vehicle conflicts, and provide sufficient time for vehicles to execute movements.</i>	<i>Total Crashes, Estimated Yearly Crash Value, Percent Injury, Critical Rate Factor</i>
Vehicle Mobility - Capacity		
6	<i>Serve vehicle movements as efficiently as possible, while also distributing capacity as fairly as possible.</i>	<i>Volume to Capacity Ratio, Exiting Volume, Force-Off/Max Out Frequency, Approach Density</i>
Vehicle Mobility - Corridor Progression		
3	<i>Move vehicles along high-priority paths as efficiently as possible.</i>	<i>Travel Time, Priority Movement Detector Occupancy, Estimated Arrivals on Green, Force-Off/Max Out Frequency</i>
Vehicle Mobility - Secondary Progression		
2	<i>Move vehicles along all paths as efficiently and equably as possible.</i>	<i>Priority Movement Detector Occupancy, Estimated Arrivals on Green, Force-Off/Max Out Frequency, Estimated Delay</i>
Environmental Impact and Driver Costs		
7	<i>Minimize stops and total delay to reduce vehicle operating costs and pollution.</i>	<i>Travel Time, Estimated Delay, Estimated Stops, Estimated Stop Bar Speed</i>
Queue Length Management		
4	<i>Prevent formation of excessive queues on critical lane groups.</i>	<i>Force-Off/Max Out Frequency, Estimated Queue, Estimated Delay, Approach Density</i>
Pedestrian Mobility		
8	<i>Serve pedestrian movements as efficiently as possible.</i>	<i>Estimated Pedestrian Delay, Pedestrian Phase Service Count, Force-Off/Max Out Frequency, Time Between Pedestrian Phases</i>
Bicycle Mobility		
9	<i>Serve bicycle movements as efficiently as possible.</i>	<i>Estimated Bicycle Delay, Bicycle Phase Service Count, Force-Off/Max Out Frequency, Bike Box Clearance Extension Frequency</i>
Transit and Freight Mobility		
5	<i>Reduce vehicle conflicts, provide sufficient time for vehicles to execute movements, serve vehicles as efficiently as possible.</i>	<i>Travel Time, Approach Density, TSP Request Frequency, Estimated Transit Approach Occupancy Time</i>

Notes:

Describe the process that was done to determine the Priority ranking and what were the key factors.

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System Verification Plan

How will the Traffic Signal System be designed, based on the Operating Environment, Movement Priorities, and Objective Prioritization?

Equipment and Geometric Design:

List the key equipment and software that will be installed/utilized to meet the specific roadway needs or determined priorities.

Signal Timings and Coordination:

Describe how the signal timing and controller configuration will meet the determined priorities.

Advanced Signal Systems, Preferential Treatment, and Special Conditions:

Describe how the signal timing and controller configuration will address the specific roadway needs.

System Validation Plan

What Performance Measures will be used and how will they be evaluated, based on the Operating Environment, Movement Priorities, Objective Prioritization, and System Verification Plan?

Selected Performance Measures:

List critical signal performance measures

Data Source:

List the source for each signal performance measure

Testing Plan:

Describe the plan for deploying the signal timings, adjusting to field conditions, and then monitoring the performance of the intersection. Set goals and requirements for proactive operations of the signal to validate that the specific roadway needs and determined priorities are being met.